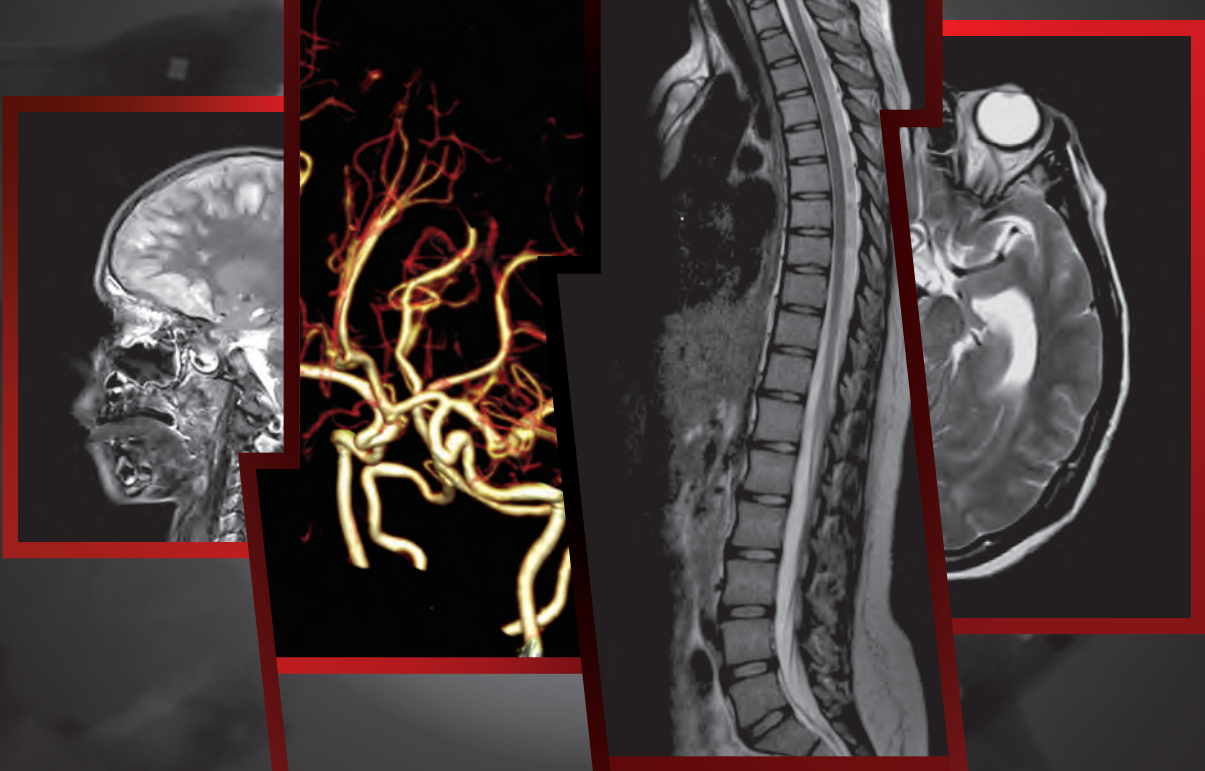




**KIMS**

# Scientific Proceedings



KIMS Group Publication

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- ACHSI (Australian Council on Healthcare Standards International)  
KIMS got ACHSI accreditation in the year 2006 for demonstrating continuous improvements in patient safety and delivery of quality healthcare that is at par with international standards.
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## Scientific Proceedings

Issue Ten

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### **Editorial**

We welcome you to the 10<sup>th</sup> edition of KIMS Scientific Proceedings. In this issue, we have included scientific articles from other units of KIMS Healthcare Group alongwith contributions from KIMS Trivandrum. There are case reports from Respiratory Medicine, Paediatrics, Radiodiagnosis and Pathology departments of KIMS Trivandrum. There are contributions from KIMS Cancer Center, KIMS Alshifa and Royal Bahrain Hospital.

Our Review article section gives a detailed understanding of the most modern processes in Transfusion medicine and an enlightening article on Stroke. In the Research study segment, we are pleased to present a prize winning study by students of KIMS Nursing college guided by eminent faculty.

A new feature included is a speciality focussed section “Kaleidoscope” which comprises capsules of unique and rare cases in Orthopaedics reported at our centres in Kollam, Kottayam and Perinthalmanna.

Academic activities in the last three months include CMEs, workshops, webcasting and participation in national and international conferences by KIMS doctors. Our case presentations have appeared in national journals. Clinicians from Respiratory, Paediatrics, Surgical Gastroenterology and Neurology have won accolades for case reporting, poster and Quiz competitions at national and international scientific venues. Dr Sindhu R S, Dept of Surgical Gastroenterology secured best paper award at the Annual conference of Indian association of surgical gastroenterology, New Delhi. Hearty congratulations to all winners and participants.

The year has also been eventful since KIMS has received the Quality beyond Accreditation Award for this year. The award is for achieving

clinical excellence and enhancing systems and process beyond accreditation requirements.

KIMS has always been a pioneer in healthcare improvement. The various case presentations in this issue, we hope satisfies and stimulates scientific students and also encourages them to come out with even better products.

We thank all the contributors and their respective departments for their support in bringing out this issue. We invite more works from our group colleagues. Kindly give your criticism and opinion.

The Editorial Board

Chief Editor speaks...

### **Resistance to Change**

Few would counter the adage that the most consistent thing in life is change. Likewise its corollary resistance to change is also rampant. Unfortunately the latter manifests at times in vituperative expressions. This narrative has its focus on one such lamentable example.

In the eighties I was privileged to be a faculty member of one of the government medical colleges and during that period the concept of music in the operation theatre was gaining global acceptance. I was toying with the idea of its implementation in the college I was working.

When I discussed the issue with my post-graduates, their enthusiasm was contagious and the drive to accomplish something breathlessly new, excited all of us. A day on which we had scheduled a cystectomy and construction of neo-bladder, a time consuming and taxing procedure, was chosen for our musical venture. One of the post-graduates graciously procured a small and cute battery operated record player capable of housing a single cassette and generating music. Its trial run, the previous evening was blemishless. The cassette chosen was a sitar recital by Pandit Ravisankar who rode the crest of the musical ferment of the time. We also took particular care to keep the assigned anesthetist, a winsome young lady, in the loop to pre-empt any last minute hassle.

On the appointed day everything proceeded with symphonic precision till the unsolicited visit of the dysphoric chairman of the division of anesthesia to the theater and he scarcely troubled to disguise his intentions of subverting the whole enterprise. "Where is the damn thing hidden?", he demanded to know the exact disposition of the record player issuing forth sublime ragas. Since

no answer was forthcoming he embarked on his own reconnaissance and located the record player with ease. He gleefully lifted the fragile instrument and threw it on to the floor splintering it to smithereens. After this sordid and unsavory act he stood there with considerable schadenfreude waiting for our response.

I did not respond to him for many valid reasons. Principally at that point of time I was engaged in performing a delicate surgery which required exquisite elegance and care. I did not want to dent my composure through a verbal duel with an adversary far less endowed with fine tastes and an insufferable prig on all accounts. My studied silence further kindled his indignation and finally he left the theatre suite in a huff muttering inanities.

The story I have woven here in all its excruciating details happened about three decades ago. The intrusion of music into the operation theatre is now widely accepted and has become entrenched. It shows that the advance of decency has been steady and heartening.

Prof. K Sasidharan



## **Contributions for KIMS Proceedings**

All faculty members of Kerala Institute of Medical Sciences in India and abroad are invited to contribute to this medical journal. Since nursing service also play a crucial role in the healthcare delivery, they are also encouraged to contribute. We welcome purely medical articles either original or already published elsewhere, case reports, CPU reports and interesting topics of discussion. Materials from our sister concerns and invited guests will be entertained.

### **Instructions to Authors**

- Original articles: Reports of original Clinical Research. The text should be limited to 1500 words with an abstract, maximum 3 tables and 15 references.
- Case reports: Reports of interesting clinical cases. The text should be limited to 2 tables and 10 references.
- Review articles: Evidence based reviews of topics relevant to practicing doctors. It should not be a personal interpretation of the topic but a critical evaluation of the topic with current evidence included. The text should be limited to 250 words with 5 tables or figures and 25 references.
- Articles require the full name of Author/Authors, Abstract, Keywords, Introduction, Case report, References and also Name of Corresponding Author, Designation with active email id.
- All abbreviations should be expanded at first use.
- References and Images to be marked at appropriate places in the text.
- Images used in article has to be good quality. Images also to be attached as (tiff/jpeg) alongwith article.

For contributions mail to:

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## An unusual presentation of anterior mediastinal mass with lung infiltrates

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Department of Critical Care Medicine

### Abstract

A 20 year old gentleman was referred from Tamilnadu as a case of anterior mediastinal mass with bilateral pleural effusion. On evaluation here with biopsy, the anterior mediastinal mass was found to be thymoma. Patient was hypoxic and clinically deteriorating despite being managed with broad spectrum antibiotics for the possible pulmonary infection. A possibility of non infective etiology was considered and patient was started on systemic steroids to which he showed dramatic response both clinically and radiologically. Vats lung biopsy was done later which on histopathological examination (HPE) revealed organizing pneumonia. This patient had organizing pneumonia secondary to thymoma. Once the patient was clinically stable, steroids were stopped and thymectomy was done. But post thymectomy phase, patient had relapse of pleural effusion and breathlessness. Hence, he was restarted on steroids to which again he responded dramatically. The thymectomy specimen on examination revealed infiltration of surface capsule of the tumor and part of pericardium, which may be the reason for non-resolution of op following thymectomy. This is a case of organizing pneumonia secondary to thymoma, not resolving post thymectomy. This patient is being planned for radiotherapy by the oncologist.

**Keywords:** Anterior mediastinal mass, Diffuse parenchymal infiltrates

### Introduction

Organizing pneumonia (op) is clinicopathologic syndrome characterized by a “pneumonia-like” illness, with excessive proliferation of granulation tissue inside the alveolar spaces associated with chronic inflammation in the surrounding alveoli. It includes

1. Cryptogenic Organizing Pneumonia (COP)
2. Secondary organizing Pneumonia.

Cryptogenic organizing pneumonia - reserved for isolated organizing pneumonia in patients without an identifiable associated disease. Secondary organizing pneumonia is caused due to various infective and non-infective causes, lymphoreticular malignancy is one among them.

### Case presentation

22y old gentleman had complaints of chronic cough with mucoid expectoration, dyspnoea on exertion, weight loss and intermittent fever since 3 months. His dyspnoea on exertion was progressive, he had significant weight loss of 21kgs over 3 months. For these complaints he was managed elsewhere with multiple courses of i.v and oral antibiotics to which he didn't respond. He was evaluated with CT chest and pleural fluid aspiration and it revealed an anterior mediastinal mass and right sided pleural effusion. pleural fluid analysis revealed lymphocyte predominant pleural effusion with low adenosine deaminase levels. He was initiated on anti-tubercular drugs and was referred here. On arrival here, patient was hypoxic and clinical examination revealed fine crepitation in b/l lung fields & radiological examination revealed right sided pleural effusion with b/l non homogenous infiltrates (Fig. 1)

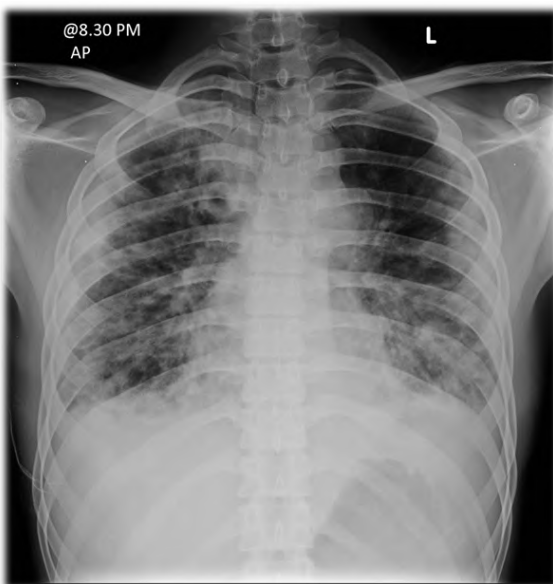


Fig.1: Chest x ray PA view showing bilateral non homogeneous infiltrates & blunting of bilateral cardiophrenic angle.

His total count was elevated (16,500) and CRP was elevated (136 mg/L). His liver and renal function tests were within normal limits. Ct chest (fig 2 &3) showed large well defined enhancing soft tissue density mass lesion measuring approximately 6 \* 2.7cm in prevascular space occupying the entire superior mediastinum; patchy areas of consolidation, patchy areas of peribronchial interstitial thickening, b/l pleural effusion. ATT drugs were stopped. He was treated with broad spectrum antibiotics and oxygen supplementation.

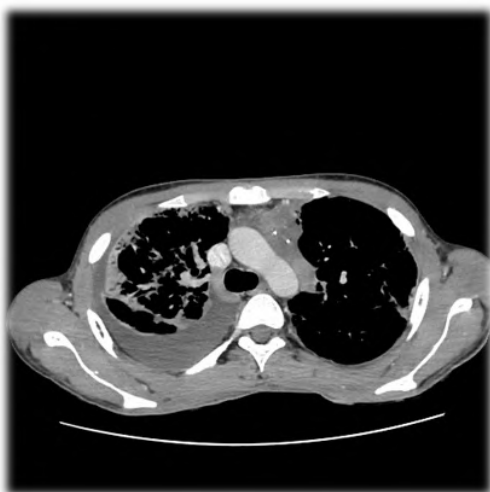


Fig. 2

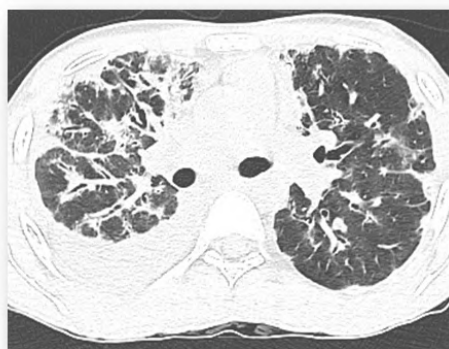


Fig. 2 & 3: CT chest showing large well defined enhancing soft tissue density mass lesion, patchy areas of consolidation, patchy areas of peribronchial interstitial thickening, bilateral pleural effusion.

Ct guided biopsy was done from anterior mediastinal mass which was suggestive of thymoma versus lymphoblastic lymphoma. Subsequently VATS biopsy from the mediastinal mass was done. HPE & IHC was reported as thymoma B1/B2. Despite broad spectrum antibiotics and supportive care, patient remained hypoxic, fever spikes persisted and patient had worsening of shortness of breath. Since the clinical scenario was not consistent with underlying pulmonary infection, a possibility of non infective etiology was considered and the patient was treated with systemic steroids following which he improved dramatically, his hypoxia and breathlessness resolved. There was good radiological clearance (Fig. 4). In order to get definitive tissue diagnosis, VATS lung



Fig. 4: Chest x ray taken after initiation of corticosteroids showing good clearance of infiltrates

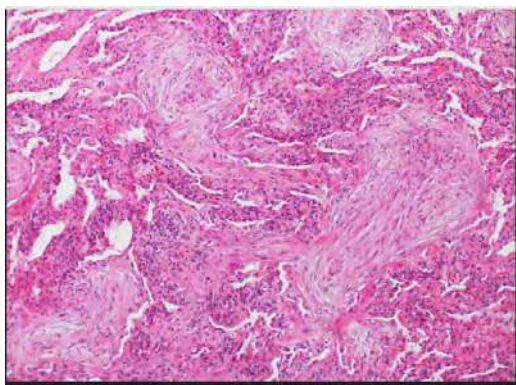


Fig. 5: HPE showing intra alveolar collections of foamy macrophages & masson bodies

biopsy was done. HPE showed intra alveolar collections of foamy macrophages & masson bodies and confirmed it as organizing pneumonia (Fig. 5). The final diagnosis was organizing pneumonia secondary to thymoma. Systemic steroids were continued and when infiltrates resolved and he was stable thymectomy was done. The thymectomy specimen on examination revealed infiltration of surface capsule and part of pericardium. Patient was discharged when clinically stable corticosteroids were tapered and stopped.

Patient was planned for radiotherapy, but he was readmitted with relapse of symptoms. Possibility of relapse of organising pneumonia was considered. Pleural fluid aspiration was done for symptomatic relief and systemic steroids were re-introduced to which patient responded dramatically. Now the patient is on oral steroids and being planned for radiotherapy.

### Discussion

Organizing pneumonia is a relatively rare disease.

Physicians need to consider this entity as one of the differentials due to varied and nonspecific clinical and radiological manifestations. Etiologies include infective, inflammatory, malignant causes, thymoma is one among them. Clinical presentation of the disease is sub-acute symptoms including cough, shortness of breath, weight loss and fever. Pleural effusion is common in secondary op. This disease has a very good prognosis, responding well to corticosteroids but up to 50% patients have relapse after stopping steroids. There is a case report in literature showing complete resolution of organizing pneumonia after thymectomy in a patient with secondary op due to thymoma. But in this patient, organizing pneumonia had relapse even after thymectomy.

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## Hepatoblastoma - An Unusual Presentation (in a 14 year old female child)

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### Abstract

Hepatoblastoma is the most common malignant liver tumour in children which includes 1% of all pediatric tumours. Majority of the cases occur in children less than two years with 90% of cases occurring prior to age five. Also the incidence is twice as high in males compared to females. Hypoglycemia has been documented among the conditions associated with hepatoblastoma<sup>2</sup>; but cases associated with hyperglycemia is very rare. Here, we report a case of hepatoblastoma in a 14 year old female child, who presented with a space occupying lesion in the liver and symptoms of hyperglycemia.

**Keywords:** Hepatoblastoma, hyperglycemia

### Case Report

A 14 year old female child presented with complaints of tiredness, increased appetite and thirst since three months. She was detected to have diabetes mellitus and hypothyroidism and an ultrasonogram done outside showed a space occupying lesion in the liver. MRI scan done in our centre showed a moderately large lesion in segment eight of right lobe of liver, which was seen bulging over right hepatic vein, compressing and partly obliterating it. This was diagnosed as suggestive of atypical adenoma/hepatocellular carcinoma, radiologically.

Further investigations showed a high blood sugar levels (RBS – 350mg/dl), high TSH levels (9mIU/L) and markedly elevated AFP levels (1127mg/dl). The child was started on oral hypoglycemics and insulin. Then, she underwent hepatectomy with gallbladder resection.

### Pathology

The gross specimen weighed 544 gms, with segment of liver measuring 19x12x5 cm. The surface was nodular with cut surface showing an illdefined lobulated neoplasm measuring 6x4x8 cm (Fig. 1). Cut section of the lesion was grey white, granular and friable. Two satellite lesions were noted 0.8 cm and 1.3 cm from the main tumour. Rest of the liver and gallbladder appeared normal.



Fig.1

Microscopic sections showed a neoplasm with cells arranged as multiple nodules with predominant fetal pattern of arrangement (Fig. 2 & 3). Areas with clusters of undifferentiated cells (Fig. 4) also noted, giving dark and pale staining areas. Mitotic figures seen upto 5-7 mitosis/10hpf. Satellite nodules, lymphovascular emboli (Fig:5) and extramedullary hematopoiesis were present. Some areas show macrotrabecular pattern with large hepatoid cells (transitional liver cell tumour like pattern). Adjacent liver showed mild portal tract inflammation, composed of lymphocytes and eosinophils. Resection



margins were free with clearance of < 1 mm.

The diagnosis was given as hepatoblastoma, epithelial type.

This patient was further treated with chemotherapy and now she is doing fine.

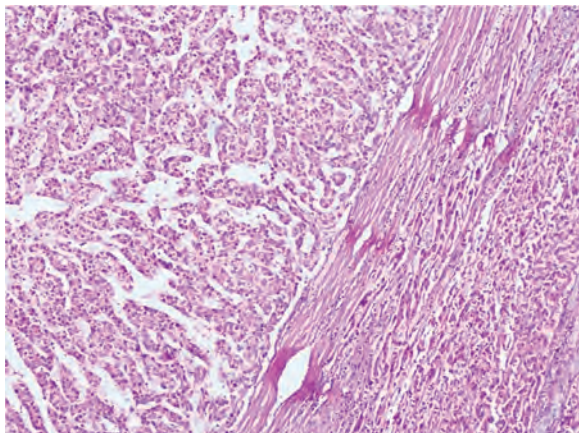


Fig. 2: H&E 100x

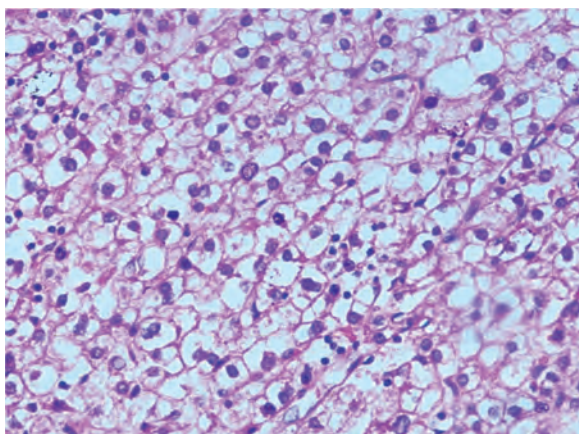


Fig. 3: H&E 400x

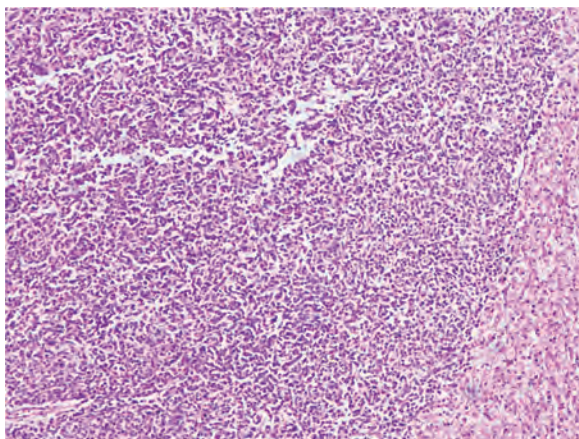


Fig. 4: H&E 400x

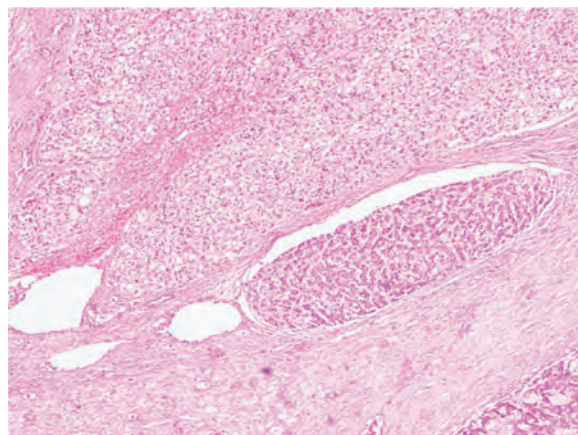


Fig. 5: H&E 200x

### Discussion

Hepatoblastoma (HBL) is the most common primary liver tumor in children and is usually diagnosed during the first 3 years of life<sup>2</sup>. Hepatoblastoma comprises 27% of all pediatric hepatic tumours and 1% of pediatric neoplasms in children less than 15 years<sup>3,4</sup>. Of these 1.5% of all malignancies occur in children less than 5 years and 3.3% in less than 1 year of age. The incidence is higher in males compared to females. Our case was that of a 14 year old female child. Literature review revealed 13 cases of patients diagnosed at age older than 5 years. Most cases were published due to unusual associations and/or complications. Hepatoblastomas usually show genetic predisposition and associations with various conditions like Beckwith-Weidmann syndrome, familial adenosis polyposis<sup>5</sup>, fetal hydrops, hypoglycaemia, cardiac and renal anomalies etc. But, extensive search of literature did not show any association of hepatoblastoma with hyperglycemia, as is seen in our case.

The patient usually presents with anorexia, nausea, vomiting, weight loss, abdominal pain and abdominal mass<sup>1</sup>. This child presented with increased appetite, thirst and tiredness which is very rare and not yet documented in literature. Blood investigations usually reveals anaemia, thrombocytosis and increased AFP levels. Maibach et al reported that among those factors, correlating significantly with reduced event-free survival is low or



very high AFP at diagnosis—when it is lower than 100ng/mL or if it is higher than 1000 ng/mL<sup>6</sup>. Elevated AFP is a known hallmark of active disease in patients with HB. It is generally significantly elevated with large tumor burden and its level decreases with therapy. It is frequently utilized as a marker of disease activity and response to therapy. Patients who are found to have a quick drop in AFP and normalization early in their therapeutic course tend to have better outcomes.

Different pathological subtypes of the tumors are described. One of the most common histological types of tumors was epithelial type, which is the same as in our patient. Other types include mixed epithelial and mesenchymal type. Epithelial type in turn shows four patterns which includes fetal pattern, embryonal pattern, macrotrabecular pattern and small cell undifferentiated type. Of these fetal type has good prognosis, whereas small cell undifferentiated type shows bad prognosis<sup>7</sup>. Our case was a mixed type, with predominantly fetal pattern and small areas showing macrotrabecular pattern and undifferentiated areas.

### Conclusion

In summary, the reported case is rare given the very low incidence of hepatoblastoma outside of infancy. Literature search revealed 13 other cases of patients with HBL above the age of 5 years published over a period of 16 years. The influence of older age at diagnosis on disease course and survival of patients with HBL has not been well studied. So, more studies need to be initiated to investigate exogenous and endogenous risk factors for HBL in older children. And also the association of hepatoblastoma with

hyperglycemia has not been documented till date, which makes this case even more rare.

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## **Sinogenic Subdural Empyema in a 7 year old child: A case report**

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### **Abstract**

Subdural empyema in infants and children is a life threatening emergency if not treated in time. SDEs can occur anywhere in the subdural space, but most commonly seen in the supratentorial compartment. It is a direct interaction between the virulence of the offending micro-organism and the immune response of the host. We report a case of 7 year old male child with symptoms of 3 weeks duration, presented in a state of drowsiness, aphasia and right hemiplegia due to left sided subdural empyema with pansinusitis. He was successfully treated with emergency surgical intervention, using a multidisciplinary approach including Neurosurgery, Paediatrics, Neurology, ENT-Rhinology, Infectious Diseases speciality and Neuroradiology departments. The child achieved clinical improvement with minimal residual right hemiparesis at the time of discharge.

**Keywords:** subdural empyema, micro-organism, immune response, pansinusitis, multidisciplinary approach

### **Introduction**

Subdural empyema is an intracranial purulent material collection between the dura and arachnoid matter. SDEs constitute 15-25% of pyogenic intracranial infections<sup>1</sup>. Before the advent of antimicrobial therapy, the disease was essentially fatal (almost 100% mortality<sup>2</sup>. Nowadays, the survival rate for children with SDE is more than 90%, if surgical intervention was done on time<sup>3</sup>.

Meningitis and oto-rhinologic infections especially of

the paranasal sinuses are the most common causes of SDE in infants and older children. The infection spreads from paranasal sinuses to the subdural space through bone erosion or through haematogenous route<sup>5</sup>. Once the infection reaches the subdural space, it can spread without interruption over the convexities of the brain because it lacks a fibrin capsule and anatomic barriers<sup>6</sup>. Subdural empyema can produce focal mass expansion, increased intracranial pressure, diffuse destruction and focal neurological deficits. The mortality rate in SDE is around 4% and the morbidity for survivors is higher with residual neurological deficits up to 50%, hemiparesis 15-35% and persistent seizures 12-37.5%<sup>4</sup>. SDEs might present with associated lesions like soft tissue infection, extradural collection, intra-axial abscess or bone infection. Apart from post-traumatic brain abscess, the iatrogenic causes of SDEs are evacuation of subdural haematoma, craniotomy / craniectomy and intracranial pressure monitoring.

### **Case report**

A 7 year old male child (2<sup>nd</sup> child, pre term, LSCS) was brought to the emergency department with history of fever, headache and vomiting for one day. The mother noticed, the child having decreased activity, speech impairment and weakness of right limbs with swaying while walking. The child had an episode of generalised seizures followed by vomiting at school 3 weeks ago. He was evaluated with EEG at a local hospital which showed borderline epileptogenic pattern, started on valproate syrup and discharged. The intensity of headache increased after 2 days, evaluated at KIMS during previous admission



(one week ago) with CT brain (Plain) which showed no evidence of intracranial pathology and discharged with symptomatic treatment. Past history of 2 episodes of febrile seizures, one at the age of 1 year and then at 1.5 years. He underwent surgery for congenital cataract-left eye at the age of 5 years.

On admission, the child was drowsy and aphasic with right hemiplegia, intubated in the emergency room due to low GCS. Pupils equal and reacting to light. Afebrile. HR: 100/minute. Regular. BP : 100/60 mmHg. GRBS : 112 mg/dL. Neck stiffness present. Deep tendon reflexes were exaggerated and plantar extensor response on the right side. Clinically, no obvious abnormality detected in the chest and abdomen. The MRI head with contrast (Fig.1,2,3)



Fig.1

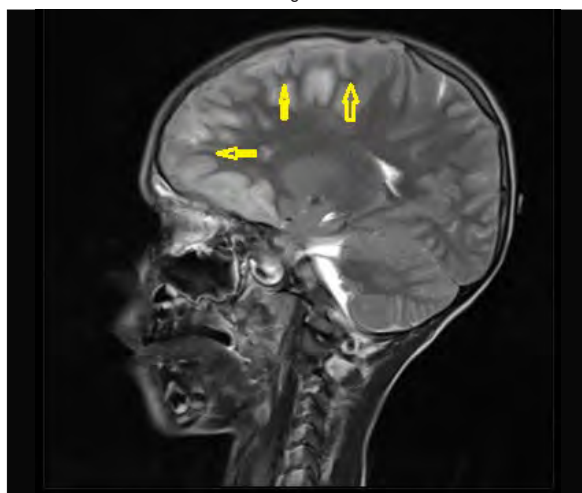


Fig.2

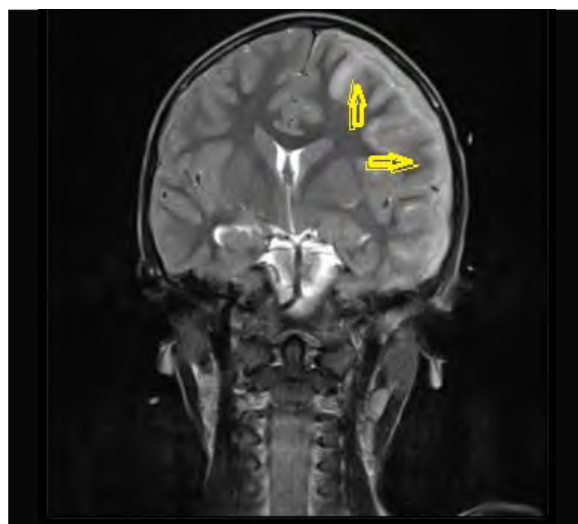


Fig.3

showed features suggestive of meningoencephalitis, involving left fronto-temporo-parietal region and right inferior parasagittal cortex. Mass effect with partially effaced left lateral ventricle, perimesencephalic cisterns, left fronto-temporal sulcal spaces and midline shift to right side by 8.5 mm. Ill-defined subdural collection along the left fronto-temporo-parietal convexity, suggestive of subdural empyema. Small subdural empyema along the right superior frontal parasagittal region. Bilateral maxillary, sphenoidal, left frontal and anterior ethmoidal sinusitis.

The blood investigations showed elevated cell count, C-reactive protein and erythrocyte sedimentation rate. He was evaluated by Cardiologist and ENT-Rhinologist to rule out the cause of subdural empyema. The ECHO showed no evidence of endocarditis, vegetations, cyanotic heart disease (right-to-left shunts). The HRCT-PNS showed bilateral maxillary, right ethmoid and frontal sinusitis. Mucosal thickening with bilateral osteo-meatal block and accessory maxillary sinus ostia present.

#### Surgical procedure

- An emergency left fronto-temporo-parietal decompressive craniectomy and evacuation of subdural empyema was done under GA.



- The dura was thickened and tense (Fig.4). Thick, yellowish pus was pouring out soon after the dura was incised (Fig.5,6,). The pus was sent for culture and sensitivity (Bacterial, Fungal and Acid Fast Bacilli).

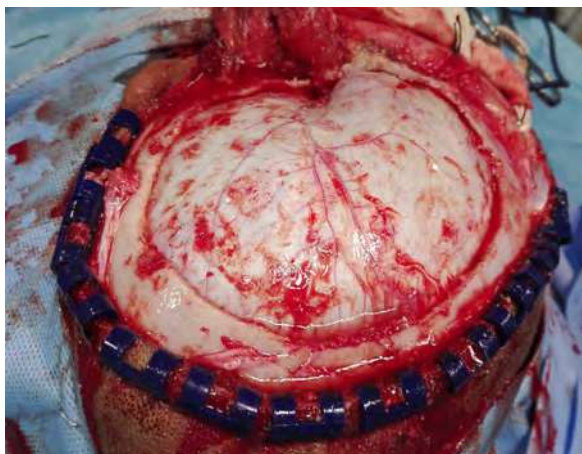


Fig.4

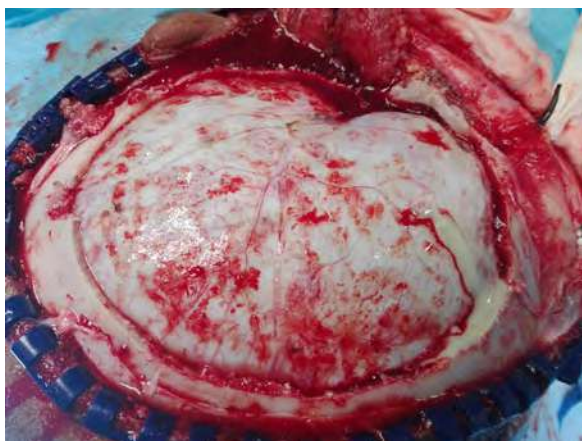


Fig.5



Fig.6

- Evacuation of subdural empyema was done followed by a thorough wash with normal saline and antibiotic solution.
- The brain surface was reddish with dilated blood vessels due to inflammatory changes (Fig.7).



Fig.7

- The Bone flap was not replaced to avoid increase in intracranial pressure and spread of infection to bone (osteomyelitis).
- Artificial dural patch (G-patch) was not used in order to prevent spread of infection and recurrence.
- The wound was closed in layers after perfect haemostasis with a drain.

The post op CT Brain showed adequate decompression and evacuation of subdural empyema (Fig.8).

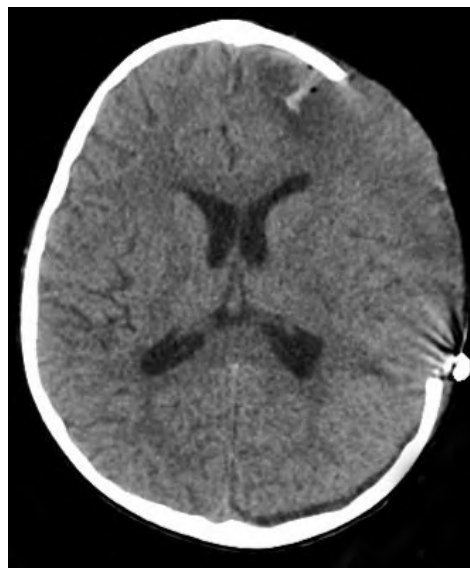


Fig.8



He was started on ryle's tube feeds and physiotherapy. He gradually improved, the electrolyte imbalances were corrected and weaned off from the ventilator. Later on, the Foley catheter was removed, started on oral feeds and he was improved to a GCS of E4V3M6 with residual right hemiparesis. The initial gram stain of pus culture showed gram positive cocci but the final report was negative for bacterial, fungal infections and acid fast bacilli. Initially he was started on intravenous ceftriaxone, vancomycin and metronidazole in meningitic doses and later on, switched over to meropenem and vancomycin. He developed fluid collection at the surgical site (Fig.9,10,). The follow up CT brain with contrast showed left sided craniectomy status, CSF density subgaleal fluid collection (Fig.11) and



Fig.9



Fig.10

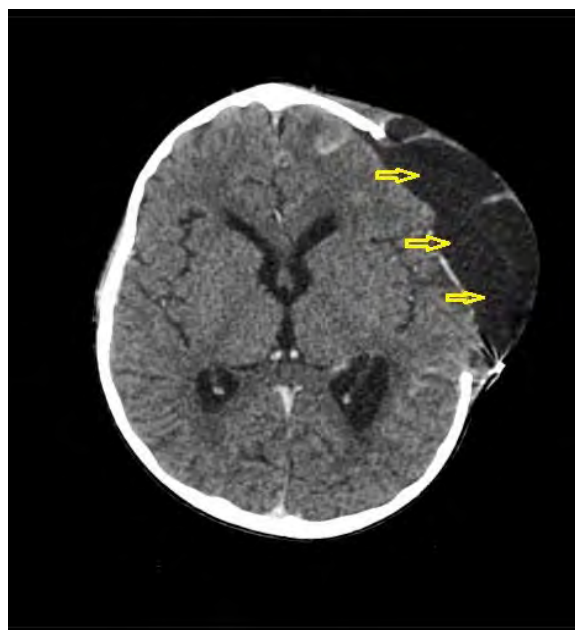


Fig.11

no evidence of hydrocephalus. An early cranioplasty was planned and the cultures of blood, urine and subgaleal fluid (CSF) were sent prior to surgery. The cultures were negative for the growth of pathogenic organisms. Three weeks after the first surgery, he underwent re-exploration and evacuation of subgaleal fluid collection (Fig.12) and left fronto-temporo-parietal cranioplasty using autologous bone flap (Fig.13). The post op CT showed bone flap in position (Fig.14). At the time of discharge he was on normal oral feeds, ambulated with a power of right limbs 4/5 and advised to continue oral antibiotic (Linezolid) for

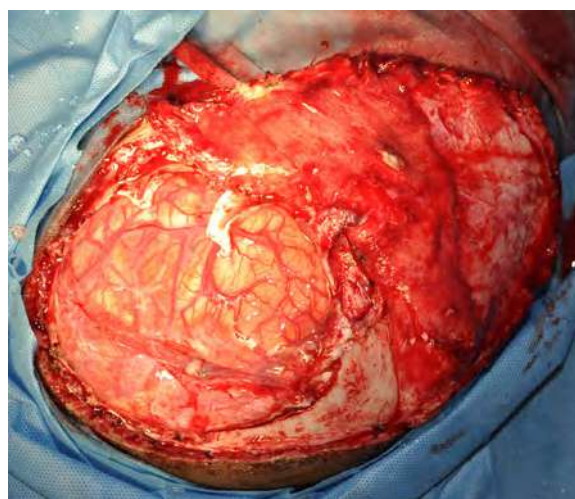


Fig.12

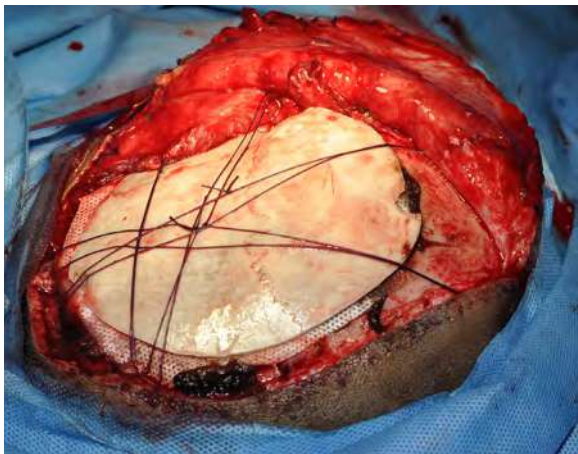


Fig.13

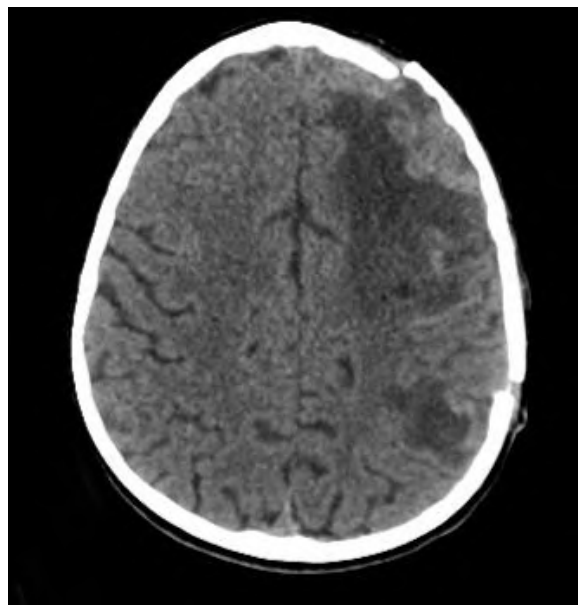


Fig.14

3 weeks. The surgical site sutures were removed and wound healed well. During review in the OPD he improved to a GCS of E4V5M6 and ambulant with power of right limbs 4+/5 (Fig.15,16,17,).



Fig.15, 16, 17

**Discussion**

Regardless of the initial imaging presentation, any child presenting with focal neurological deficits or seizures and sinusitis should be assumed to have an SDE or meningitis and a careful review of high resolution imaging, ideally MRI brain with contrast should be performed<sup>13</sup>.

In this case report, the child was brought to emergency room with symptoms of 3 weeks duration followed by sudden clinical deterioration and neurological symptoms like drowsiness, aphasia and right sided weakness. He was intubated and mobilized to imaging. The diagnosis of SDE was confirmed with MRI brain with contrast and an Emergency left fronto-temporo-parietal craniectomy and evacuation of subdural empyema was done. The bone flap was not replaced to avoid increase in intracranial pressure and spread of infection to the bone flap (osteomyelitis). Artificial dural patches were not used to prevent infection and recurrence. The pus culture was sterile and he was started on antibiotics to cover both gram-positive and gram negative organisms. When the culture was sterile, antibiotic therapy and the duration differs in various institutions as per the experiences. The child developed a subgaleal collection of cerebro spinal fluid during post-operative period which prevented the adherence of brain to the subcutaneous tissue and helped in the elevation of skin flap during cranioplasty. The cranioplasty using titanium mesh or titanium mould fixation can affect the shape of the skull in growing age. Hence, the autologous bone flap was used during an early cranioplasty.

**History<sup>10,11</sup>**

- Early terms of subdural empyema included “pachymeningitis interna” (to differentiate epidural abscess, termed “pachymeningitis externa”) and “purulent pachymeningitis”<sup>12</sup>.
- Although brain abscess is as old as mankind, the clinical history dates back to 2<sup>nd</sup> century. Galen, used Trephination to drain the pus under the skull.
- 1752 : The French surgeon S.F.Morand, did the first



successful surgery of temporo-ethmoidal abscess.

- 1872 : Weeds reported the successful drainage of post-traumatic brain abscess.
- 1876 : Sir William Macewen<sup>18</sup> of Glasgow is the first, to diagnose a brain abscess based on clinical symptoms and neurological examination. A left frontal abscess was found at the post-mortem examination after the family had refused surgery.
- 1893 : Sir William Macewen reported a successful operative series of brain abscesses. In his monograph, he discussed in detail about the surgical anatomy, pathology, symptoms, intracranial sinuses and treatment of abscesses and prevention by aggressive treatment of otitis media and mastoiditis.
- 1918 : Warrington, evaluated the etiological factors in 2 groups : the spread of infection from foci in the contiguous structures and through blood stream from distant site.
- 1924 : King introduced marsupialization.
- 1926 : Dandy introduced aspiration of brain abscesses.
- 1928 : Sargant reported the procedure of enucleation of an encapsulated brain abscess.
- 1936 : Vincent popularised the complete excision of brain abscess.
- 1971 : Heineman et al, became the first to report the successful medical management of a brain abscess.
- Later on, the introduction of Computed tomography (CT), Diffusion weighted Magnetic resonance imaging (MRI-DWI), Microbiological techniques in isolation of specific organisms and Antibiotic therapy, considerably improved the quality of management of brain abscesses and decreased the mortality and morbidity in patients with SDE.

### **Subdural empyema**

Clinical presentation:

The subdural empyema should be suspected in any febrile

patient with rapidly developing signs indicating involvement of an entire cerebral hemisphere. The commonest clinical presentation is a triad of fever, sinusitis and neurological deficits with rapid clinical deterioration. Headache, initially focal and later on becomes diffuse is a prominent early symptom in as many as 90% of the patients. Seizures and meningismus have been reported in majority of cases. Fever, aphasia and right sided weakness may occur when the dominant hemisphere is involved. Occasionally 3rd and 6th nerve palsies occur.

### **Investigations**

Blood : the white blood cell count, erythrocyte sedimentation rate and C-reactive protein are usually elevated in patients with SDE. Diabetes Mellitus is a risk factor in conditions like intracranial abscesses.

Cerebrospinal fluid : CSF culture is the gold standard for the diagnosis. The Latex agglutination test is useful for rapid identification of the micro-organisms.

Imaging:

Cranial ultrasonography in infants is a safe, cost effective imaging mode to differentiate subdural empyema from subdural effusion<sup>7</sup>. Skull radiograph is useful in identifying skull fractures, osteomyelitis or a foreign body<sup>3</sup>.

Computed Tomography (CT) with contrast is quick, simple, accessible and cost effective in cases of SDE. However, the Plain CT scan of the brain can be normal in up to 50% of the patients with SDE<sup>8</sup> and we may miss an earlier diagnosis.

Magnetic Resonance Imaging (MRI) with diffusion-weighted images (DWI) has a sensitivity of 93% and is considered the best imaging mode in earlier diagnosis and follow up in cases of SDE<sup>9</sup>. It clearly shows the collections and signs of meningeal infections and assists in monitoring antibiotic therapy. The MRI Spectroscopy is useful in differentiating a brain abscess (pyoma) from a tumour (cytoma) by demonstrating the amino acids within the content of abscess.



### Prognosis

Favourable factors :

- Young age (10-20 years)
- Craniotomy/Craniectomy as surgical modality (than burr-holes)
- Early diagnosis and treatment (surgery and appropriate antibiotics)
- Patient is alert, awake and oriented at presentation
- Paranasal sinus is the source of initial infection
- Isolation of aerobic streptococci in culture

Unfavourable factors :

- Elderly or younger than 10 years
- Encephalopathy or coma at the time of presentation
- Delay in starting antibiotics
- Sterile cultures

### Treatment

The conservative treatment may be tried for patients with non-focal neurological deficits, no changes in mental status, empyema is limited and localized except posterior fossa and adequate response to antibiotic therapy. However, frequent imaging is needed during follow up and in some cases neurosurgical intervention is warranted. The antibiotic regimen should be chosen as per the route of infection which can be narrowed as per the culture identification and sensitivity. The duration of antibiotic treatment differs among practices. Anti-seizure medications as a prophylactic measure, intravenous steroids to reduce oedema and inflammation and mannitol or ventriculostomy to lower the intracranial pressure are useful in the course of treatment.

Nowadays, surgical intervention (craniotomy or craniectomy than burr-hole), isolation of micro-organism and appropriate antibiotic therapy are preferred as the treatment modality in patients with SDEs, which helps in the prevention of recurrence.

### Conclusion

Proper clinical examination in suspected cases, an earlier

diagnosis with appropriate imaging, surgical intervention on time, isolation of micro-organism, appropriate antibiotic therapy, a multimodality approach and regular follow up are the key factors in the successful treatment of SDEs in children. Still, the delay in the diagnosis and the timely treatment with surgical intervention of SDEs remains as a challenge to the neurosurgeon.

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## Direct Intrahepatic Portocaval Shunt (DIPS) in a patient with Budd Chiari Syndrome

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Department of Imaging and Interventional Radiology

### Abstract

Direct intrahepatic portocaval shunt(DIPS) is a modification of classical TIPS procedure. The DIPS procedure involves ultrasound-guided puncture from the inferior vena cava to the portal vein through the parenchyma of liver. This article describes a successful DIPS procedure done in our department for treating a case of Budd Chiari syndrome, indications, technique and outcomes of DIPS.

**Keywords:** DIPS, Direct intrahepatic portocaval shunt, TIPS, Trans jugular portosystemic shunt, Budd Chiari syndrome.

### Introduction

The direct intrahepatic portacaval shunt (DIPS) is a modification of the classical TIPS procedure, using trans-abdominal ultrasound-guidance, combined with fluoroscopy. The DIPS procedure was initially conceived to increase the durability of shunt patency and extend the spectrum of patients with portal hypertension for whom intrahepatic portocaval shunting can be performed. The DIPS procedure involves ultrasound-guided puncture from the inferior vena cava to the portal vein through the parenchyma of liver. In advanced centers an intravascular ultrasound guidance is used to puncture portal radicle from IVC<sup>1</sup>. The shunt is completed with a polytetrafluoroethylene-covered stent graft<sup>2</sup>. DIPS has a special role in Budd Chiari syndrome with complete occlusion of all major hepatic veins where classical TIPS is not feasible.

### Case report

A 27 year lady, who is mother of two children presented to KIMS interventional radiology OPD with complaints of progressive abdominal distension and bilateral lower limb edema. She was a known case of chronic Budd Chiari syndrome with CLD and portal hypertension and was on medical therapy for the same for past two years. She was admitted and evaluated according to the standard protocol. Found to have CHILD B score and a MELD sodium score of 18. In-house CT liver angiography revealed complete occlusion of all major hepatic veins, compressed hepatic IVC and classical features of cirrhosis secondary to Budd chary syndrome (Fig. 1). There was massive ascites and features of portal hypertension as well (Fig. 2).

Since the classical TIPS was not feasible as there is no patent hepatic veins, the modified technique called DIPS was done for the patient's management.

She underwent DIPS through right Trans jugular



Fig. 1: CT liver angiography axial section showing features of chronic liver disease, absent opacification of hepatic veins, compressed hepatic IVC (arrow). Small intrahepatic venous collateral (thick arrow) also seen.



approach in Cath lab under general anesthesia with no peri-procedural and post procedural complication. She was discharged after confirming stent patency on post procedure day 4 on oral anticoagulation.

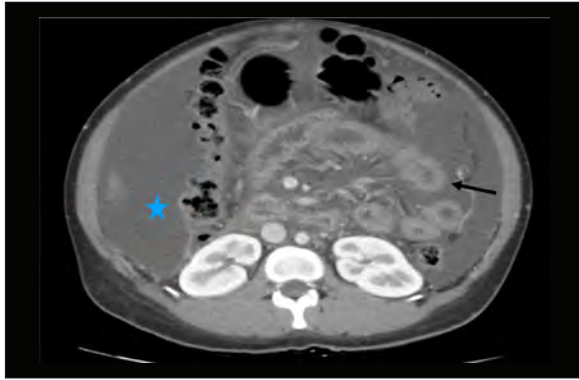


Fig. 2: CT liver angiography showing massive ascites (asterisk) and edematous jejunal loops with wall thickening suggestive of portalenteropathy (arrow)

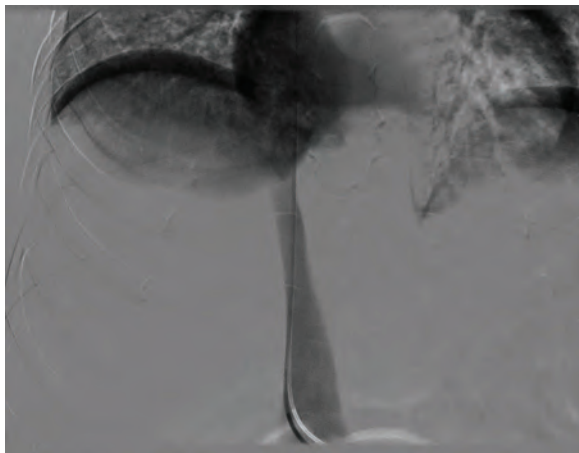


Fig. 3: IVC venogram shows absent contrast reflux to any of the major hepatic veins- Suggesting complete occlusion of all major hepatic veins.



Fig. 4: Direct puncture of right portal vein branch with curved trocar needle and portal venogram. Slow flow of contrast (arrow) away from the porta indicates portal vein puncture.

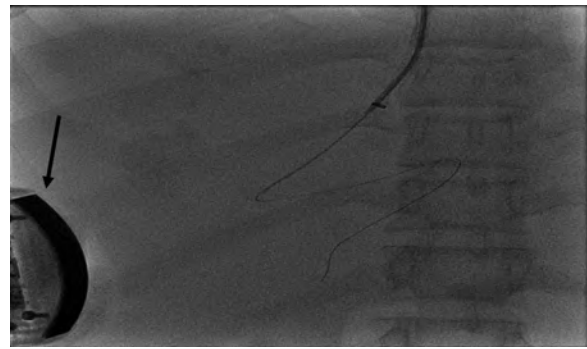


Fig. 5: Guide wire passage in to the superior mesenteric vein through portal vein. This is a critical step in shunt creation—converting nearly anyportal vein entry into one through which subsequently a stiffguidewire, sheath, angioplasty balloon and stent can be advanced. Simultaneous transabdominal USG guidance (Arrow) was used.

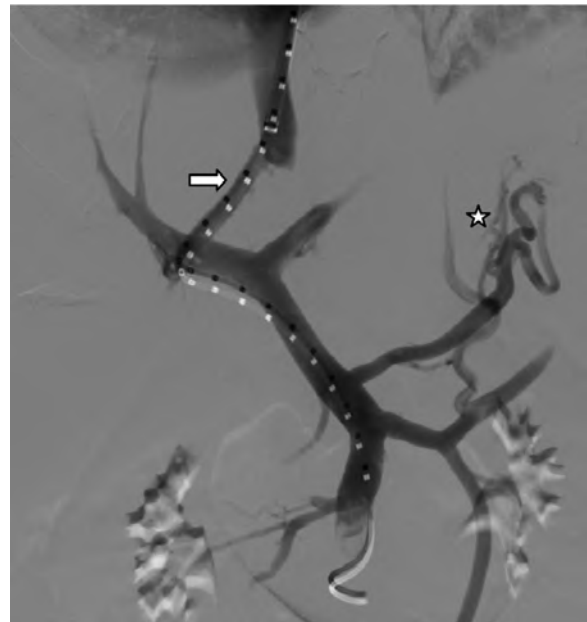


Fig. 6: Porto gramthrough marker pig tail catheter shows contrast opacification the intrahepatic portocavalshunt (arrow). Large portosystemic shunts through coronary veins also seen (asterisk).

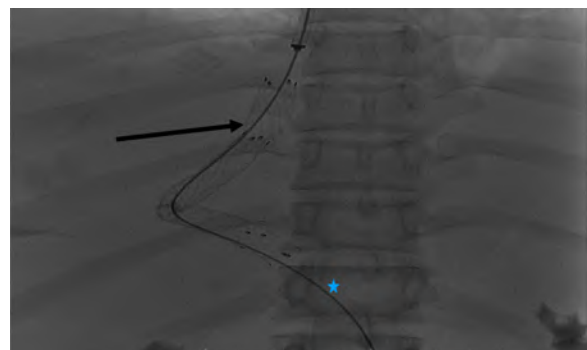


Fig. 7: Placement of stents (arrow) over the guide wire (asterisk) in the tract.

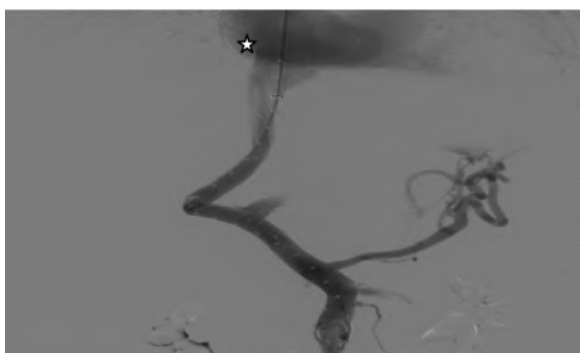


Fig. 8: Final portogram showing prompt opacification of IVC and right heart (asterisk) through the shunt.

### Outcome

The procedure was success technically and clinically with achievement of symptomatic improvement and a maintained liver function. After 1 month follow up there was gross reduction of abdominal distension and pedal edema with stable liver function test results.

### Discussion

Budd–Chiari syndrome (BCS) is defined as a spectrum of clinical presentations characterized by narrowing and/or obstruction of hepatic venous outflow at any level among the small hepatic venules, the junction of the inferior vena cava (IVC), and the right atrium. According to the clinical presentation, BCS can be classified as fulminant, acute, subacute, or chronic. The most common underlying disorders in patients with BCS are hematologic abnormalities with procoagulant state, pregnancy, OCP usage and cancer. Management includes anticoagulation therapy, radiological interventions [TIPS/DIPS and angioplasty], very rarely used surgical portocaval shunt [side-to-side portocaval, central splenorenal, or mesocavalanastomosis], and finally liver transplantation. Every attempt is made initially to reanalyse any patent hepatic vein prior to contemplating a shunt procedure. The most common shunting procedure for BCS non-responsive to medical therapy is TIPS [3]. Nevertheless, this is not always technically successful, due to complete hepatic venous thrombosis. Direct intrahepatic portosystemic shunt (DIPS) is an alternative interventional

method for decompression of portal hypertension in such cases, which involves combined trans abdominal ultrasound (US)-guided and fluoroscopy guided puncture from the IVC to the portal vein[4]. Intravascular US-guided placement of a DIPS, described by Petersen and Binkert, is another technical modification of TIPS procedure to create a portocaval shunt but requires special equipment<sup>5</sup>. The gun-sight technique first described in 1996 as an alternative method for the creation of transcaval portosystemic shunt<sup>6</sup>. Boyvat et al. used a modification of this method to insert percutaneously under US guidance a needle into a portal venous branch and then to IVC, where it could be snared after an IJV puncture. They used this technique in 11 patients with significant technical and clinical success.

Most common indications other than Budd chiari syndrome of DIPS are

1. Secondary prevention of variceal bleeding
2. Refractory cirrhotic ascites
3. Refractory hepatic hydrothorax
4. Veno-occlusive disease (VOD)
5. Hepatopulmonary syndrome
6. Prophylactic preoperative decompression.

DIPS is not a safe procedure in patients with

1. Severe or rapidly progressive liver failure (increased risk of post procedure encephalopathy)
2. Severe or uncontrolled encephalopathy
3. Heart failure
4. Severe pulmonary hypertension.

Preprocedurerevaluation of the patient include a standard blood investigations and imaging (US/CT/MRI). A high meld score 20 or more are not good candidates for DIPS as the risk of post procedure hepatic encephalopathy is very high. Pre procedure imaging will help to assess the current status of the vessel and thereby planning of the shunt creation. Antibiotic prophylaxis with penicillins/cephalosporins are used generally and quinolone in patients with penicillin allergy.



DIPS is done under General anaesthesia / MAC / conscious sedation which largely depends on the operator preference. Generally a right jugular approach is used for the procedure. A curved trocar needle is passed through right atrium (Under continuous ECG monitoring) to the hepatic IVC. Portal radicle is approached with a curved trocar needle through parenchyma from hepatic IVC with simultaneous trans abdominal USG and fluoroscopy guidance. The tract is usually dilated with a PTA balloon and a polytetrafluoroethylene-covered stent graft / bare stents is deployed. PTFE-covered stent grafts increased primary patency significantly in comparison to bare-metal stents, showing a lower dysfunction rate and necessitated fewer re-interventions<sup>7</sup>. Stent grafts such as VIATTOR stents should be used if available, which specifically designed for TIPS/DIPS. Tract diameter is increased till a smooth flow of portal blood seen bypassing through the shunt or desired porto- systemic pressure is achieved. Post procedure fluid management, prevention of encephalopathy and assessment of shunt patency are the major concerns in post procedure period. Long term anticoagulation is required in these patients to avoid recurrent thrombosis and shunt occlusion.

### Results

1. Technical success: creation of a tips between the hepatic vein and intrahepatic branch of the portal vein
2. Hemodynamic success: successful post-tips reduction of the portosystemic gradient below a threshold chosen for that indication
3. Clinical success: many randomized trials have compared tips to endoscopic treatment of esophageal variceal bleeding. the mean rates of rebleeding following tips and endoscopic treatment were 19% (range 9.8% to 24%) and 47% (range 24% to 57%), respectively.

### Major complications

1. hepatic encephalopathy
2. hepatic infarctions
3. renal dysfunction

4. periprocedure deaths (reported rarely)

### Conclusion

US-guided DIPS is a safe and effective alternative technique for patients with BCS, with significant clinical improvement and low risk of complications. DIPS can be used as a bridge to liver transplantation for patients with BCS, who are not suitable for standard TIPS procedure.

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## A case of Metachronous Multiple Primary Malignancy

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### Abstract

Multiple primary malignancy (MPM) is defined as presence of more than one synchronous/metachronous cancer in a same individual. Over all, the frequency of MPM is reported as 2-17%. There are only few reported cases of MPM. We report a case of 48y old woman with MPM involving Thyroid and Lung.

### Introduction

Patients with malignancy may present with two primaries at the same time(synchronous MPM) or may develop second primary after treatment of the initial lesion(metachronous MPM). Diagnostic criteria for MPM includes a) Each tumor should present a definite picture of malignancy b) Each tumor should be histologically distinct c) The possibility that one is metastasis of the other must be excluded.

### Case report

48y old female who was diagnosed to have Follicular variant of Papillary microcarcinoma Thyroid 4yrs back for which total thyroidectomy followed by I131 ablation therapy and she was under follow up for the same. Radio iodine scan during follow up showed no uptake anywhere in the body and she was declared to be cured off the disease. As the patient had asthma, she was in follow up in the Department of Respiratory Medicine, was on inhaler treatment for the same. A well defined nodular lesion in the left paracardiac region was incidentally detected in the chest x ray taken 1yr after the thyroidectomy for which she was advised to do a CT Thorax but she refused to do. After

3 years, patient reported for asthma follow up and chest x ray was taken and it revealed that the lesion increased in size & patient was convinced to take a CT Thorax. CT Thorax showed well defined heterogeneously enhancing soft tissue density mass lesion with irregularly lobulated and speculated margins in the left lower lobe, centered around proximal basal segment bronchi & multiple enlarged mediastinal lymph nodes. CT guided trucut biopsy from the lesion was reported as Undifferentiated carcinomatous infiltration. IHC staining was done & results confirmed Pulmonary adenocarcinoma (CK7, CEA, Napsin, TTF-1 Positive).

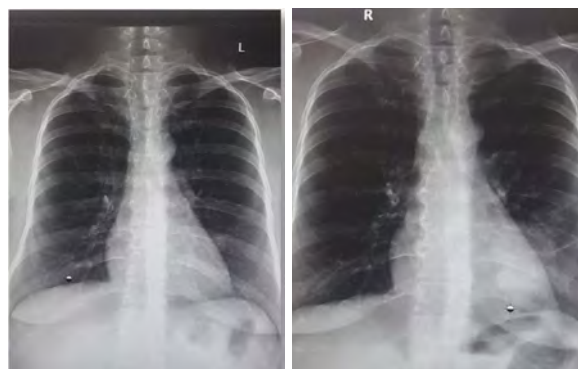


Fig. 1: Initial chest x ray showing ill defined opacity left para cardiac zon

Fig. 2: Chest x ray after 3 years showing homogenous opacity left lower zone with pleural tag sign



Fig. 3: CT chest showing heterogeneously enhancing soft tissue density mass lesion in left lower lobe



| Epidemiological factors of multiple primaries |  |   |
|---|--|---|
| Host factors                                  | Genetics                                       | For example, ancestry, Li-Fraumeni and BRCA mutations   |
|   | Hormonal factors                               | For example, hormonal therapy and endometrial cancer  |
|   | Prior cancer diagnosis and treatment exposures | The incidence of a second malignancy is higher in a person with a previous cancer diagnosis compared with a person of the same age group without a prior cancer                               |
| Lifestyle factors                             | Alcohol  | These are risk factors for several cancer types and are therefore more likely to develop more than one of these predisposed cancer types compared with people without these lifestyle factors |
|   | Tobacco  |   |
| Environmental influences                      | Geography                                      | For example, cancer risk in areas of increased radon exposure   |
|   | Pathogens                                      | For example, infections (human papillomavirus, Epstein-Barr virus)  |
|   | Occupation                                     | For example, profession-associated cancer types like mesothelioma in workers with asbestos  |

### Discussion

MPM is a rare entity with only few cases reported in the literature. MPM was first described in 1879 Billroth. Over all, the frequency of MPM is reported as 2-17%. According to SEER database, two month period is needed to distinguish between synchronous and metachronous MPM. While IARC suggests 6 months period.

We have reported this case due to the rarity of MPM &

also to stress upon the need for high clinical suspicion of second primary & long term follow up in patients who are at high risk of developing second primary. Several high risk factors have been identified for the development of second primary malignancy.

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## A case of Young Stroke

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### Abstract

Moyamoya disease is a progressive vasculopathy leading to stenosis of the main intracranial arteries. Through this case report, we highlight the protocol we followed in investigating a young stroke and arrived at the diagnosis of relatively rare disease Moyamoya disease.

**Keywords:** moyamoya disease, ischaemic stroke, angiography

### Introduction

The incidence of moyamoya disease is high in Asian countries<sup>1</sup>. Clinically the disease may be of ischaemic, haemorrhagic and epileptic type. Cognitive dysfunction and behavioral disturbances are atypical symptoms of moyamoya disease. Characteristic angiographic features of the disease include stenosis or occlusion of the arteries of the circle of Willis, as well as the development of collateral vasculature. Currently, magnetic resonance angiography and CT angiography are the main imaging methods of diagnostics of the entire range of vascular changes in moyamoya disease.

### Case report

A 19 year old female presented with recurrent episodes of transient loss of awareness of upper limb and abnormal posturing of right upper limb for 3 months.

Diagnosed outside as pseudoseizure.

In KIMS, on examination patient was conscious and oriented.

Multiple cafe au lait spots and subcutaneous nodules seen randomly distributed.

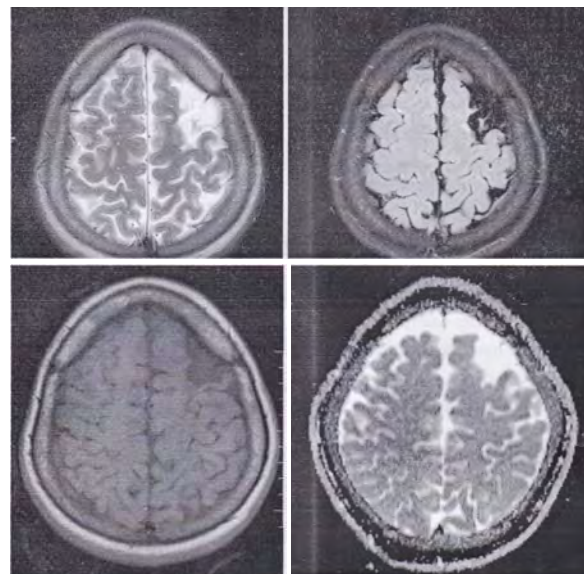
Neurological examination: Right upper limb weakness with dystonic posturing.

Biochemical investigations were normal.

EEG - Slowing noted in the region of left frontal lobe.

MRI brain showed encephalomalacic changes in left frontal lobe. Left supraclinoid ICA and its branches appeared smaller compared to right, hence vasculitis was suspected for which MRA done.

MRA - shows stenosis of bilateral ICA bifurcation, Anterior cerebral artery (ACA), Middle cerebral artery (MCA) and Anterior communicating artery (Acom) for entire length. Multiple collaterals seen in MCA and ACA territories, external carotid artery, ECA and posterior circulation-suggesting Moya Moya disease for which DSA was suggested.



MRA of Brain



Following MRA, DSA was carried out to confirm and stage the diagnosis.



DSA image

In DSA it was concluded as Complete occlusion of bilateral terminal ICA and its branches Cortical branches supplied by collaterals from pial dural and posterior circulation-Features suggestive of Moya Moya disease

### Discussion

Moyamoya disease (MMD) is a unique cerebrovascular disease characterized by the progressive stenosis of large intracranial arteries and a hazy network of basal collaterals called moyamoya vessels<sup>2</sup>. These abnormal vessels at the base of the brain were first described by the Japanese-Takeuchi and Shimizu in 1957-as having a “hazy, cloudy puff of smoke” appearance, which led to the term “moyamoya”. Because the etiology of MMD is unknown, its diagnosis is based on characteristic angiographic findings. Re-vascularization techniques

(e.g., bypass surgery) are used to restore perfusion, and are the primary treatment for MMD. There is no specific treatment to prevent MMD progression<sup>3</sup>. Genetic and environmental factors may play important roles in the development of the vascular stenosis and aberrant angiogenesis in complex ways. These factors include the related changes in circulating endothelial/smooth muscle progenitor cells, cytokines related to vascular remodeling and angiogenesis, and endothelium, such as caveolin which is a plasma membrane protein<sup>4</sup>. With a better understanding of MMD pathophysiology, nonsurgical approaches targeting MMD pathogenesis may be available to stop or slow the progression of this disease<sup>5</sup>. The possible strategies include targeting growth factors, retinoic acid, caveolin-1, and stem cells.

There are two entities Moyamoya disease and Moyamoya syndrome. Idiopathic occurrence of

Moyamoya is termed as Moyamoya disease<sup>6</sup>.

Angiographic features of Moyamoya seen in association with vessel wall abnormalities like radiation induced vasculopathy, Fibromuscular dysplasia, Marfan syndrome, Ehlers-Danlos syndrome or Phakomatoses like Neurofibromatosis type 1(NF1), Tuberous sclerosis (TS) or Connective tissue disorders like Systemic lupus erythematosus (SLE), Antiphospholipid syndrome or blood dyscrasias like Sickle cell disease, Essential thrombocytopenia, Polycythemia rubra vera, Aplastic anemia, Fanconi anemia or Infection or Graves disease, Down syndrome, Ulcerative colitis (UC), Apert syndrome, Oral contraceptive use<sup>7</sup>. In these conditions it is called Moyamoya syndrome.

### Conclusion

Our case is Moyamoya syndrome ie Moyamoya disease in Neurofibromatosis. The most common surgical treatment combines the direct arterial anastomosis between the superficial temporal artery and middle cerebral, and the indirect synangiosis involving placement of vascularised tissue in the brain cortex in order to promote neoangiogenesis. Due to progressive changes,





correct and early diagnosis is of basic significance in selecting patients for surgery, which is the only effective treatment of the disease. An appropriate qualification to surgery should be based on a comprehensive angiographic and imaging evaluation of brain structures.

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## Report of a rare case of IgG4 related disease in paediatrics

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### Abstract

IgG4-related disease was first recognized as a systemic condition as recent as in 2003. It is an immune-mediated fibroinflammatory condition that is capable of affecting multiple organs. IgG4 related disease cohorts typically have a predominance of middle-aged and older men. The disease is now increasingly recognized to occur in children also. In the IgG4 related disease described in the pediatric population, general disease characteristics appear to be similar to those observed in the IgG4 related disease of the adults. The median age of children among published cases of IgG4-related disease was 13 years, and 65% were in girls. Here we present a case report of a 13 year old boy, initially admitted and treated as pneumonia and later presented with persistent pneumonia with increased ESR and CRP. On investigation he had mild hepatosplenomegaly, multiple mediastinal lymphadenopathy, thymic hyperplasia and pericarditis and later coronary artery aneurysm and echocardiographic features of aortitis. He had persistently elevated ESR and CRP and hypergammaglobulinemia on blood investigation. Biopsy and histopathologic examination of mediastinal lymph node was suggestive of IgG4-RELATED DISEASE and Serum IgG4 level was elevated. In this part of India we rarely come across pediatric cases of IgG4-related disease and hence we are reporting the case.

**Keywords:** IgG4 related disease, Pediatrics, IgG4, Immune-mediated

### Introduction

IgG4 related disease is an increasingly recognized syndrome of unknown etiology, which is comprised of a collection of disorders that share specific pathologic, serologic, and clinical features. The pathogenesis of IgG4 related disease remains incompletely understood, but there is growing evidence that the disease is auto immune, with an important role for T cells, especially CD4+ and T-follicular helper cells. The IgG4 antibodies are not themselves pathogenic. Histopathology is the key to diagnosis. The hallmarks of IgG4 related disease are dense lymphoplasmacytic infiltrations with a predominance of IgG4 positive plasma cells in the affected tissue, usually accompanied by storiform fibrosis and often by obliterative phlebitis and an increased number of eosinophils. Here we present the pediatric case report of an adolescent boy with persistent pneumonia and multiple mediastinal lymphadenopathy, who later developed pericarditis, mild hepatosplenomegaly, coronary artery aneurysm, aortitis and finally diagnosed IgG4-related disease by histopathology.

### Case report

A 13 year old boy was admitted with history of fever for 2 weeks. He was noted to have erythema over lips and tongue at admission. Child had past history of intermittent childhood asthma. Systemic examination was normal with no lymphadenopathy and no pallor. Blood investigations showed normal Hemoglobin, normal WBC count and platelet count with ESR 65mm/hour and CRP 31mg/L. A provisional diagnosis of Atypical Kawasaki disease was considered. Chest X ray showed haziness

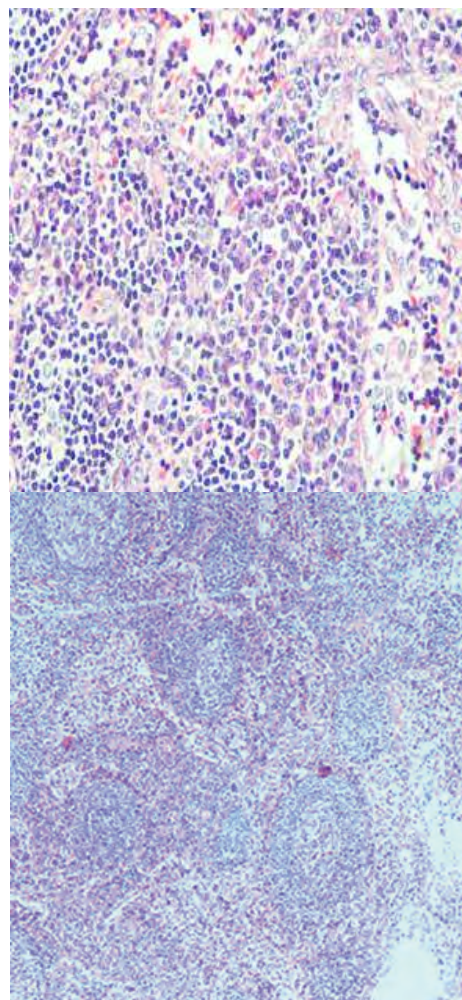


over the lower zone of the left upper lobe and he was treated for pneumonia with 3rd generation cephalosporin for 7 days. Fever subsided, echocardiograph was normal, the possibility of Kawasaki disease was unlikely and the boy discharged in a stable condition.

He was periodically followed up because ESR remained high. On follow up after 45 days, ESR increased to 80mm/hour and CRP increased to 84mg/L. The boy was asymptomatic with no fever, had good appetite and adequate weight and height. He had mild hepatosplenomegaly on ultrasound abdomen and echocardiograph revealed thickened posterior pericardium with minimal pericardial effusion. Since chest X ray was suggestive of persistent pneumonia HRCT chest was done. HRCT chest showed multiple mediastinal lymphadenopathy with largest size 12.8mm, consolidation in the apicoposterior segment of left upper lobe and an anterior mediastinal mass in continuity with para aortic area extending to left hilum, probably thymic mass. Clinical possibility of tuberculosis, sarcoidosis and malignancy were considered. Mantoux was 18mm positive, QuantiFERON TB Gold assay negative, induced sputum for AFB and Gene Xpert were negative. Serum calcium and Serum Angiotensin converting enzyme were normal. Germ cell tumour markers such as AFP, Beta HCG and LDH were within normal range. Child was noted to have hypergammaglobulinemia. HIV ELISA and ANA were negative. Serum Ig G and Ig A levels were elevated with normal IgE. Repeat echocardiograph done on 70th day of initiation of fever showed coronary artery aneurysm, pericardial effusion, thickening around proximal aorta probably aortitis and mild impairment of LV function. Left coronary artery was 4.5mm diameter and left anterior descending artery 6mm diameter. Child was started on anti thrombotic dose of aspirin. 18F-FDG PET/CT study revealed metabolically active mediastinal adenopathy, thymic and pericardial infiltrates and a metabolically active right iliac bone lesion.

Mediastinoscopic biopsy of the enlarged lymph node

done. Histopathologic examination was suggestive of benign reactive lymph node with plasmacytosis. On immunohistochemistry an increase in IgG4 positive plasma cells were identified. Ig G4 positive plasma cell count per high power field was 30-35. The ratio of IgG4 positive to CD 138 positive plasma cells was 35-40%. Serum Ig G4 level was elevated, 292mg/dl. He was diagnosed as Ig G4 RELATED DISEASE. Treatment initiated with Deflazacort equivalent to 1mg/kg/day of prednisolone dosage. Inflammatory parameters decreased with treatment. ESR reduced to 4mm/hour, CRP reduced to 0.7mg/L and S IgG4 came down to 143mg/dl. Repeat cardiac MRI showed normal sized coronaries after initiation of treatment. Steroid therapy was gradually tapered.



Histopathology slide of mediastinal lymph node



## Discussion

IgG4-related disease is a fascinating clinical entity including a wide variety of diseases, formerly diagnosed as Mikulicz's disease, autoimmune pancreatitis, interstitial nephritis, prostatitis and retroperitoneal fibrosis.<sup>1</sup> A 3-year investigation by the Japanese IgG4 team, organized by the Ministry of Health, Labor and Welfare of Japan, has reached a consensus, in that IgG4-related disease can occur in various organs, with clinical symptoms depending on lesion location.<sup>1</sup> The epidemiology of IgG4 related disease remains poorly understood because of its recognition, only recently, as a multi-organ disease<sup>2</sup>. IgG4 related disease formerly was typically diagnosed among individuals who are middle-aged, was characterized by a male predominance except with regard to organs of head and neck, where the gender distribution is approximately equal.<sup>2</sup> In the international cross sectional cohort study conducted in Massachusetts, USA, out of the IgG4 cohort of 493, they identified four groups with distinct manifestations: Group 1 (31%), Pancreato-Hepato-Biliary disease; Group 2 (24%), Retroperitoneal Fibrosis and/or Aortitis; Group 3 (24%), Head and Neck-Limited disease and Group 4 (22%), classic Mikulicz syndrome with systemic involvement.<sup>3</sup> Cases in Group 3 were more likely to be in females.<sup>3</sup> Cases in Group 4 had a higher median serum IgG4 concentration (1170 mg/dL) compared with groups 1–3 (316, 178 and 445 mg/dL, respectively,  $p < 0.001$ ).<sup>3</sup>

IgG4-related disease can affect virtually all organ systems in the body, pancreas, biliary tree, salivary glands, peri orbital tissue, kidneys, lungs, lymph nodes, meninges, aorta, breast, prostate, thyroid, pericardium and skin.<sup>2</sup> The manifestations are pancreatitis, in salivary glands it produces dacryoadenitis, sialoadenitis, parotitis and Kuttner tumour, inflammation of the peri orbital tissues produces inflammatory pseudo tumour, orbital myositis and ophthalmic disease.<sup>2,8</sup> In kidneys the illness is manifested as tubulointerstitial nephritis and in lungs as interstitial pneumonia.<sup>2</sup> Lymphadenopathy, hypertrophic

pachymeningitis, lymphoplasmacytic aortitis, mastitis, prostatitis, Riedel thyroiditis, pericarditis, sclerosing cholangitis, cutaneous pseudolymphoma, hypophysitis, eosinophilic angiocentric fibrosis, multifocal fibrosclerosis and arterial involvement include renal, splenic, femoral and carotid arteries. 2 IgG4-related cardiac manifestations include involvement of the myocardium, 3rd degree heart block due to SA node involvement, cardiomegaly, constrictive pericarditis, pseudotumours around coronary arteries, valvular regurgitant lesions involving the aortic and mitral valves. Sudden death can occur due to involvement of coronary arteries and coronary aneurysm.<sup>4</sup>

IgG4-related disease is an indolent disease that can produce symptoms for months or years before getting diagnosed.<sup>5</sup> It often is accompanied by significant weight loss of 20 or more pounds, but without fever, and often have a dissociation between a high erythrocyte sedimentation rate but a relatively low level of C-reactive protein.<sup>5</sup> The current gold standard for the diagnosis of IgG4-related disease is the identification of characteristic histology and immunohistochemistry features through biopsy.<sup>5</sup> Characteristics common to all forms of IgG4-related disease include elevated serum IgG4 concentration and tissue infiltration by IgG4 positive plasma cells, accompanied by storiform fibrosis and obliterative phlebitis.<sup>1</sup> Along with elevated serum IgG4 levels, increased blood plasma cell concentration, asymptomatic proteinuria and low serum C3 and C4 levels can be observed.<sup>2</sup> According to ACR and EULAR draft criteria for IgG4-related disease, the first step in classifying a patient with IgG4-RD is to identify involvement of at least one organ from the panel compiled of 10 organs where involvement typifies the disease: pancreas, bile ducts, orbits, lacrimal glands, major salivary glands, retroperitoneum, kidney, aorta, pachymeninges, and thyroid gland (Riedel's thyroiditis, but not Hashimoto's disease). Patients who do not have disease involvement in at least one of these organs don't qualify as having IgG4-RELATED DISEASE.<sup>5</sup> The next step is to rule out patients who have at least one exclusion



criterion from a list of 21 exclusions in the panel cited and divide into four categories based on the test that finds each exclusion: clinical examination, serology, radiology, or pathology.<sup>5</sup>

**Exclusion criteria for IgG4-related disease**

|                               |  |
|-------------------------------|--|
| <b>Clinical exclusions</b>    | Fever<br>Unresponsive to steroids<br>Leukopenia and thrombocytopenia<br>Peripheral eosinophilia (>3,000 per mm <sup>3</sup> )  |
| <b>Serological exclusions</b> | PR3 or MPO-ANCA positive<br>Anti-Ro or La positive<br>Extractable nuclear antibody positive<br>Cryoglobulins<br>Other disease-specific antibody  |
| <b>Radiology exclusions</b>   | Rapid radiographic progression<br>Large bone abnormality (such as Erdheim-Chester disease)<br>Splenomegaly<br>Concern regarding infection, malignancy, or both   |
| <b>Pathology exclusions</b>   | Primarily granulomatous inflammation<br>Necrotizing vasculitis<br>Malignant infiltrate<br>Prominent histiocytic infiltrate<br>Prominent neutrophilic infiltrate<br>Multicentric Castlemans pathology<br>Prominent necrosis<br>Inflammatory pseudotumor pathology |

This approach would prevent wrong enrollment of patients not having IgG4-related disease<sup>5</sup> Although many patients with IgG4-related disease have lesions in several organs, either synchronously or metachronously, and pathological features of each organ differ, a consensus has been reached on diagnosis of IgG4-related disease.<sup>6</sup>

Comprehensive Diagnostic criteria for IgG4-related disease<sup>6</sup>

DEFINITE IgG4-related disease– must fulfill all 3 criteria given below

POSSIBLE igG4-related disease - fulfill criteria 1 and 2, without criteria 3

PROBABLE IGG4-related disease- fulfill criteria 1 and 3, without histopathologic findings

|    |   |
|----|---|
| 1. | Clinical examination –characteristic diffuse/ localized swelling or masses in single or multiple organs |
| 2. | Increased S. IgG4 concentration > 135mg/dl  |

|    |   |
|----|---|
| 3. | Histopathologic examination shows <ul style="list-style-type: none"> <li>a. Marked lymphocytic and plasmacytic infiltration and fibrosis</li> <li>b. Infiltration of IgG4 positive plasma cells, ratio of IgG4 +ve/IgG +ve &gt;40% and &gt;10 IgG4 +ve plasma cells per high power field</li> </ul> |
|----|---|

Glucocorticoids are the first-line agent for remission induction in all patients with active, untreated IgG4-related disease.<sup>7</sup> Following a successful course of induction therapy, certain patients benefit from maintenance therapy. Retreatment with glucocorticoids is indicated in patients who relapse off treatment, following successful remission induction.<sup>7</sup> Following relapse, the introduction of a glucocorticoid-sparing agent for continuation in the remission maintenance period should be considered.<sup>7</sup> Treatment is initiated with low doses of prednisolone. IgG4-related cardiovascular disorders might require higher doses of corticosteroids. A large, already developed aneurysm can rupture even during or after steroid therapy, and hence additional pre-emptive surgical treatment may be needed. Relapses or cases which are not responding to steroids needs treatment with immunosuppressants.<sup>7</sup> Cyclophosphamide and methotrexate can be used in the treatment.<sup>8</sup> Glucocorticoid in combination with immunosuppressant can also be tried.<sup>8</sup> Other treatment options in cases resistant to steroids include Rituximab, Azathioprine and Mycophenolate mofetil.<sup>7</sup> There is increased risk of malignancy in IgG4-related disease.<sup>8</sup> Malignancies of lung, Colon, Prostate, Stomach, Pancreas, Thyroid and non Hodgkins lymphoma can occur.<sup>8</sup> Hirano K et al conducted a study in 113 patients with IgG4-related disease in Japan concluded that the incidence of total malignancies in patients with IgG4-related disease was similar to that observed in the general population.<sup>9</sup> However careful follow up studies are needed in patients diagnosed with IgG4-related disease.

We hope that this article will increase awareness amongst Pediatricians regarding this newly identified disease “IgG4-related disease” and help in early diagnosis and prompt treatment.



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## Survival beyond science !!

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### Abstract

Breast cancer is the most frequently diagnosed cancer and is the leading cause of cancer related death among females worldwide<sup>1</sup>. It is the second most common cause of brain metastasis next to lung cancer with metastasis occurring in 10 – 16% of patients. Unfortunately patients who develop brain metastasis tend to have a poor prognosis with short overall survival. In addition brain metastasis is a major cause of morbidity and is associated with progressive neurological deficits that result in reduced quality of life. Here we present the case summary of a 52 year old women who was diagnosed to have CA Breast with brain metastasis at presentation.

**Keywords:** Brain metastasis, Brain radiation, CA Breast.

### Introduction

Despite the gains in early detection, we come across patients with simultaneous metastatic disease identified at the initial presentation in our clinical practice. The most common sites of visceral metastasis from breast cancer are bone, liver, lung & brain. Among women presenting with early stage breast cancer, fewer than 3 % will develop brain metastases<sup>2</sup>. By contrast, symptomatic brain metastases are diagnosed at time of initial diagnosis in 10 to 16 % of patients with metastatic breast cancer. Although metastatic breast cancer is not curable, meaningful improvements in survival have been seen, coincident with the introduction of newer systemic therapies<sup>3-5</sup>. The goals of treatment of metastatic breast cancer are to prolong survival and improve quality of life by reducing cancer-

related symptoms. In order to achieve these goals an individualized approach is needed since no one strategy can be applied for all women. Median overall survival (OS) approaches two years, with a range from a few months to many years<sup>6</sup>. But brain metastasis in breast cancer patients represent a catastrophic event that portends a poor prognosis.

### Case Report

52 year old lady was brought to KIMS emergency with history of headache and vomiting since 10 days in September 2011. She had a CT Brain done locally which showed multiple space occupying lesions (SOL) suspecting secondaries. She was seen in neuromedicine initially and MRI Brain with contrast was advised.

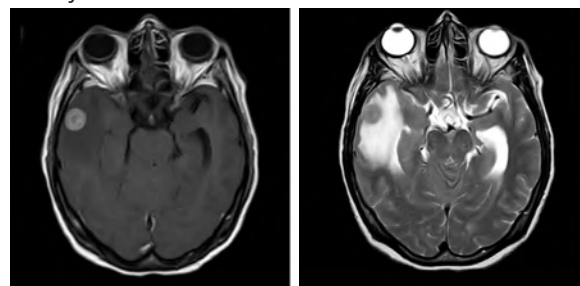


Fig. 1, 2: Lesion in right temporal cortex of size 1.7 cm with significant perilesional edema

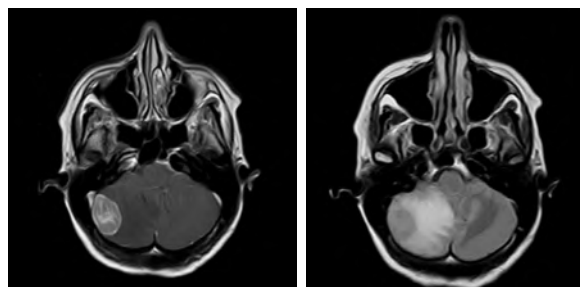


Fig. 3, 4: Peripherally located mass in right cerebellar hemisphere 3 cm in size with significant perilesional edema, compressing the fourth ventricle causing early hydrocephalus

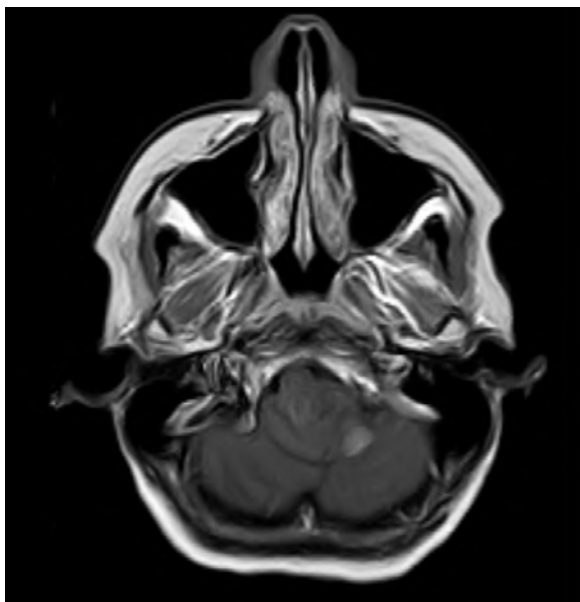


Fig. 5: Another lesion in left inferior cerebellar peduncle of size 1 cm

Neurosurgical and oncology consultations were taken. Clinical examination revealed 5 x 4 cm mobile mass in right lower outer quadrant of breast. There were matted right axillary lymph nodes and a tiny right supraclavicular lymph node.

Mammogram revealed ill defined radio opacity measuring 3 cm in outer quadrant of right breast causing mild architectural distortion & enlarged lymph nodes in right axilla. Trucut biopsy from right breast mass confirmed infiltrating duct carcinoma, grade II. She had Estrogen receptor (ER) / Progesterone receptor (PR) Negative and HER 2 3(+) disease status by Immunohistochemistry.

CT Chest, Abdomen & Pelvis with contrast was done for staging which showed no distant metastasis.



Fig. 6: 3.2 cm lesion in superolateral aspect of right breast

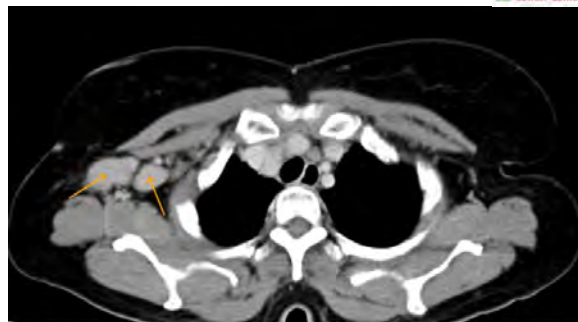


Fig. 7: Multiple enlarged enhancing right axillary lymph nodes

So she was diagnosed with CA Breast with brain metastasis at presentation. She was started on palliative whole brain radiation along with anti edema measures. She has received 30 Gy /10 # from 4.10.2011 to 14.10.2011. She tolerated radiation well.

In October 2011, she was started on palliative chemotherapy with TCH regimen (Docetaxel, Carboplatin & Trastuzumab). Repeat MRI Brain was done in January 2012 which revealed 8 mm focal area of parenchymal enhancement in right cerebellar surface. All other brain lesions were resolved.

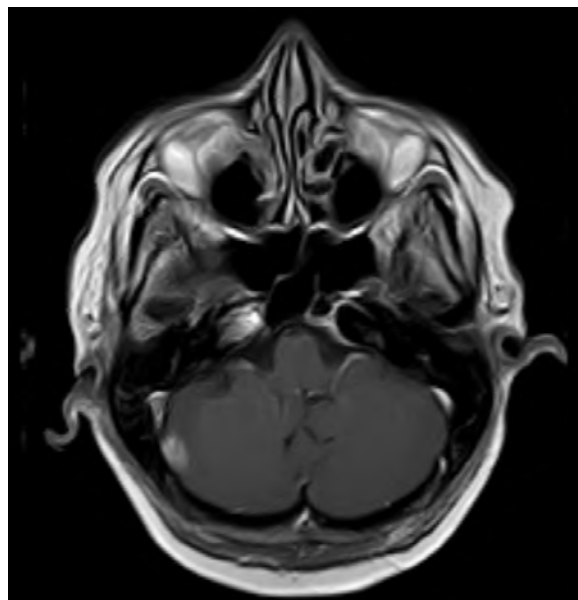


Fig. 8 - in January 2012. Focal area of parenchymal enhancement in right cerebellar surface seen inferolaterally

In February 2012, she has completed 6 cycles of TCH regimen. She had a very good response to chemotherapy with disappearance of right breast lump, axillary &





supraclavicular lymph nodes. So she underwent right mastectomy with axillary clearance on 28.02.2012. Histopathologic examination showed no residual neoplasm in breast and in all 15 axillary lymph nodes.

Then she was continued with once in three weekly trastuzumab. A repeat MRI Brain was done in June 2012 which was normal with no evidence to suggest metastasis.

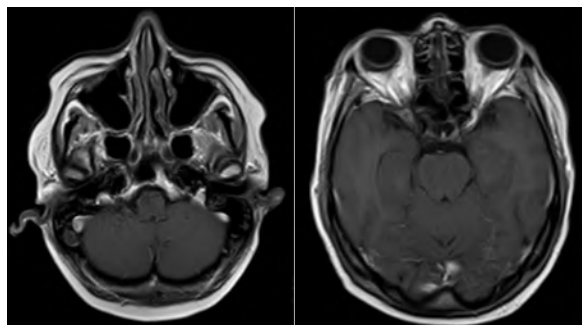


Fig. 9, 10: Normal MR Brain in June 2012

She was continued with trastuzumab till May 2013. Further trastuzumab was deferred due to drop in ejection fraction. She is on regular follow up now. PET CT done in August 2016 was normal. Her last follow up visit was on 30.08.18. Her clinical examination was normal. Her ECOG (Eastern Cooperative Oncology Group) performance status is 0. Her higher functions are normal even after whole brain radiation.

### Discussion

Radiotherapy is the standard treatment for patients with brain metastases. Surgical resection should be considered in patients with isolated brain metastasis and no extracranial disease. Most active chemotherapeutic agents in breast cancer including doxorubicin, taxanes and trastuzumab do not reach the central nervous system in sufficient concentrations. Moreover patients with HER2/neu gene aberrations have more aggressive disease. Trastuzumab is a monoclonal antibody selectively directed against the HER2/neu receptor. Due to its large molecular weight trastuzumab is easily blocked by the intact blood brain-barrier. Whole brain radiotherapy would have facilitated its penetration.

### Conclusion

Stage IV CA Breast is an incurable disease. Moreover this patient had an unfavorable biology (ER / PR Negative & HER 2 Positive disease). Infact we started treating with a palliative intent – Palliative whole brain radiation, palliative chemotherapy along with targeted therapy and palliative mastectomy. Finally landed in a probable cure! She has got an overall survival of 8 years & a disease free survival of 7 years!! Of course we tie the wounds & God heals.

### Acknowledgement

Thanks to the following consultants who were involved in the diagnosis and management of this patient with brain metastasis from breast primary at presentation.

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## Primary Antiphospholipid syndrome

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### Abstract

Antiphospholipid syndrome or “APS” is an autoimmune disorder of hemostatic system, characterized by presence of antiphospholipid antibodies, together with one of the following clinical manifestations-namely- Arterial and Venous Thrombosis and repetitive fetal loss. After being first described by Huges et al.in 1983, APS is increasingly getting attention as every year over 35,000 cases of APS are being recorded amongst the young population of USA alone.

APS can affect blood vessels in all vascular segments and is characterized by hypercoagulability-related diverse symptoms.Ocular manifestations are associated in 14 to 18 % of patients.Although most common ocular manifestations are – Retinal vascular occlusions, APS can present with diverse ocular manifestations from anterior to posterior segment.

Herein we present a case of primary Antiphospholipid syndrome in a 30 years old woman who presented with gross diminution of vision in her right eye due to choroidal neovascularization. She was diagnosed as a case of primary APS after thorough investigations and was successfully treated with intra-vitreous AntiVEGF injections. This is a rare case where APS presented with only ocular manifestation.

**Keywords:** Antiphospholipid syndrome[APS], choroidal neovascularization, Anti vasculoendothelial growth factor[Anti-VEGF], Antiphospholipid antibodies.

### Introduction

Antiphospholipid syndrome [APS] is an autoimmune disorder of hemostatic system. APS is an acquired thrombophilic disorder in which autoantibodies are produced to a variety of phospholipids and phospholipidbinding proteins. These antibodies include anticardiolipin antibodies, b-2-glycoprotein-1 antibodies, and lupus anticoagulant.

APS is being increasingly recognized as the cause of arterial and venous occlusions in young asymptomatic individuals.Retinal vein occlusion and formation of choroidal neo-vascular membrane are two vision threatening presentations of APS in otherwise healthy young individuals. Herein we present a case of Antiphospholipid syndrome in a 30 years female who presented with a large choroidal neovascular membrane or wet macular degeneration in her right eye. She was successfully treated with Intravitreal Anti VEGF injections.

### Case report

- A 30 years old woman presented to Ophthalmology clinic of Royal Bahrain Hospital, with complaint of gross diminution of vision in her right eye for last 6 months.She had no history of any other systemic disorder.
- On examination, her best corrected visual acuity was 5/60 in her right eye and 6/6 in her left eye. She is a high Myope. Anterior segment examination in both eyes was unremarkable and a normal intra-ocular pressure was recorded in both eyes.Dilated fundus examination revealed a large choroidal neovascular

membrane with pre-retinal bleeding and exudation at the fovea in the right eye, covering whole of the fovea.

Left eye fundus was within normal limits.

- OCT of the macula confirmed the findings.
- There was no other systemic co-morbidity like diabetes mellitus, hypertension and dyslipidemia .A complete blood count, coagulation profile and Anti phosphor lipid antibody tests were advised.Her APTT was on higher side and amongst the antiphospholipid, Lupus Antibody test positiveShe was referred to

the Rheumatologist for further assessment of autoimmune disease [APS].

After the Rheumatology assessment, the case was labeled as an isolated ocular manifestation of APS syndrome with a large choroidal neovascular membrane.[fig 1 and 2]

She underwent treatment with intra-vitreous anti-VEGF injections, 3 INJECTIONS OF Ranibizumab {Avastin} and 3 injections of Aflibercept {Eylea} in last one year. On her last examination her best corrected visual acuity improved from 5/60 to 6.7.5.She still sees a bit wavy but has regained 95% of her visual acuity.[fig 3 and 4 ]



Fig. 1

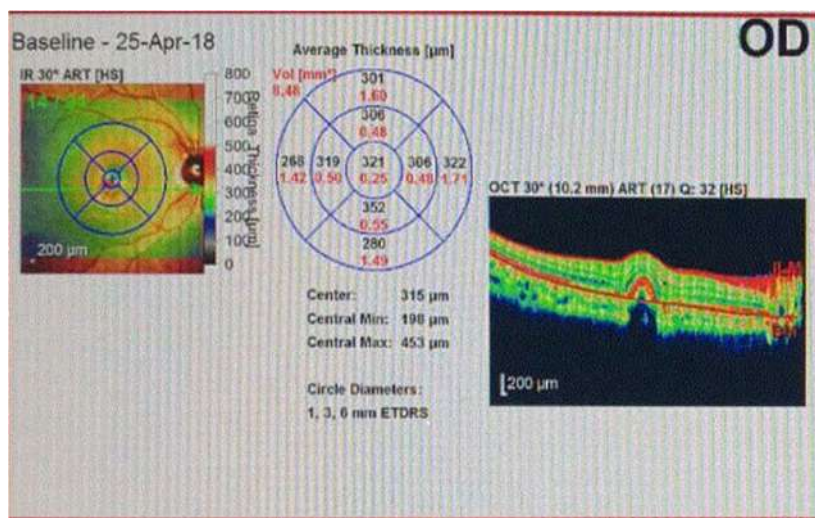


Fig. 1 and Fig. 2: OCT-Angio showing a large choroidal neovascular membrane with leakage and corresponding OCT macula showing CMT of 321

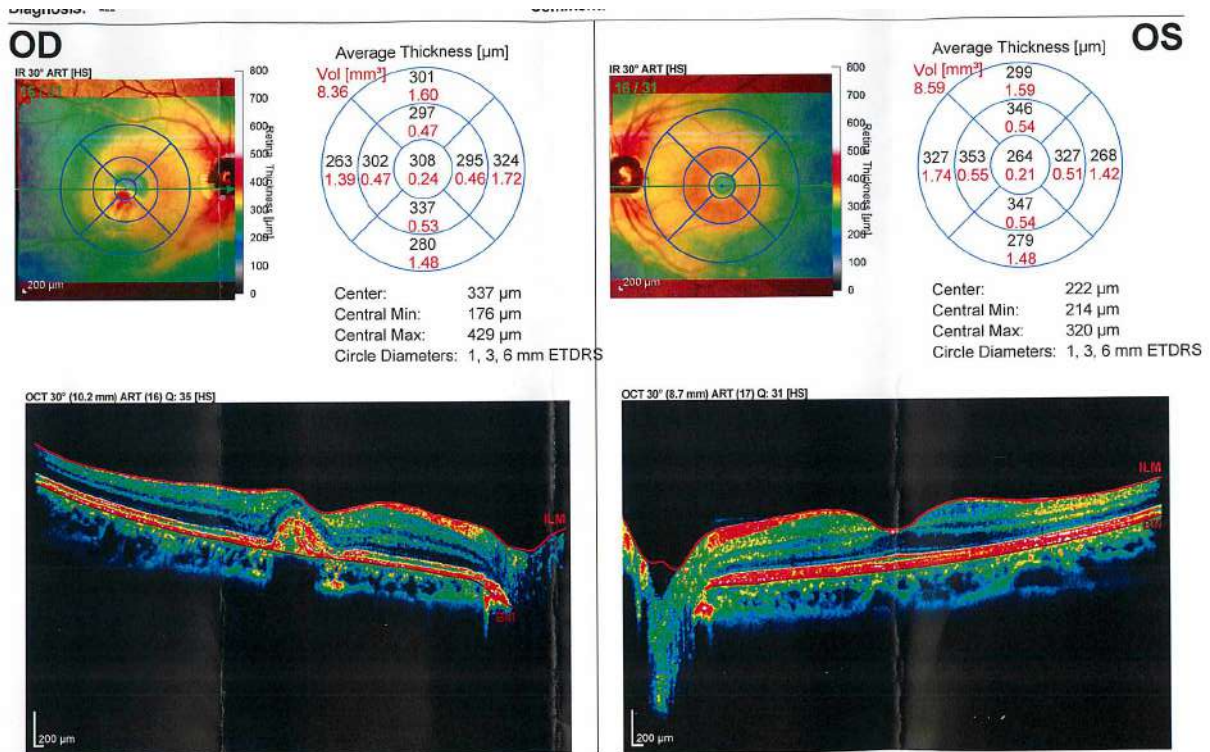


Fig. 3: Reduction in size of CNVM, with CMT reduction to 308, post avastin

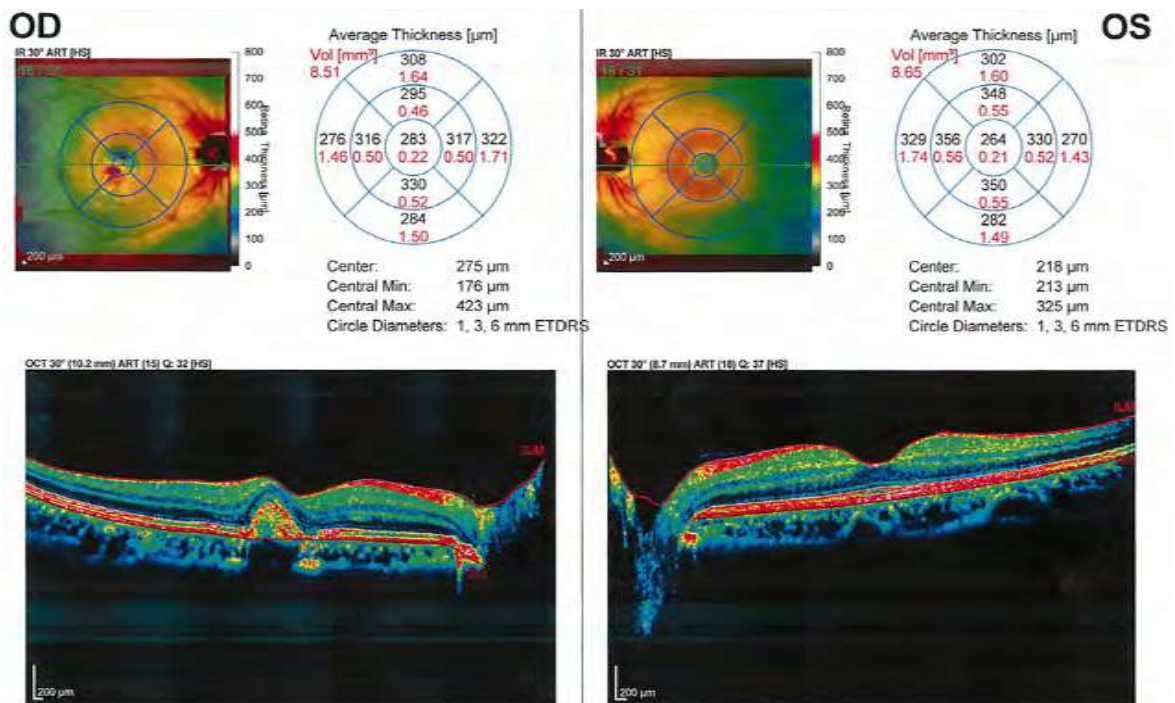


Fig. 4: Near complete resolution of CNVM with reduction in CMT to 283

### Conclusion

- Anti Phospholipid Syndrome should be considered as an etiological factor in all cases of retinal vein occlusion and choroidal neovascular membrane in young healthy individuals.
- Timely investigations in these cases can prevent major a catastrophic thrombotic event which may involve any organ and rarely multi-organ failure.

First Author: Dr. Seemantini Ayachit – responsible for diagnosing and managing the case.

Acknowledgement: Dr. Saad A.S. Alkhalifa- For all investigational support and guidance in management of the case

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## Know the Department of Transfusion Medicine

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Department of Transfusion Medicine

Transfusion medicine has emerged as a separate branch with rapid and numerous advances in the field of blood banking. There are ongoing significant advances in various aspects including cellular therapies, regenerative medicine, blood derived biomaterials, tissue engineering, immunotherapies and transplant immunology. Pharmacological and immunological approaches are being explored and clinical transfusions are now more evidence based. The scope of service today has far developed from the old concept of blood deposition and distribution to heterogeneous laboratory tests and its resolutions, regulatory compliance, manufacturing principles and various advanced sophisticated techniques which compliments quality of patient care.

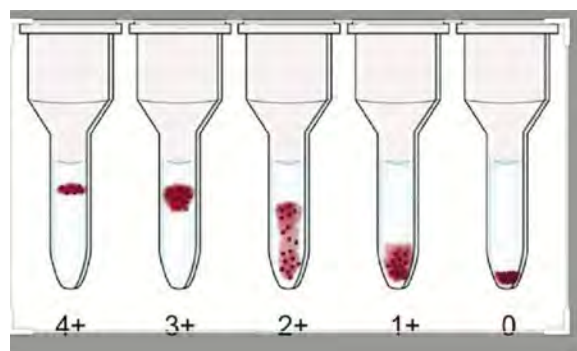
Discovery of ABO blood group system by Karl Landsteiner in 1901 laid the foundation of immunohematology and blood transfusion, which is considered as the back bone of transfusion medicine. Until early 1980s blood transfusion in India was largely whole blood, but the introduction of plastic blood bags in the country began to transform the blood processing techniques. The discovery of anticoagulants increased the shelf life of blood components during storage and the further addition of preservative solutions to red blood cells extended the storage life to some more days. The discovery of causative agents of TTIs led to the development of diagnostic tests and subsequently screening of donor blood became mandatory as per Government of India notifications

Listing out few of the advanced technologies introduced in the department of transfusion medicine which can supplement patient care and safety.

### Gel technology for immunohematology tests

Gel technology is suitable for performing forward and reverse ABO blood grouping, Rh typing, antibody screening, antibody titration, direct antiglobulin testing (DAT), antibody identification, and compatibility testing. Column agglutination technology (CAT) is the principle used in gel/bead cassettes. Over the years, CAT has replaced conventional tube method because of the high sensitivity, reproducibility and specificity of reactions but still considered as the gold standard method for immunohematology workups.

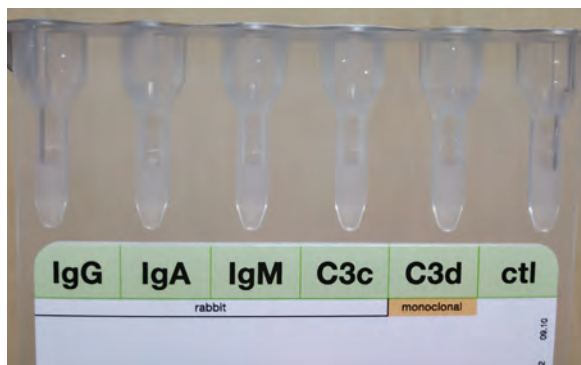
CAT is cassette based and each cassette contains 6 columns/ microtubules, which has gel/bead inside the microtubules to support the test. For coombs based tests like IAT (Indirect antiglobulin testing) and DAT (Direct antiglobulin testing), anti-human globulin is also added into the column uniformly. The agglutinated antigen antibody complex will remain on to the top of the column however the non-agglutinated cells will settle down to the bottom gives reactions ranging from 0 to 4+ depending upon the strength, 4+ being the strongest reaction observed





### DAT characterization card

Gel tests are now available for the determination of immunoglobulin classes, subclasses and complement fractions coating RBCs. These tests simplified serologic characterization of autoantibodies in various autoimmune diseases. This type of cassettes/ cards make advantage of differentiating the warm, cold as well as mixed autoimmune hemolytic anemia, which aids the clinicians in managing the patient judiciously.



DAT characterization card

### Antibody identification panel

When the antibody screen is positive, it is very essential that the alloantibody needs to be identified. The importance of antibody identification is to provide the patient antigen negative blood to avoid immediate as well as delayed transfusion reactions

When the antibody screen is positive, additional time is required to identify the antibody (ies), to find antigen-negative red cells, and to perform AHG crossmatches.



Antibody identification panel

This time can range from an hour to days if multiple antibodies, antibodies against high frequency antigens, or a mixture of autoantibody and alloantibodies are present.

### Advances in component preparation

#### Leukodepleted blood products-LDRBC and LD platelets

Leucodepletion is a process by which leucocytes are removed from donated blood. It has been estimated that the average content of leucocytes in donated human whole blood is 109/unit. By the current standards, post leucofiltration total content leucocytes in a blood unit should be less than  $5 \times 10^6$ /unit. This process has been in use for some time for a select group of patients like multi-transfused, the immunocompromised and malignancy patients. The leukodepletion is available for blood products like PRBC and platelets

#### Advantages

- Prevents febrile non hemolytic transfusion reactions (FNHTR)
- Prevents allo-immunisation to HLA antigens in patients who repeatedly requires transfusion of blood/ blood products.
- Prevents CMV and other leukotropic viral transmission

#### Irradiated blood products

This product is useful in certain category of patients who are at risk of transfusion associated graft versus host disease (TAGVHD). The risk population includes premature babies, immune compromised, immune deficient patients, recipient of blood from first degree relatives. Irradiation is the only technology that is approved by FDA to prevent TAGVHD. Irradiation facilitates the inactivation of donor T lymphocytes by damaging the nuclear DNA.

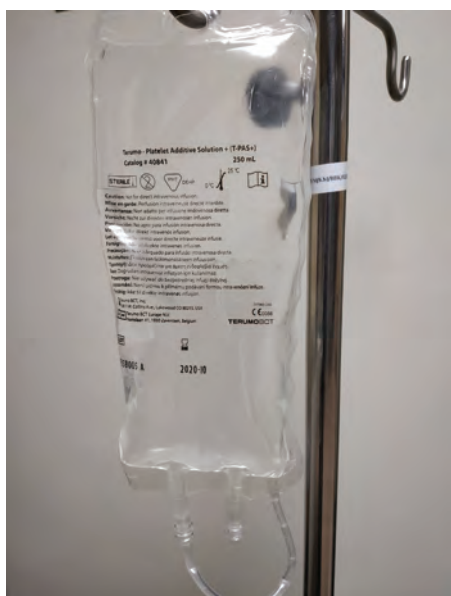
#### Platelet additive solutions (PAS)

PAS is balanced electrolyte solutions intended to store platelets and preserve its integrity and functions. They are crystalloid nutrient solution which can be used to store platelets instead of plasma. PAS replaces 60—70% of





plasma from the platelet concentrate and hence reduces transfusion reactions due to plasma proteins. PAS was developed in the 1980s to have as little plasma as possible in platelet concentrate, as plasma was suspected to contain harmful enzymes that caused the platelet storage lesion. The main advantages of PAS over plasma for platelet storage are



Platelet additive solutions

1. Reduce the plasma volume in platelet concentrates and there by reduces allergic as well as FNHTR reactions
2. Facilitate transfusion ABO mismatch platelet transfusion as PAS reduces plasma antibody levels

### Nucleic acid technique (NAT)

This is a molecular technique for screening blood donations to reduce the risk of transfusion transmitted infections in the recipients, thus providing an additional layer of blood safety. NAT is highly sensitive and specific for viral nucleic acids. NAT take care of the dynamics of window period of various viruses by reducing it and hence early detection of viruses are possible. Window period is defined as interval between the potential exposure to an infection until it is been detected. It is during this period, the risk of infection in donated blood can be missed by the immunoassay testing. NAT can also be helpful.



NAT machine

### Platelet rich plasma (PRP) for therapy

In addition to the hemostatic property, platelets are excellent source of growth factors and cytokines. PRP is the autologous product which enhances the recruitment, proliferation, and differentiation of cells involved in tissue regeneration. There are lot of indications in dermatology and esthetic surgery, orthopedics, oral and craniofacial surgeries. PRP is also helpful in the healing chronic wounds.



## Brain Tumors

Dr. Khalil Isaac Mathai VSM

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Brain Tumors arouse more dismay, disquiet and distress than most diseases. Brains are the essence of self, defining dreams, desires and capabilities. Tumors of the brain are often malignant, defying complete cure, where current therapeutic paradigms at their best can offer only palliation. Surgical resection is often curative in Benign Tumors. Here too, surgical aggression needs to be tempered by caution tailored to the essentially of preserving critical neural assets.

What causes a brain tumor. Genetic susceptibilities and environmental culprits conspire to create a palette conducive to tumor initiation. Goliaths of the animal kingdom like elephants and whales are genetically protected from tumors. A gene TP 53, which produces a protein P 53 is a genetic poleman keeping tumors at bay. Elephants for example have 46 variants of this 'Guardian of the Genome', compared to one in humans. Normal cells proliferate under strict regulation. Cells which mutate to escape regulatory controls are induced by P53 to undergo apoptosis. Inherited or induced defects in the p53 and other genes is the first 'hit' increasing a cell's vulnerability to tumorous change.

Environmental factors which provide the second 'hit' include radiation, chemical agents and viruses. Ionising radiation and even electromagnetic waves from devices like cell phones induce breaks in DNA and may induce tumors. The blood brain which limits circulatory access to the brain limits the tumor inducing potential of Tumor initiation by inhaled or ingested agents. The association of viral proteins with malignant brain tumors raises fresh concerns on their etiological role.

The brain has two cerebral hemispheres connected by the brain stem to the spinal cord. Two smaller cerebellar hemispheres wrap around the brain stem. A horizontal fold of dura mater called the tentorium separates the cerebellar and cerebral hemispheres. Around 80 billion neurons with their axonal projections connected by trillions of synapses constitute the computing core of the brain. They are supported by myriad glial cells including astrocytes which provide succour and support to neurons and oligodendrocytes which provide insulation for axons. Tumors which have their origin inside the brain substance are described as intra-axial.

Gliomas which arise from the supporting cells constitute the commonest cerebral intra-axial tumors. Common gliomas are astrocytomas and oligodendrogliomas. Gliomas may be benign or malignant with the latter predominating. Glioblastoma multiforme, a grade 4 astrocytoma is the most malignant of human tumors. Metastases originating from cancers elsewhere in the body are the commonest intra-axial cerebellar tumors. Meningiomas arise from meninges on the convexity or at the base of the skull. Pituitary tumors which may be functional (producing hormones) or non-functional arise from the pituitary gland. Schwannomas of which vestibular schwannoma is the commonest are benign tumors arising from the cranial nerves.

An unexplained headache is the commonest presenting feature of a brain tumor. Tumors can also present with seizures. The location of a brain tumor is often suggested by the type of seizure and by the pattern of post ictal palsy. A variable pattern of visual loss occurs when a



pituitary tumor grows upward pressing upon the optic chiasm. Tumors in other areas produce corresponding neurological deficits.

Diagnosis of a brain tumor is confirmed by imaging. CT scanning before and after administration of contrast will delineate a tumor. The intensity of contrast enhancement is higher in malignant tumors. Some benign tumors may however 'enhance' with contrast. Edema around a tumor and shifts or herniations of the brain are also apparent on CT scans. MR imaging gives additional information on the relationship of the tumor to nerves and blood vessels. MR spectroscopy can differentiate various types of tumors. Functional MRI displays areas controlling speech and motor activity. Tractography on MR shows the various tracts. MR venography and MR angiography show the veins and arteries of the brain and their involvement or relationship with the tumor.

Once a brain tumor is identified, a treatment plan is formulated. The first step is to weigh the risk a tumor poses against the potential hazards of therapy. Small benign tumors with low growth potential may be left alone especially in older individuals. At the other end of the spectrum large malignant tumors and metastatic brain tumors with uncontrolled primary lesions may be left alone considering the futility of treatment.

The first line of treatment is usually surgical. The aim of surgery is to maximally remove a tumor without producing a major neurological deficit. In deep seated tumors where the risk of surgical extirpation is high a small specimen may be obtained using stereotactic techniques. An exponentially expanded neurosurgical armamentarium and safer advanced surgical and anaesthetic techniques have resulted in remarkable improvement in patient outcomes.

The evolution and use of neurosurgical microscopes has redefined standards of surgical precision. Endoscopic techniques have facilitated the expansion of surgical corridors through the skull base for access to basal midline

tumors like pituitary adenomas and craniopharyngiomas (a tumor originating from embryological remnants). Neuronavigation is technique that uses real-time tracking of surgical instruments on a screen which displays images of the tumor and of adjacent vessels and nerves. Navigation helps in achieving complete tumor removal and also in the planning of trajectories avoiding vital structures and critical 'eloquent' brain. Electrophysiological monitoring and the technique of awake craniotomy are also aids at conserving high functioning cortex. While the bipolar cautery has become standard equipment in the neurosurgical OR, ultrasonic aspirators and contact lasers are useful aids in tumor removal. Induced tumor fluorescence using dyes and optical filters helps better delineation of tumor margins.

Malignant tumors require chemo-radiation after surgical excision to prevent recurrence or regrowth. Standard chemotherapy for Glioblastomas uses Temozolamide as an adjunct to radiation. Failure of the first line may require introduction of monoclonal antibodies like Bivacusimab which target tumor blood supply. Conformal techniques where radiation is focussed to the tumor bed and the use of highly focussed radiation techniques like Gamma knife and Cyber knife minimise radiation induced damage to adjacent brain. Gene therapy techniques where Tumor Stem Cells ( active proliferating cells in a tumor) are transfected using viral or other vectors to self destruct offers therapeutic promise. Immunotherapy techniques using activated dendritic cells and tumor vaccines are in the research pipeline.

The cynical angst surrounding brain tumor therapy has been replaced by cautious optimism. The cornucopia of technological evolutions and a better appreciation of tumor biology has helped evolve rational therapeutic paradigms. The journey is long and any promise of an assured universal cure remains a mirage. A holistic and compassionate approach to brain tumor victims is the best balm a clinician can offer.

## Outcome of Closed Wedge Varus Derotation Osteotomy with Trochanteric Apophysiodesis in Perthes Disease

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Dr. G M Yathisha Kumar  
Dr. M Abdul Rasheed

Department of Orthopaedic Surgery

### Abstract

Perthes disease is a condition in which a self-limiting avascular event affects the capital epiphysis of the femur with a very variable course. It has been shown frequently, however, that there is a group of patients who definitely benefit from containment, either surgical or nonsurgical, better with surgical. We studied midterm to long term outcome of closed wedge varus derotation osteotomy (VDRO) with trochanteric apophysiodesis in Perthes disease.

**Keywords:** Perthes disease, trochanteric apophysiodesis, varus derotation osteotomy, outcome,

### Introduction

Perthes disease is a condition in which a self-limiting avascular event affects the capital epiphysis of the femur with a variable course.<sup>1</sup> Most of today's therapeutic approaches are based on the concept of containment. These treatments include bracing, Petrie cast, femoral osteotomy, innominate osteotomy, and acetabular shelf procedures.<sup>2</sup> Subtrochanteric varus derotation osteotomy (VDRO) aims to decrease the neck shaft angle and anteversion of the proximal femur so that anterior and lateral part of capital epiphysis is pushed into the acetabular cavity, improving the coverage of the femoral head. Thus, the contained head gets an opportunity to remodel with growth due to biological plasticity.<sup>1,3,4</sup>

After first being reported in 1965 as a treatment of Perthes disease, this procedure has consistently shown satisfactory results in properly selected patients over the

last 50 years.<sup>4,5,6,7,8</sup> Many studies recommend VDRO as the first line treatment for surgical containment of femoral head in Perthes disease.<sup>4,5,6,7,8</sup>

In spite of the fact that Malabar region of Kerala comes in the western coastal area of India, which has a reported higher incidence of Perthes disease, not many studies were done here.

This study evaluates the functional outcome of Perthes disease treated by VDRO with trochanteric apophysiodesis. The clinical outcome was assessed by Catterall's postoperative classification and radiological outcome was assessed by rate of regeneration of epiphysis after surgery, sphericity of the femoral head after healing, using Mose's index, and percentage increase in the radius of the femoral head.

### Materials and Methods

88 children with Perthes disease treated by VDRO with trochanteric apophysiodesis between 1990 and 2010 with minimum followup of 6 years were included in this retrospective study. The medical records and radiographs of the patients were collected and analyzed regarding the preoperative and postoperative status (the patients were also interviewed personally and radiographs obtained, after contacting them over phone and post). The cases were classified based on Herring's lateral pillar groups.<sup>9</sup> Indication for surgery was children with Perthes disease in the age group of 5–13 years lateral pillar Groups B and C containable hips, with a minimum of 30° abduction and those which are in the fragmentation stage. A total of 98 cases were operated during this period. Bilateral hip



involvement was seen in four cases, which were excluded from our study. Complete followup was available in 88 cases, 70 males and 18 females, the remaining 6 cases were lost to followup. The minimum period of followup was 6 years and maximum of 26 years with the mean followup of 12 years. Mean age at presentation was 7.9 ± 2 years. The right hip was involved in 33 children, the left hip in 55. The mean time between diagnosis and surgery was three months.

**Operative procedure**

All patients were operated by the senior author. The surgical procedure used was a varus derotation femoral osteotomy. It was done using a lateral approach, with a closing medial wedge osteotomy at level of the subtrochanteric region. A varus correction of 20° was aimed, depending on the degree of desired varus correction. Using fluoroscopy image guidance [Fig.1] abduction of the extremity brings about the desired containment angle of the femoral head. The degree of abduction is expressed by the angle formed by the shaft of the femur and a vertical line parallel to the midline of the pelvis. This angle represents the desired wedge to be removed. Height of base of the wedge to be

removed for varus osteotomy was calculated using Table 1.10 The distal fragment was externally rotated about 20° and the fragments were fixed using a molded 6-hole dynamic compression plate (3.5 system). Trochanteric apophysiodesis was done by drilling the apophysis and introducing the proximal most screw across the physeal plate.



Fig. 1

(a) Preoperative X-ray pelvis with both hip joints anteroposterior view showing fragmentation stage, lateral pillar Group B Perthes disease right hip (b) Fluoroscopic view of (R) hip anteroposterior view showing preoperative planning – measuring desired varus angle, it is an angle between long axis of femur and a parallel line to midline (c) Immediate postoperative X-ray pelvis with both hip joints anteroposterior view showing well-contained femoral head

|                                     | FEMORAL SHAFT WIDTH AT OSTEOTOMY SITE (mm) |      |      |      |      |      |      |      |     |      |     |      |      |
|-------------------------------------|--|------|------|------|------|------|------|------|-----|------|-----|------|------|
| Desired Angulatory Change (degrees) | 10   | 12.5 | 15   | 17.5 | 20   | 22.5 | 25   | 27.5 | 30  | 32.5 | 35  | 37.5 | 40   |
| 10                                  | 1.5  | 2    | 2.5  | 3    | 3.5  | 4    | 4.5  | 5    | 5.5 | 6    | 6.5 | 7    | 7.5  |
| 15                                  | 2  | 3    | 4    | 4.5  | 5    | 6    | 6.5  | 7.5  | 8   | 9    | 10  | 10.5 | 11.5 |
| 20                                  | 3  | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11  | 12   | 13  | 14   | 15   |
| 25                                  | 4.5  | 5    | 6.5  | 7.5  | 9    | 10   | 11.5 | 12.5 | 14  | 15   | 16  | 17.5 | 18.5 |
| 30                                  | 5.5  | 6.5  | 8    | 10   | 11.5 | 12.5 | 14   | 15.5 | 17  | 18.5 | 20  | 22   | 23   |
| 35                                  | 6.5  | 8    | 10   | 12   | 13.5 | 14   | 17   | 18.3 | 21  | 22   | 24  | 26   | 27.5 |
| 40                                  | 8  | 10   | 12.5 | 14.5 | 16.5 | 18.5 | 20   | 23   | 25  | 27   | 29  | 31.5 | 33.5 |

Table 1 The height of the base of the wedge in millimeters is read at the junction of the horizontal axis (desired degrees of angulatory change) and the vertical axis (width of the femoral shaft at the osteotomy site).<sup>10</sup>

Height of base of wedge to be removed for varus osteotomy

No plaster immobilization was done, but weight bearing was denied until the osteotomy was united (nearly 8 weeks). The implants were removed after 12–18 months.

At followup, all hips were evaluated clinically and radiographically. Clinical evaluation included range of joint motion, limping, limb length discrepancy (LLD), and Trendelenburg sign. LLD was determined by placing a block under the shorter limb to level the pelvis.



Catterall’s postoperative classification was used to classify the hips into good, fair, and poor, which is based on the range of hip motion, hip symptoms, and radiography.<sup>1,11</sup> An asymptomatic hip with full range of motion and with a round and well-contained femoral head was classified as good. A fair result included an asymptomatic hip with slight restriction of movements, especially internal rotation with the head round but broadened and not fully contained (up to one-fifth being uncovered). A hip which was not free of symptoms and with restriction of movements was classified as poor. Radiologically, a poor outcome was associated with a flattened, broad, and irregular femoral head with adaptive changes in the acetabulum and widening of the medial joint space.

Sphericity of the femoral head was evaluated using the Mose’s index, in which anteroposterior and lateral views were studied by superimposing a template of concentric circles on the radiographs. According to this index, the results were classified as good if the head was spherical on anteroposterior and lateral radiographs. Fair results were those in which the head was not spherical but deviated <2 mm from the concentric circles and poor if there was >2 mm of deviation. The epiphyseal quotient was measured by dividing the epiphyseal index (greatest height of the epiphysis divided by its width) of the involved head by that of the uninvolved head. A quotient of 0.6 was classified as good, 0.4–0.6 as fair, and <0.4 as poor.<sup>12</sup>

Amount of hip subluxation was evaluated using center edge angle of Wiberg.<sup>13</sup> It is the angle formed by line joining the center of femoral head to outer edge of acetabular roof with a vertical line through the center of femoral head. CE angle >20° - good, 15–19° - fair, and <15° - poor. All the data were collected and filled in the format of the proforma.

The articulo-trochanteric distance (ATD) was measured as the vertical distance between the tangent to the highest point of the hip joint to the tip of greater trochanter. It indicates the overgrowth of the greater trochanter in relation to the femoral head.

The statistical software namely Statistical Package for the Social Sciences (version 15.0, SPSS Inc., 233 South Wacker Drive, 11<sup>th</sup> Floor, Chicago, IL 60606-6412) was used for the analysis of the data and Microsoft Word and Excel was used to generate tables and figures.

**Results**

Of the 88 children who were studied, 70 were males and 18 females. Male to female ratio in our study was 4:1. Of the 88 children who were studied, 55 of them had left side involvement and 33 had right side involvement [Table 2]. Most of the children presented to us within 3–6 months of onset of symptoms with mean age at presentation 7.9 ± 2 years [Table 3]. Fifty nine children showed involvement of >75% head and in the rest <75% of head was involved. All of them were in early or late fragmentation stage with extrusion <20%. Most of the children were treated elsewhere conservatively with traction or rest. Seventy children had good range of motion at presentation and rest had mild stiffness.

Table 2  
Descriptive statistics of the patients

| Table 2: Descriptive statistics of the patients |           |
|---|-----------|
| Sex/ side of involvement                        | n (%)     |
| Gender  |           |
| Male  | 70 (79.5) |
| Female  | 18 (20.5) |
| Side  |           |
| Right   | 33 (37.5) |
| Left  | 55 (62.5) |
| Total   | 88 (100)  |

| Age groups (years) | n (%)     |
|--------------------|-----------|
| 4–6                | 21 (23.9) |
| 7–9                | 44 (50.0) |
| 10–12              | 22 (25.0) |
| 13–15              | 1 (1.1)   |
| Total              | 88 (100)  |

Table 3

Distribution of the sample according to age group

The height of the lateral pillar of the femoral head at presentation was significantly associated with the outcome (Chi-square value = 0.04). Of the 88 children who underwent VDRO, 59 (67%) of them belonged to Herring's Group B and 29 (33%) to Herring's Group C [Table 4]. Of the 59 children belonging to the Herring's Group B who underwent VDRO, 49 had good [Fig. 2–4], 9 had fair [Fig. 5], and one had poor outcome [Fig. 6] according to the Catterall's postoperative classification [Table 5]. Of the 29 children belonging to Herring's Group C, 17 had good, 10 had fair, and 2 had poor outcome [Tables 6–8]. Three patients who had poor results and 19 children with fair results had restriction of abduction and internal rotation, limping, Trendelenburg gait, and LLD of 1–2 cm. In 66 children with good results, shortening of <1 cm was noted initially. At 6-year followup in those 66 children who had good results, LLD disappeared and Trendelenburg gait was absent, of which 49 children belong to Herring's Group B and 17 children belong to Herring's Group C. Remaining 22 children who had fair and poor outcome had persistent LLD and limping. Hence, VDRO improves the outcome in most of the patients in Herring's Group B, and many children in Herring's Group C. The procedure improved the sphericity of the head by attaining containment in 66 children (75%) having a good outcome and 19 children (21.6%) with fair outcome. This is particularly true in children belonging to the Herring's Group B. It is a good procedure to attain containment in

patients in the stage of fragmentation. It improves the epiphyseal quotient in Herring's Group B and some of the patients in Herring's Group C.

| Herring's group | n (%)    |
|-----------------|----------|
| B               | 59 (67)  |
| C               | 29 (33)  |
| Total           | 88 (100) |

Table 4

Distribution of the sample according to the Herring's group

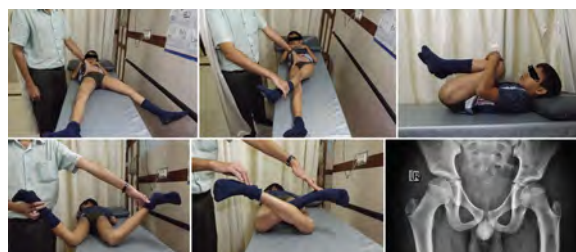


Fig. 2

Clinical photographs of same patient at final followup showing (a) Abduction of 0°–45° (b) Adduction 0°–30°. (c) Flexion 0°–130°. (d) Internal rotation 0°–40°. (e)

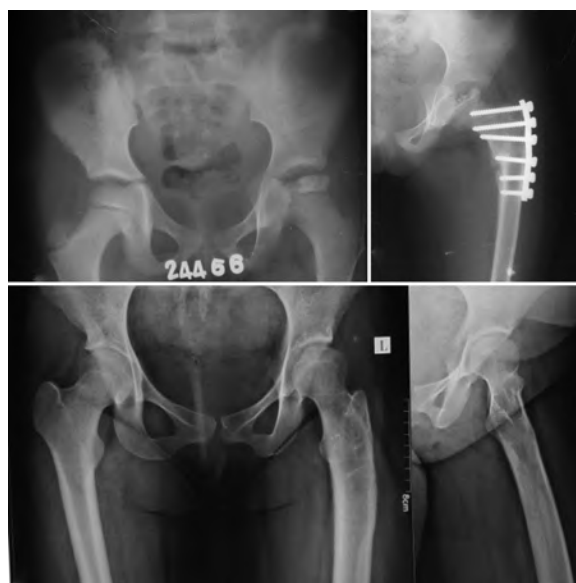


Fig. 3



External rotation 0°–40°. (f) X-ray pelvis with both hip joints anteroposterior view showing good outcome

Good outcome (a) preoperative X-ray of pelvis showing both hip joints anteroposterior view of a 7-year-old male showing Herring's lateral pillar Group C Perthes disease (R) hip. (b) Immediate postoperative X-ray (R) hip showing well-contained hip, proximal screw passing through trochanteric apophysis. (c) At 6-month followup osteotomy site united well head remodeling. (d) After the 1-year followup showing well remodeled femoral head. (e) After the implant removal. (f) At 6-year followup showing spherical head trochanteric apophysis fused (Good outcome)



Fig. 4

(a) Preoperative X-ray of pelvis with both hip joints anteroposterior view in a 6-year-old female showing lateral

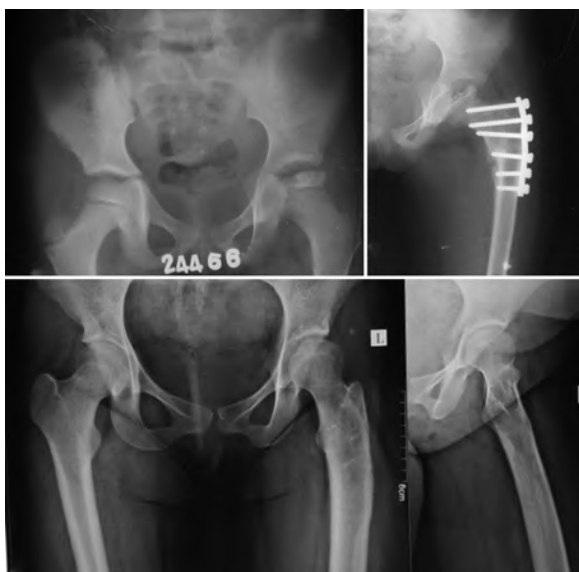


Fig. 5

pillar Group B Perthes disease left hip (b) X-ray (L) hip anteroposterior view at 3-month postoperative followup showing implant in situ varus derotation osteotomy and trochanteric apophysiodesis (c) At 26-years followup showing spherical head, good remodeling of proximal femur, no trochanteric overgrowth

(a) Preoperative X-ray of pelvis with both hips anteroposterior view of a 10-year-old female showing perthes disease on (R) side. (b) X-ray (R) hip joint anteroposterior view showing fair outcome with mild loss of sphericity of femoral head



Fig. 6

(a and b) Preoperative and final followup x-ray anteroposterior view left side of a 11-year-old female showing poor outcome at skeletal maturity (c) X-ray anteroposterior view left hip of a 25-year-old female, Varus Derotation Osteotomy with trochanteric apophysiodesis was done at 12 years of age with poor outcome showing hinged abduction



Fig. 7

Bar diagram showing association between age and clinical outcome



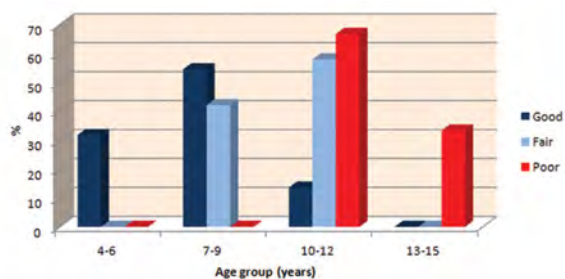


Fig. 8

X-ray pelvis showing both hips anteroposterior view showing articular trochanteric distance measured in right hip in a 10-year-old boy with good result at 2-year followup, was comparable to normal left hip

Two of the 88 patients had postoperative wound infection, one of them had superficial infection, which was managed with parenteral antibiotics and the other had deep infection and was treated by early implant removal. He developed secondary osteoarthritis (OA) and was later managed by total hip arthroplasty (THA). Of the 88 patients, 19 had hypertrophic scar, but most patients or parents were concerned about this. All were advised dermatology and plastic surgery consultations, but no active intervention was done. Average postoperative shortening was about 0.96 mm. However, most children tolerated shortening. Of the 30 patients, 21 had persistence of limping. This was a matter of concern for 18 children in the beginning but limping improved with time. Three of them had painful limp due to secondary OA and was managed with THA after skeletal maturity. None of the patients had nonunion of the osteotomy site nor did any of these go in for implant failure.

Table 5: Relationship between Herring's group and clinical outcome using Catterall's postoperative classification (Chi-square test)

| Herring's group | Clinical outcome |           |         | P     |
|-----------------|------------------|-----------|---------|-------|
|                 | Good             | Fair      | Poor    |       |
| B               | 49 (83.1)        | 9 (15.3)  | 1 (1.7) | 0.04* |
| C               | 17 (58.6)        | 10 (34.5) | 2 (6.9) |       |
| Total           | 66 (75.0)        | 19 (21.6) | 3 (3.4) |       |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

Table 6: Relationship between Herring's group and Mose's index

| Herring's group | Clinical outcome |           |         | P     |
|-----------------|------------------|-----------|---------|-------|
|                 | Good             | Fair      | Poor    |       |
| B               | 49 (83.1)        | 9 (15.3)  | 1 (1.7) | 0.04* |
| C               | 17 (58.6)        | 10 (34.5) | 2 (6.9) |       |
| Total           | 66 (75.0)        | 19 (21.6) | 3 (3.4) |       |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

Table 7: Relationship between Herring's group and epiphyseal quotient

| Herring's group | Epiphyseal quotient |           |         | P     |
|-----------------|---------------------|-----------|---------|-------|
|                 | Good                | Fair      | Poor    |       |
| B               | 49 (83.1)           | 9 (15.3)  | 1 (1.7) | 0.04* |
| C               | 17 (58.6)           | 10 (34.5) | 2 (6.9) |       |
| Total           | 66 (75.0)           | 19 (21.6) | 3 (3.4) |       |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

Age of the patient at the time of presentation was also found to have a significant association on the functional outcome of the disease (Chi-square value < 0.001). In children <9 years of age, majority of them (57) had good outcome and eight of them had fair outcome. Over the age of 9 years, majority of the patients had fair outcome and 3 (3.1%) children had poor outcome [Tables 9–12 and Figure 7]. The sphericity of the head was significantly improved (P < 0.001) by attaining containment in children under 9 years of age with majority of the patients having



a good to fair outcome. VDRO improves the epiphyseal quotient in most children under 9 years of age and some of the patients in children over 9 years of age. It is a good procedure to attain containment in children <9 years of age.

Table 8: Relationship between Herring's group and center edge angle of Wiberg

| Herring's group | CE angle  |           |         | P                             |
|-----------------|-----------|-----------|---------|-------------------------------|
|                 | Good      | Fair      | Poor    |                               |
| B               | 49 (83.1) | 9 (15.3)  | 1 (1.7) | 0.04*<br>Hence<br>significant |
| C               | 17 (58.6) | 10 (34.5) | 2 (6.9) |                               |
| Total           | 66 (75.0) | 19 (21.6) | 3 (3.4) |                               |

CE=Center edge \*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

Table 9: Association between age and clinical outcome

| Age group (years) | Clinical outcome |           |          | P        |
|-------------------|------------------|-----------|----------|----------|
|                   | Good             | Fair      | Poor     |          |
| 4-6               | 21 (31.8)        | 0         | 0        | <0.001** |
| 7-9               | 36 (54.5)        | 8 (42.1)  | 0        |          |
| 10-12             | 9 (13.6)         | 11 (57.9) | 2 (66.7) |          |
| 13-15             | 0                | 0         | 1 (33.3) |          |
| Total             | 66               | 19        | 3        |          |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

Table 10: Association between age and Mose's index

| Age group (years) | Mose's index |           |          | P        |
|-------------------|--------------|-----------|----------|----------|
|                   | Good         | Fair      | Poor     |          |
| 4-6               | 21 (31.8)    | 0         | 0        | <0.001** |
| 7-9               | 36 (54.5)    | 8 (42.1)  | 0        |          |
| 10-12             | 9 (13.6)     | 11 (57.9) | 2 (66.7) |          |
| 13-15             | 0            | 0         | 1 (33.3) |          |
| Total             | 66           | 19        | 3        |          |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

Table 11: Association between age and epiphyseal quotient

| Age group (years) | Epiphyseal quotient |           |          | P        |
|-------------------|---------------------|-----------|----------|----------|
|                   | Good                | Fair      | Poor     |          |
| 4-6               | 21 (31.8)           | 0         | 0        | <0.001** |
| 7-9               | 36 (54.5)           | 8 (42.1)  | 0        |          |
| 10-12             | 9 (13.6)            | 11 (57.9) | 2 (66.7) |          |
| 13-15             | 0                   | 0         | 1 (33.3) |          |
| Total             | 66                  | 19        | 3        |          |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup>

The gender of patient was not significantly associated with clinical outcome [Tables13-16], so the gender of the patient did not alter the various measures of outcome after VDRO.

Table 12: Association between age and center edge angle of Wiberg

| Age group (years) | CE angle  |           |          | P        |
|-------------------|-----------|-----------|----------|----------|
|                   | Good      | Fair      | Poor     |          |
| 4-6               | 21 (31.8) | 0         | 0        | <0.001** |
| 7-9               | 36 (54.5) | 8 (42.1)  | 0        |          |
| 10-12             | 9 (13.6)  | 11 (57.9) | 2 (66.7) |          |
| 13-15             | 0         | 0         | 1 (33.3) |          |
| Total             | 66        | 19        | 3        |          |

\*P<0.05 - significant, \*\*P<0.001, \*\*\*P<0.001 - highly significant<sup>24</sup> CE=Center edge

Table 13: Association between gender and clinical outcome

| Gender | Clinical outcome |           |         | P    |
|--------|------------------|-----------|---------|------|
|        | Good             | Fair      | Poor    |      |
| Male   | 54 (77.1)        | 14 (20.0) | 2 (2.9) | 0.62 |
| Female | 12 (66.7)        | 5 (27.8)  | 1 (5.6) |      |
| Total  | 66 (75.0)        | 19 (21.6) | 3 (3.4) |      |

$\chi^2=0.63$ , hence not found to be significant

Table 14: Association between gender and Mose's index

| Gender | Clinical outcome |           |         | P    |
|--------|------------------|-----------|---------|------|
|        | Good             | Fair      | Poor    |      |
| Male   | 54 (77.1)        | 14 (20.0) | 2 (2.9) | 0.62 |
| Female | 12 (66.7)        | 5 (27.8)  | 1 (5.6) |      |
| Total  | 66 (75.0)        | 19 (21.6) | 3 (3.4) |      |

$\chi^2=0.62$ , hence not found to be significant



Table 15: Association between gender and epiphyseal quotient

| Table 15: Association between gender and epiphyseal quotient |                     |           |         |      |
|--|---------------------|-----------|---------|------|
| Gender   | Epiphyseal quotient |           |         | P    |
|  | Good                | Fair      | Poor    |      |
| Male   | 54 (77.1)           | 14 (20.0) | 2 (2.9) | 0.63 |
| Female   | 12 (66.7)           | 5 (27.8)  | 1 (5.6) |      |
| Total  | 66 (75.0)           | 19 (21.6) | 3 (3.4) |      |

Table 16: Association between gender and center edge angle of Wiberg

| Gender | CE angle  |           |         | P    |
|--------|-----------|-----------|---------|------|
|        | Good      | Fair      | Poor    |      |
| Male   | 54 (77.1) | 14 (20.0) | 2 (2.9) | 0.63 |
| Female | 12 (66.7) | 5 (27.8)  | 1 (5.6) |      |
| Total  | 66 (75.0) | 19 (21.6) | 3 (3.4) |      |

CE=Center edge

From these observations, it is clear that VDRO improves the clinical and radiological outcome in patients who underwent surgery during the fragmentation stage of the disease. The outcome is definitely more favorable in patients belonging to Herring’s Group B and when the surgery is done early in the course of disease and age <9 years. This study also shows that Herring’s classification is a good prognostic indicator to predict the outcome after VDRO.

In 66 children with excellent to good results, mean ATD was -12 mm [Fig. 8]. Trendelenburg gait was absent in these patients. In 19 patients with fair to poor outcome, mean ATD was +6 mm indicating trochanteric overgrowth due to severe collapse of femoral head and coxa breva and in few children possibly due to failed apophysiodesis.

**Discussion**

The most important independent prognostic factors in Perthes disease are the extent of involvement of head and the age at presentation. Patients presenting with a higher grade of involvement (Herring C) tend to have a greater collapse of the femoral head, more pronounced deformities

of the femoral head and neck, with greater limitation of hip range of motion and a poor prognosis.<sup>2,3,14,15</sup> Children between 6 and 9 years of age are considered to have a variable prognosis and they usually benefit from surgical containment.<sup>16,17,18,19,20</sup> As age advances, the potential for remodeling and biological plasticity reduces, leading to poor results.

It is clear that surgical methods are most suited for children >6 years of age. A study conducted by Saini et al.<sup>20</sup> (2009) have suggested VDRO as an effective and easy surgical containment method for children with severe Perthes disease, especially who are younger than 10 years of age. They studied 45 children with a mean age of 9.2 years, belonging to Herring’s Groups B and C, and obtained good results in 23 and fair results in 20 and poor results in 2 patients.<sup>20</sup> They reported femoral osteotomy to be effective in both Herring’s Groups B and C, but better when done before the age of 10 years. In our study, we got similar results out of 88 children 65 were younger than 9 years of which 57 had good outcome and 8 of them had fair outcome.

Similar results have also been reported by Heikkinen and Puraen,<sup>5</sup> and Hoikka et al.<sup>6</sup> They studied 53 hips with early disease and 14 hips with late disease and obtained 74% good, 17% fair, and 9% poor results in patients treated with varus osteotomy.<sup>5</sup>

Beer et al. published their study on the long term effect of proximal femoral VDRO in Perthes disease. Based on their study on 43 hips (Stulberg classification was used to measure the outcome), they concluded that VDRO gives good results.<sup>21</sup>

Than et al., (2003), published their 26-year followup based on their study on 31 hips treated by VDRO. They obtained 87% patients with either good or fair results.<sup>11</sup>

In our study, we observed 66 of 88 patients had good outcome, 19 patients had fair results, and only 3 of them had poor results, i.e., about 3.4% of the patients. This better outcome compared to other studies may be



because of our patient selection criteria. We included only patients in the stage of fragmentation and excluded patients whose hips were not containable.

According to literature, there is no significant difference in the outcome of patients treated either by VDRO or by Salter's osteotomy.<sup>12,20,22</sup> VDRO is a simple and easily reproducible surgery which can be done with equipment available in an ordinary orthopedic theater and can easily be done. On the contrary, Salter's osteotomy is a technically demanding procedure with a potential risk of damage to the nearby neurovascular structures in the greater sciatic notch, thereby limiting the wide application of this procedure.

Somerville<sup>23</sup> and many other investigators have shown that well-contained heads improve radiologically until skeletal maturity. Hence, it may turn out that VDRO still be effective in many patients belonging to Herring's Group C. In our study out of the 29 children belonging to Herring's Group C, more than half (17 children) had good, 10 of them had fair, and 2 had poor outcome.

The most common complication seen in our study was hypertrophic scar, but this was not a concern for most of the patients. Other complications observed were infection, shortening, persistence of limping. The major complication that has been reported in literature is shortening. Early removal of implant (1–1½ years post surgery) will leave sufficient time to remodel, especially in a young male child. Limping can be reduced to a great extent by trochanteric apophysiodesis achieved using the proximal most screw fixing the apophysis (preventing the trochanteric overgrowth leading on to functional coxa vara). None of the patients had nonunion of the osteotomy site or any of these went in for implant failure.

In our institution, results of VDRO are favorably encouraging, as it is a simple and very effective method for containment in patients in the stage of fragmentation aged <9 years. Once osteotomy is united the child can be left alone for the hip to remodel on its own during growth.

## Conclusion

VDRO is an effective containment method of femoral head for patients belonging to the Herring's Group B. VDRO is also effective in many patients belonging to Herring's Group C. It improves the epiphyseal quotient in Herring's Group B and some of the patients in Herring's Group C. It is a good procedure to attain containment in children <9 years of age. Gender of the patient does not alter the outcome after VDRO. Trochanteric apophysiodesis reduces risk of limping.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## **A descriptive study to assess the relationship between patients perception of nurses caring behaviors and patient satisfaction in a selected tertiary care hospital, Kerala.**

Ms. Litty Varghese  
Ms. Anju A C  
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Guided by:  
Faculty KIMS CON

KIMS College of Nursing

This paper presentation, a study conducted by final year BSc Nursing students, and faculty of KCN won the Second prize at SNA Zonal Level Competition-2018 at Cooperative College of Nursing, Trivandrum.

### **Abstract**

The present study was conducted to assess the relationship between patient's perception of nurse's caring behaviors and patient satisfaction in a selected tertiary care hospital, Kerala. In view of the nature of the problem a cross sectional descriptive survey study design was used for the study with conceptual framework based on Jean Watson's theory of Transpersonal caring. 120 medical and surgical patients who have received Intensive care in a selected tertiary care hospital where selected by purposive sampling. The tools used for data collection were interview schedule, caring behavior inventory and modified patient satisfaction scale. The data were analyzed using descriptive and inferential statistics. The study results showed that there is significant positive correlation between patient perception of nursing care behavior and patient satisfaction ( $r=0.595$ ,  $p<0.001$ )

**Keywords:** Nursing care behaviors, Patient's satisfaction, Patient's perception

### **Introduction**

*'The rhythm of the body, the melody of the mind and the harmony of soul create the symphony of life.'*

Health and well-being exist when mind, body and soul are balanced and working in harmony<sup>1</sup>. Holistic nursing care recognizes these three as fundamental to health care. The philosophy behind holistic nursing care is based on the idea of holism which emphasizes human beings as a whole is greater than the sum of its parts and the body,

mind and spirit are interrelated. Patients satisfaction is also referred as an expression of patient's overall judgment on the quality of care particularly in the aspect of interpersonal process. Patient satisfaction has become a critical component in the measurement of quality of health care. The quality of nursing care provided by nurses is considered as the key component of patient's satisfaction level with health care services<sup>1</sup>.

### **Need and Significance**

Watson's vision for nursing is to help patients in gaining higher degree of harmony through a transpersonal caring relationship. The transpersonal caring-healing relationship is a sort of deep, intentional, consciousness-based caring that the nurse calls forth in conjunction with the patient's willingness to move into the healing space created during the transpersonal experience<sup>1</sup>.

Caring is an art and science which encompasses both science and humanities. The theory acknowledges the unique dimensions of mind, body and spirit without compromising the wholeness of the person<sup>1</sup>.

### **Review of literature**

A descriptive correlational study on surgical patient's satisfaction as an outcome of nurses caring behaviors in 6 European countries among 1,565 samples concluded that caring behaviors by nurses' determine patient satisfaction<sup>4</sup>.

A descriptive study on the importance of nurse's caring behavior as perceived by patients ( $n=300$ ) in an emergency department concluded clinical competence as the most important nurses caring behavior<sup>2</sup>.



A descriptive study to assess patient satisfaction with quality of nursing care among 50 patients in neuromedical department of SCTIMST reported that 70% of patients graded the nursing care they received as of good quality and 30% as excellent<sup>3</sup>.

A descriptive study to assess patients perception of being cared in a multicultural environment applying Watsons theory among 399 patients of selected hospitals of Saudi Arabia reported that 97.2% of patients rated overall caring behaviors as the most important<sup>2</sup>.

**Purpose of the study**

To assess the relationship between patients perception of nurses caring behaviors and patient satisfaction in a selected tertiary care hospital, Kerala.

**Statement of the problem**

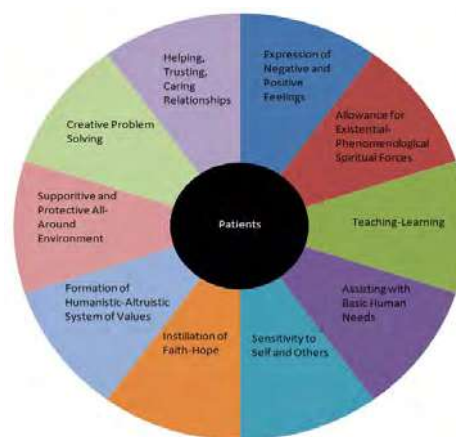
A descriptive study to assess the relationship between patients perceptions of nurses caring behaviors and patient satisfaction in a selected tertiary care hospital, Kerala.

**Objectives**

- To assess patients perception of nurses caring behaviours.
- To assess patients satisfaction towards nursing care received.
- To identify the relationship between patients perception of nurses caring behaviours and patient satisfaction.

**Conceptual framework**

The conceptual framework of the present study is based on Jean Watson’s theory of Transpersonal caring. According to Jean Watson “**Caring is the essence of nursing**”. She describes a transpersonal nurse as one who has the ability to center consciousness and intentionality on caring, healing, wholeness, rather than on disease, illness



and pathology.

Fig. 1: Conceptual framework of the study based on Watson’s Transpersonal caring theory

**Materials and Methods**

Research approach: Quantitative research approach

Research design: Cross sectional descriptive survey design

Setting of the study: Intermediate care units and wards of a selected tertiary care hospital. kerala

**Population**

**Target population:** Medical and Surgical patients who have received intensive care in a a selected tertiary care hospital Kerala

**Accessible population:** Medical and surgical patients who have received intensive care in a selected tertiary care hospital.

**Sample**

Consist of 120 patients

Sampling method: Purposive sampling

Reliability of the Tools (Cronbacs alpha)

- Caring Behaviour Inventory - 0.961

- Modified Patient Satisfaction Scale – 0.966

**Criteria for sample selection**



**Inclusion Criteria**

- Patients who are willing to participate in the study
- Patients who can understand English or Malayalam.
- Patients who are transferred from intensive care units.

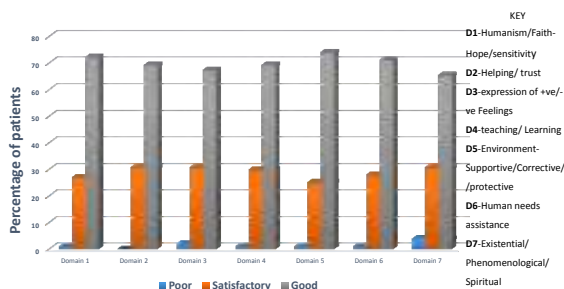
**Exclusion criteria**

- Patients who are critically ill

**Findings and Interpretation**

Section A: Distribution of sample based on demographic variables. =

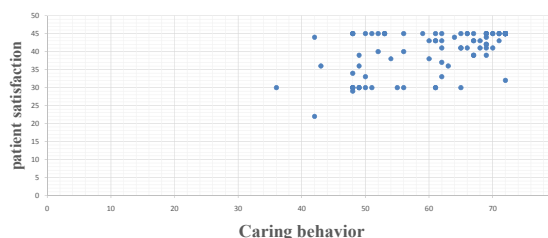
| Socio Personal Data   | Frequency | Percentage |
|-----------------------|-----------|------------|
| <b>Age</b>            |           |            |
| 20-30                 | 13        | 12.5       |
| 31-40                 | 14        | 13.5       |
| >40                   | 77        | 74         |
| <b>Sex</b>            |           |            |
| Male                  | 73        | 70.19      |
| Female                | 31        | 29.80      |
| <b>Monthly income</b> |           |            |
| <5000                 | 11        | 10.6       |
| 5000-10000            | 13        | 12.5       |
| 10000-15000           | 23        | 22.1       |
| >15000                | 57        | 54.8       |
| <b>Education</b>      |           |            |
| Primary               | 11        | 10.6       |
| Secondary             | 13        | 12.5       |
| Graduate              | 23        | 22.1       |
| Post graduate         | 57        | 54.8       |
| <b>Occupation</b>     |           |            |
| Coolie                | 6         | 5.8        |
| Private employee      | 39        | 37.5       |
| Government Employee   | 16        | 15.4       |
| Housewife             | 28        | 26.9       |
| Business              | 15        | 14.4       |



Among the Socio-demographic variables majority of the patients were in the religion Hindu (61.5%), place of residential area Panchayat (37.5%), type of family Nuclear family(76%). Surgical patients were 51% and the Reason for selecting the hospital for 56.7% was better treatment.

| Caring Behavior             | Frequency | Percentage |
|-----------------------------|-----------|------------|
| Poor                        | 0         | 0          |
| Satisfactory                | 28        | 26.9       |
| Good                        | 76        | 73.1       |
| Total                       | 104       | 100        |
| <b>Patient satisfaction</b> |           |            |
| Poor                        | 1         | 1          |
| Moderate                    | 19        | 18.3       |
| High                        | 84        | 80.8       |
| Total                       | 104       | 100        |

Table 2: Frequency distribution and percentage of patients based on their perception of nurses caring behaviours and



satisfaction

**Scatter Plot diagram showing Correlation between Caring behavior and Patient satisfaction**

Patient perception of nursing care and patient satisfaction is 0.595 at 0.001 P value and 0.01 level of significance.

**Findings and Interpretation**

- Among the patients 73.1% patients perceived nurses caring behaviours as good ; 26.9% had rated it as satisfactory and none of them rated it as poor.
- While considering patient satisfaction, 80.8% were highly satisfied, 18.3% were moderately and only 1% expressed poor satisfaction.
- There is statistically significant positive correlation





between patients' perception of nurses' caring behaviors and patient satisfaction ( $r = 0.595$ ,  $p < 0.001$ ).

- The findings of present study are consistent with the findings of the study in SCTIMST where 70% of patients rated nursing care behaviours as a good quality and 30% as excellent.
- The study highlighted that patient satisfaction is highly determined by the patients perception of nurses caring behavior.
- Hence nurses have to incorporate philosophy of transpersonal caring in the delivery of quality nursing care focusing on harmony of body, mind and spirit.

### Recommendations

- Nurse Managers should assure quality nursing care by evaluating the patient satisfaction survey periodically and by orienting nurses to the concept of caring and caring behaviours.
- The findings of the study can be considered in determining training requirements of nurses and in service training programs should be organized to promote nurses' knowledge and skills in transpersonal caring.
- Findings of the present study provides opportunity for nurse managers and policy makers to understand patient views and perceptions to ensure quality care.

### Conclusion

- The study provides direction for application of watsons theory in the caring process and acknowledging the harmony of mind body and spirit
- The findings of the present study reveals the significance of patients perception of nurses caring behaviours which determines the patient satisfaction towards nursing care.

- Patient satisfaction is one of the indicators of quality health care; this requires due attention by nursing and hospital administrators.
- Human caring in nursing is an act and science in which caring is a human to human process demonstrated through therapeutic interpersonal interaction.

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Kaleidoscope is a dedicated chapter which showcases unique and rare cases in various superspecialities. This introductory section focusses on Orthopaedics as a Centre of Excellence in KIMS Healthcare Group.

The Department of Orthopaedics started as an exclusive surgical speciality in KIMS and the last 17 years has been a journey of unparalleled achievement. Equipped with state-of-the-art facilities, sophisticated technology and patient centric services, KIMS Orthopaedic department has an enviable record in Trauma, Joint Replacement, Hand Surgery, Spine surgery and Paediatric Orthopaedics.

This is a compilation of clinical abstracts, including images of prior and post conditions of some unique cases reported at the Department of Orthopaedics, KIMS in Trivandrum, Kollam, Kottayam and Perinthalmanna alongwith the outcome. This brings to light, the expertise and competence of our team of surgeons in different areas of surgical management to ensure the best care and services.

#### Case abstracts

|                               |    |                 |
|-------------------------------|----|-----------------|
| Amniotic band syndrome        | 69 | KIMS Trivandrum |
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## Amniotic band syndrome

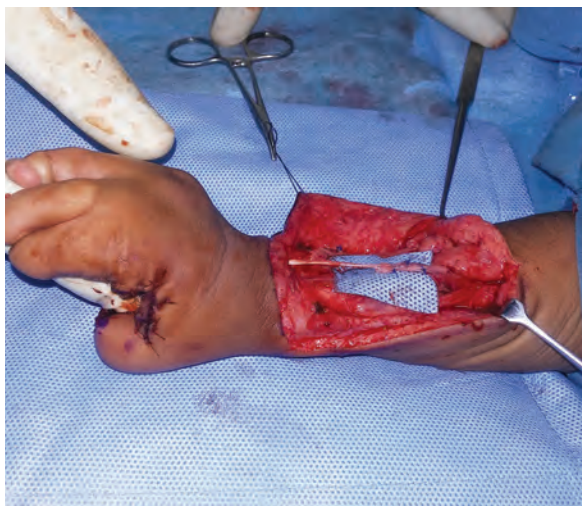
Jay Pragnesh, 3 years old, from Vadodara Gujarat is born with a rare birth anomaly or congenital anomaly of his right hand. This goes by name Amniotic band syndrome with inutero amputation of finger and thumb with acrosyndactyly where the remnants of fingers are joined together at its tip.

In addition, this child has an extremely bend hand at its wrist, with inability to lift the hand and wrist up, due to absent extensor muscles and tendons.



### Surgical correction

As first stage, we have tried to separate the available rudimentary fingers and then straighten them out, by resurfacing with full thickness skin grafts patterned from the groin region. In this stage we also tried to dig some thumb out from the palm.



In the second stage, we did 3 tendon transfers from the flexor side to extensor side, to enable him lift up his hand and wrist. In addition, we further increased the length of the thumb by further releasing it from the palm.

### Result



He has got back not only the FORM, but also the crucial FUNCTION.

### Points to emphasize

Contrary to the normal belief that birth deformities are corrected later in life, the truth is that, these are best corrected before 1 year of age. Surgery can start as early as 6-8 months.

The younger the child, the lesser will be the child's emotional reaction to the surgery and pain.

Also, better the function, as children don't need formal physiotherapy.

### Dr. Manoj Haridas

Consultant Hand and Micro vascular Surgery

## Amniotic band syndrome



Jay Pragnesh, was seen in the Orthopaedic OPD in April 2016 when he was 4 months old. He had constriction band syndrome affecting both upper limbs and lower limbs. There was a deep circumferential constriction ring in the left lower leg with deformity of the both bones of the leg. His left foot was hypoplastic with rudimentary toes. Only the calcaneum and the talus was ossified and no other bones of the foot were visualised in the Xray.



He underwent constriction ring release of the left leg along with tendon lengthening (Combined Plastic Surgery and Orthopaedic procedure). The constriction ring in the right arm and left hand was tackled by our Hand Surgeon Dr Manoj Haridas.

He made uneventful recovery from the surgery. Later he developed abscess in the left 2nd toe nubbins due to embedded nail matrix which was treated with Incision and drainage and antibiotics. He underwent multiple staged procedures for hand reconstruction.

He may need corrective osteotomy of the leg bone and splint application for the left foot at a later date.

### Dr. Vinod Krishnan V

Consultant Ortho Paediatric Surgeon -  
Paediatric Neuro Muscular disorder

### Testimonial for Amniotic band syndrome

Jay was born in Baroda, Gujarat in 2015 with abnormal hands and legs at the time of birth. Without proper fingers, palm and wrist, he could not use his hands or hold anything. The left leg was bent and toes of both legs were disfigured. The doctors who examined him at our home town, at birth advised some amputations for correction but we did not agree or accept. Then in Ahmedabad, we met specialist surgeons for legs and hands who advised simultaneous surgeries after 3 months. Another surgeon in Gujarat advised immediate surgery, but I was not prepared for it. Later on we happened to meet Dr. Sumitha Ajay and Dr. Sujitha Rahul who advised to take Jay to KIMS hospital Trivandrum. At KIMS the doctors advised surgery only after 3 months. Another leading doctor in Mumbai also advised surgery only after 3 months. Thus, I took advice of three expert doctors in Ahmedabad, Kerala, and Mumbai. Dr. Sumitha and Dr. Sujitha recommended KIMS for good results in a relatively short period of time. I had a

discussion with my family and decided to have surgery done at KIMS Trivandrum. At KIMS Jay was examined by the team of Dr. Manoj Haridas, Dr. Vinod Krishnan, Dr. Manish Senan and Dr. Meera. The surgery was done in three stages; the first two in a space of 7 months and the third after 11 months. All surgical and other related processes were successful. Jay can now hold things and stand on his legs. He now leads a normal life, which we never dreamed was possible at the time of his birth. We are extremely happy and would like to appreciate the great teamwork and expertise of your doctors and the help and support given by Dr. Sumitha and Dr. Sujitha.

Mr. Pragnesh Patel  
Father of Jay Pragnesh



## Trauma-Reconstruction of hand

Vinu, a carpenter with wood cutting machine saw injury to his left hand, with composite loss of soft and hard tissues. Skin, tendons, nerves, arteries and joints were lost. This type of cases presents limitation to surgical reconstruction, in the sense you cannot get back, everything that is lost. But the aim was to rescue the fingers, so that he can atleast hold on to objects like his working instruments to earn a livelihood. The objective has materialised...when he uses his hand to hold objects.

### Surgical management

The case involves, major wound debridement, surgical syndactyly, groin flap cover and later, syndactyly release plus flap thinning.

### Dr. Manoj Haridas

Consultant Hand and Micro vascular Surgery



### Testimonial for Reconstruction of hand

I injured my hand in wood cutting machine. I reside at Marthandam. I was happy with the way Dr. Manoj Haridas and his team has treated me. Now I am able to go to work as my hand is completely functional. For people like me, this is the only job I know to earn money for my family. Dr. has given me my life back. I thank everyone for it.

Mr. Vinu  
Marthandam

## Scoliosis



Anaswara, 14 year old girl was brought to the OPD by her parents who noticed her upper back deformity about 6 months ago. Many such deformities were noticed late by family members or parents especially among girls.

On evaluation with X rays of the spine including AP and lateral view and side bending films she was found to have a Cobb's angle of 60 degrees which denotes a severe deformity. MRI imaging of the spine was done to r/o any cord abnormalities.

### Surgical management

She underwent surgery to correct the deformity. Continuous neuro monitoring by a trained neuro physiologist was done. She underwent D3 to L4 posterior instrumentation



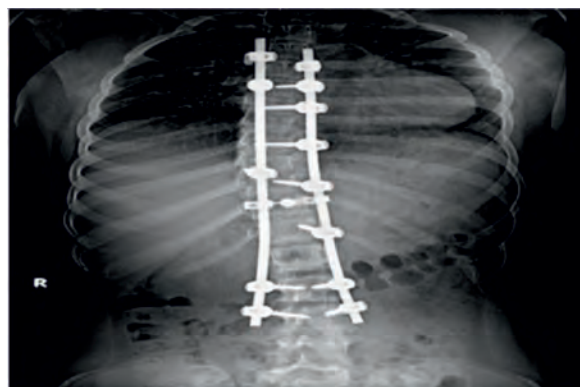
and correction of the deformity by rod rotation along with bone grafting. The objective is to convert the entire segment into one unit so that further deformity does not occur and also previous deformity was concurrently corrected.

Post operatively she started ambulating by the 3rd day with a Taylor's brace. She and her parents were happily surprised when her height increased by almost 2 inches.

Spine x ray with severe scoliosis – The deformity has been fully corrected.

### Dr. O T George

Senior Consultant – Orthopaedics



### Testimonial for Scoliosis

My daughter walks with a slightly slanting shoulder we didn't see much abnormality in that. But about 1 ½ years back, one day my wife, noticed a swelling on her back. It was the first time we were seeing this. When asked about it, she said she didn't know about it and did not have any pain there. Then we took her to an Ortho doctor. The doctor said he thinks it is some kind of backbone disease and he told to take Xray of the whole body. We took the Xray from a nearby hospital and showed it to the Ortho doctor. He said it is Scoliosis. He referred her to Amritha hospital, Kochi. The Ortho specialist at Amritha advised immediate surgery to correct the defect. The cost of the surgery will be 4.5 Lakhs. But we could not afford the cost of the surgery. So we returned without doing anything.

After some months Anaswara started feeling discomfort and some problems. At this time I came to know through a friend of mine that his relative's son had the same problem and was rectified. I met that family and they said

Dr. O T George, of KIMS hospital had done the operation. The parents of the child told me to do the surgery at this hospital only and he is such a good person. Next day we visited Dr. O T George of KIMS. The doctor told us not to worry and she will be completely cured. He gave some medicines for about 1 ½ months and he said surgery could be done during school holidays. We were worried about the cost. I gave a Facebook post for this. Many good hearted people contributed. Through this we were able to do the surgery for Anaswara. She is completely normal now and we are extremely happy and grateful to all doctors of KIMS. I had visited many hospitals for my daughters problem, but we felt confident only after visiting this doctor at KIMS Kottayam. The doctors were so good, the staff have been so helpful and polite right from beginning till this day. We recommend all of you to go to this hospital for any treatment you need.

Mr. Ashok Kumar

Father of Anaswara Ashok

## Total Hip Arthroplasty



Aradhya, 1 year old girl child who presented in OP with limping gait. She was diagnosed with bilateral congenital hip dislocation. She underwent bilateral open reduction for both hips, Psoas tenotomy and capsulorrhaphy at age of 1 year. Was put on Hip spica for a period of three months, following which she was allowed normal weight bearing. She had good remodelling at her symptom free hip.

She was followed up after 1 year. On evaluation X-ray showed right hip concentric reduction, whereas left hip, not much of acetabular remodelling took place (in adequate coverage of femoral head).

Was taken up for Varus osteotomy. Check Xray showed adequate coverage of femoral head. Was put on Hip spica for a period of 6 weeks and was on regular followup. Was

allowed weight bearing. At present she is symptoms free and has concentric reduction of left hip.

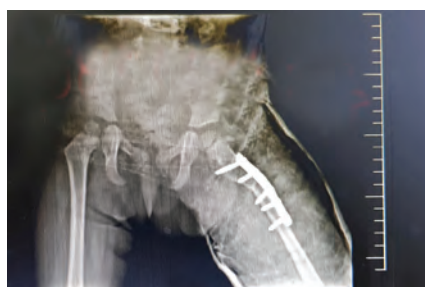
Congenital dislocation of hip even though a common disorder in caucasian population, is not frequently seen in India and is rare. Early detection is key to diagnosis and management. Diagnosis can be difficult even in experienced hands. Treatment depends on age of the initial diagnosis and success of previous treatment. Early treatment usually requires less aggressive methods (closed/open reduction). Followup should be continued until skeletal maturity.

**Dr. Jose T Pappanchery**

Consultant Orthopaedics



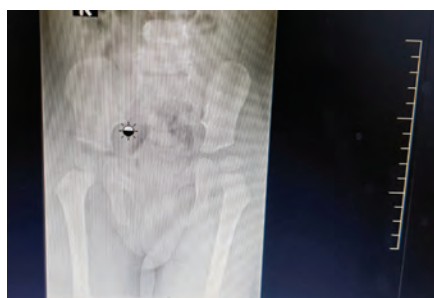
Pre OP in abd



Immediate Post



Immediate Post AP



Pre OP AP



6 weeks F/U lat



Post op FU AP lat

### Testimonial for Total Hip Arthroplasty

Aradhya had problems with movement during pregnancy. During the scannings the doctor had said the foetal positioning was not correct.

The delivery was Caesarean and she was born with hip dislocation. The doctor at the hospital put on the plaster but she got skin problems. Then through a friend, we came to know of Dr. Jose Pappanacherry of KIMS. When the doctor saw her he removed the plaster. He advised surgery for correction. This was done at 4 months.

After the surgery, the right side was correct but the left side was still having the problem. Jose sir said to wait till the baby was 2 years old to do further treatment. At 2 years the surgery was done and now Aradhya is perfectly alright. We want to thank Dr. Jose Pappanacherry and KIMS for the treatment.

We also recommend parents facing this problem not to worry as this can be treated and corrected.

Ms. Haritha  
Mother of Aradhya

## Total Knee Arthroplasty

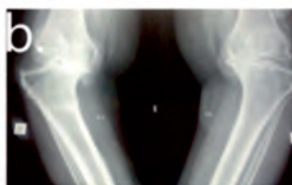
Sethumadhavan, 62 year old male patient presented to us with excruciating pain and deformity of both knees. He is a known diabetic on regular medications.

- His X-ray showed significant osteoarthritis for both knees with severe deformity.
- He underwent total knee arthroplasty on both knees.

Post operatively his deformity is corrected well and he has no pain.

c) Recently he was reviewed in OPD, 14 years of follow up with good function of both knees and is enjoying his retirement life happily with grandchildren.

**Dr. Mohan Kumar E G**  
HOD, Orthopaedics



### Testimonial for Total Knee Arthroplasty

I am writing this testimonial to express the experience of my KNEE replacement. I am, 62 years old. Since last 5 to 6 years I was experiencing knee pain. Gradually intensity of pain was increasing and also my knee started bending. All my friends and family members started asking about my difficult gait. Since last 6 months I was having excruciating pain and it was difficult for my daily activities. I was not able to use stairs, squat and later even to walk on level ground. I finally decided to consult Dr. Mohan Kumar at KIMS al shifa hospital Perinthalmanna.

I opened my problems to Dr. Mohan Kumar. He asked me to take X-rays, he said I am having advanced osteoarthritis of both knees. He also explained to me that because of my deformity in knees I had my awkward gait and also affecting my spine. He advised me to undergo total knee arthroplasty for both knees. I was seen by anaesthesia and cardiology team for preop check up as I have diabetes and also heart patient. I underwent the surgery. Now its 13 years and I am enjoying my life without any limitations. Thanks to Dr. Mohan Kumar and his team.

Mr. Sethumadhavan  
Palakkad



## Total Hip Arthroplasty

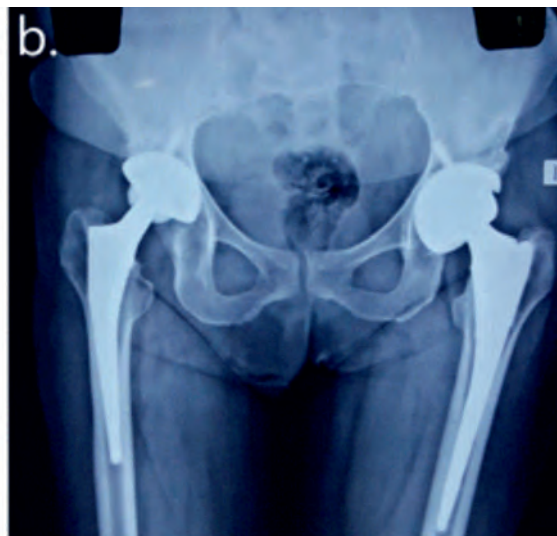


Khadeeja, 50 year old female presented to us with both hip pain and stiffness leading to difficulty in walking, climbing and squatting which significantly affected her activities of daily living,

a) Her X-ray showed developmental dysplasia for both hips with secondary osteoarthritis.

b) She underwent bilateral staged total hip arthroplasty. At 10 years' follow up she is doing well and enjoying all her social activities.

**Dr. Mohan Kumar E G**  
HOD, Orthopaedics



### Testimonial for Total Hip Arthroplasty

I was suffering from pain for both hips for last 10 years. I am 50 yrs old. I was not able to squat, climb stairs, it was difficult to use toilets and also perform prayer. We consulted Dr. Mohan Kumar at KIMS Al shifa hospital. Doctor informed about advanced osteoarthritis for both hips. There is need for total hip arthroplasty for pain relief

and movements. I was thoroughly investigated Staged total hip arthroplasty was done on both hips. It is now 10 years after the surgery. I am able to do all activities without any pain. I sincerely thank Dr. Mohan Kumar and team for this successful surgery.

Mrs. Khadeeja  
Manjeri



Society for Continuing Medical Education and Research

**Academic activities: August 2019 to October 2019**

|    |   |   |
|----|---|---|
| 1  | AHA BLS & ACLS provider courses                         | 1 <sup>st</sup> to 3 <sup>rd</sup> Aug 2019 |
| 2  | CTG workshop  | 3 <sup>rd</sup> Aug 2019                    |
| 3  | Internal CME on World Breastfeeding Week-2019           | 4 <sup>th</sup> Aug 2019                    |
| 4  | CME of Dental Dept.                                     | 4 <sup>th</sup> Aug 2019                    |
| 5  | Research methodology session on Microsoft Word          | 6 <sup>th</sup> Aug 2019                    |
| 6  | Internal CME on Ultrafast insulin-fiasp                 | 8 <sup>th</sup> Aug 2019                    |
| 7  | Internal CME on Top tips in Rheumatology                | 9 <sup>th</sup> Aug 2019                    |
| 8  | Webcast on Heart failure clinic                         | 14 <sup>th</sup> Aug 2019                   |
| 9  | Clinicopathological meeting                             | 14 <sup>th</sup> Aug 2019                   |
| 10 | CTG workshop  | 16 <sup>th</sup> Aug 2019                   |
| 11 | Research methodology session on Sample size estimation  | 20 <sup>th</sup> Aug 2019                   |
| 12 | Clinical club meeting                                   | 21 <sup>st</sup> Aug 2019                   |
| 13 | Internal CME on Evaluation of Head Injury               | 22 <sup>nd</sup> Aug 2019                   |
| 14 | Direct webcast Dr G Vijayaraghavan                      | 22 <sup>nd</sup> Aug 2019                   |
| 15 | CME on Primary Care Diabetology, A necessity, A reality | 25 <sup>th</sup> Aug 2019                   |
| 16 | Internal CME on FilmArray Multiplex PCR pneumonia panel | 29 <sup>th</sup> Aug 2019                   |

|                               |  |   |
|-------------------------------|--|---|
| 17                            | Internal CME on Managing ACS patients having diabetes with case presentation | 31 <sup>st</sup> Aug 2019                     |
| 18                            | AHA BLS & ACLS provider courses  | 5 <sup>th</sup> to 7 <sup>th</sup> Sep 2019   |
| 19                            | CME on Management of Head Injury   | 5 <sup>th</sup> Sep 2019                      |
| 20                            | CME on Immuno-oncology meeting   | 7 <sup>th</sup> Sep 2019                      |
| 21                            | Research methodology session on How to write review of literature            | 18 <sup>th</sup> Sep 2019                     |
| 22                            | Clinical club meeting  | 18 <sup>th</sup> Sep 2019                     |
| 23                            | AHA BLS & PALS provider courses  | 19 <sup>th</sup> to 21 <sup>st</sup> Sep 2019 |
| 24                            | Excel Paces 2019   | 1 <sup>st</sup> to 4 <sup>th</sup> Oct 2019   |
| 25                            | Clinicopathological meeting  | 9 <sup>th</sup> Oct 2019                      |
| 26                            | CME on Therapeutic apheresis-its essentials and advances                     | 12 <sup>th</sup> Oct 2019                     |
| 27                            | CME on Ultrafast insulin   | 15 <sup>th</sup> Oct 2019                     |
| 28                            | Clinical club meeting  | 16 <sup>th</sup> Oct 2019                     |
| 29                            | AHA BLS & ACLS provider courses  | 24 <sup>th</sup> to 26 <sup>th</sup> Oct 2019 |
| 30                            | RCPE web symposium on Cardiology   | 31 <sup>st</sup> Oct 2019                     |
| <b>Forthcoming Programmes</b> |  |   |
| 1.                            | AHA BLS & ACLS provider courses  | 5 <sup>th</sup> to 7 <sup>th</sup> Dec 2019   |
| 2.                            | Comprehensive Echo Doppler Evaluation Techniques (CEDET 2020)                | 11 <sup>th</sup> to 12 <sup>th</sup> Jan 2020 |

**Paper Presentations**

| SI No | Name of conference, date & venue   | Title of presentation   | Name of presenter & department                  |
|-------|--|---|---|
| 1     | Kerala PEDGASTROCON from 4 <sup>th</sup> Aug 2019, Kochi                   | <ul style="list-style-type: none"> <li>Early experience of liver transplant at a tertiary care center</li> </ul>  | Dr Jayati Agrawal<br>Dept. of Paediatric gastro |
| 2     | ECHO Nagpur-2019 from 9 <sup>th</sup> to 12 <sup>th</sup> Aug 2019, Nagpur | <ul style="list-style-type: none"> <li>All about Valves - when to intervene, moving beyond LV function</li> <li>Prosthetic valve assessment: Guidelines in action: cases for key points</li> <li>Mystery Cases</li> <li>Using Strain day-to-day</li> <li>Cardio-Oncology: a must for all</li> <li>Echo in Systemic disease</li> <li>Echo in Critical care unit – Diagnosing Shock, Echo-based management of shock, lung ultrasound, echo for bleeding patient, echo for neurocritical and many more</li> <li>Right ventricular and hepatic veins</li> </ul> | Dr G Vijayaraghavan<br>Dept. of Cardiology      |

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| 3 | Advances in Obstetrics Gynaecology and Reproductive medicine from 9 <sup>th</sup> to 11 <sup>th</sup> Aug 2019, Trivandrum            | <ul style="list-style-type: none"> <li>Late IUGR-A clinical dilemma</li> </ul>   | Dr PK Syamala Devi<br>Dept. of OBG   |
| 4 | SZCC 2019 (Annual South Zone Conference on Critical Care) from 16 <sup>th</sup> to 18 <sup>th</sup> Aug 2019, Visakhapatnam           | <ul style="list-style-type: none"> <li>Disease specific nutrition</li> <li>Total parenteral nutrition</li> </ul>   | Dr Deepak V<br>Dept. of Critical Care  |
| 5 | CIDSCON-2019 (Annual conference of the Clinical infectious diseases Society) on 23 <sup>rd</sup> and 24 <sup>th</sup> Aug 2019, Kochi | <ul style="list-style-type: none"> <li>Incidence and clinical profile of blood stream infections in patients undergoing Extra Corporeal Membrane Oxygenation from a tertiary care centre in South India</li> <li>Susceptibility and serotypes of streptococcus pneumoniae isolates in invasive pneumococcal disease</li> <li>Etiological and clinical profile of viral pneumonia in adults in Kerala</li> <li>Clinical epidemiology of staphylococcus aureus bacteremia, in a tertiary care centre from Kerala</li> <li>Latent tuberculosis in patients screened prior to TNF alfa antagonist treatment</li> <li>A Survey of hand hygiene knowledge and perceptions among doctors in a tertiary care hospital</li> </ul> | Dr Kalpana John<br>Dr A.Rajalakshmi<br>Dept. of Infectious Disease<br>Dr Shanthala Prabhu<br>Dr Shaji Palangadan<br>Dr Subash Sundersingh<br>Dept. of Cardiothoracic Surgery<br>Ms Aisha Mubarak<br>Ms Aswathy<br>Dept. of Infection control<br><br>Dr Sherook J<br>Dept. of Internal Medicine<br>Dr A Rajalakshmi<br>Dr Sayenna Uduman<br>Dept. of Infectious Disease<br>Dr Ratheesh<br>Dr Viji<br>Dept. of Histopathology<br><br>Dr A.Rajalakshmi<br>Dept. of Infectious Disease<br>Dr Bala. P<br>Dr P Arjun<br>Dr Ameer K A<br>Dept. of Respiratory Medicine<br><br>Dr Gopinatha Menon<br>Dr Said Jabir<br>Dept. of Internal Medicine<br>Dr A Rajalakshmi<br>Dept. of Infectious Disease<br><br>Dr A Rajalakshmi<br>Dept. of Infectious Disease<br>Dr Rajesh S<br>Dr Bhuvanesh M<br>Dept. of Rheumatology<br>Ms Aswathy S S<br>Dept. of Infectious Disease<br><br>Dr Kalpana E John Dr A Rajalakshmi<br>Dept. of Infectious Disease |
| 6 | Neurotrauma from 23 <sup>rd</sup> to 25 <sup>th</sup> Aug 2019, Agra  | <ul style="list-style-type: none"> <li>Severe cranio cerebral trauma - Recent management perspectives</li> </ul>   | Dr P John Paul<br>Dept. of Neurosurgery  |
| 7 | Global convention on Safe sound, Vertigo, Tinnitus & Deafness from 23 <sup>rd</sup> to 25 <sup>th</sup> Aug 2019, Trivandrum          | <ul style="list-style-type: none"> <li>Surgical dilemma in keratosis obturans</li> <li>Sound of sphere – Saviour or Satan</li> </ul>   | Dr Shilpa V<br><br>Dr Niharika<br>Dept. of ENT   |

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| 8  | International transesophageal echocardiography workshop cum CME on 29 <sup>th</sup> to 31 <sup>st</sup> Aug 2019, Bangalore                      | <ul style="list-style-type: none"> <li>Pseudo aneurysm of CAD and role of TEM in management</li> </ul>   | Dr Subash S<br>Dept. of Cardiac Anesthesiology   |
| 9  | MVR CANCON (consensus and controversies in Oncology) from 30 <sup>th</sup> Aug to 1 <sup>st</sup> Sep 2019, Calicut                              | <ul style="list-style-type: none"> <li>Electronic date in Oncology- opportunity and challenges in Indian context</li> <li>How to be molecular surgeon (Round table meeting panel discussion)</li> <li>Cardiac effects of adjuvant radiation therapy</li> </ul>   | Dr B Jayanand Sunil<br>Dept. of Surgical Oncology<br><br>Dr Nitin Abraham<br>Dept. of Radiation Oncology |
| 10 | SPINE-2019 (Neuro Spinal surgeons association of India) on 1 <sup>st</sup> Sep 2019, Kochi   | <ul style="list-style-type: none"> <li>Fusion in scoliosis: How to decide the levels</li> <li>Scheurmans kyphosis : How to proceed</li> </ul>  | Dr.Ranjith Unnikrishnan<br>Dept. Orthopedics   |
| 11 | IACCCON from 6 <sup>th</sup> to 8 <sup>th</sup> Sep 2019, Kochi  | <ul style="list-style-type: none"> <li>Cardiomyopathies – Classification and Echocardiographic approach</li> <li>Systolic &amp; Diastolic Dysfunction: Trials and Medical Management</li> </ul>  | Dr G Vijayaraghavan<br>Dept. of Cardiology   |
| 12 | Indian Stroke Summer School on 6 <sup>th</sup> Sep 2019, Bengaluru   | <ul style="list-style-type: none"> <li>Transient Ischemic Attacks-Mimics and Chameleons</li> </ul>   | Dr Suresh Chandran<br>Dept. of Neurology   |
| 13 | Immuno-oncology meeting on 7 <sup>th</sup> Sep 2019, KIMS Trivandrum   | <ul style="list-style-type: none"> <li>Role of immunotherapy in 2L NSCLC</li> <li>Role of immunotherapy in treatment beyond progression cases</li> </ul>   | Dr Jayaprakash Madhavan  |
| 14 | CRISE (Cardiovascular and Interventional Radiological Society of Europe) Annual meeting from 6 <sup>th</sup> to 11 <sup>th</sup> Sep 2019, Spain | <ul style="list-style-type: none"> <li>Mechanical thrombectomy device - rescue approach in a case of pediatric post combined liver and renal transplant early hepatic artery thrombosis</li> <li>Efficacy and safety of microwave ablation in hepatocellular carcinoma close to liver surface</li> <li>Iatrogenic foreign body retrieval in a neonate - grasp from inside technique</li> </ul> | Dr Manish Kumar Yadav<br>Dept. of Radiology  |
| 15 | ISSH 2019 (Annual Conference of the Indian Society for Surgery of the Hand) from 12 <sup>th</sup> to 15 <sup>th</sup> Sep 2019, Odisha           | <ul style="list-style-type: none"> <li>Cleft hand corrective surgery and results</li> </ul>  | Dr Manoj Haridas<br>Dept. of Orthopaedics  |
| 16 | Indian Chest society on 13 <sup>th</sup> and 14 <sup>th</sup> Sep 2019, Vellore  | <ul style="list-style-type: none"> <li>Searching for a needle in a haystack</li> </ul>   | Dr Bala P<br>Dept. of Respiratory medicine   |
| 17 | NASS-2019(North American spine society) from 24 <sup>th</sup> to 28 <sup>th</sup> Sep 2019, Chicago  | <ul style="list-style-type: none"> <li>Surgical symposium: A global perspective on minimally invasive spine surgery</li> <li>Minimally invasive surgery in spinal infections: cutting corners</li> </ul>   | Dr.Ranjith Unnikrishnan<br>Dept. of Orthopaedics   |
| 18 | TCT 2019 from 25 <sup>th</sup> to 30 <sup>th</sup> Sep 2019, San Francisco   | <ul style="list-style-type: none"> <li>Longitudinal stent compression proximal RCA</li> </ul>  | Dr Dhinesh David<br>Dept. of Cardiology  |
| 19 | European Respiratory Society annual meeting from 28 <sup>th</sup> Sep to 3 <sup>rd</sup> Oct 2019, Spain   | <ul style="list-style-type: none"> <li>Burden of ABPA in the Indian Bronchiectasis Registry</li> </ul>   | Dr P Arjun<br>Dept. of Respiratory Medicine  |
| 20 | Neurocon 2019 - Eye from Brain, Alappuzha, 29 <sup>th</sup> Sep 2019   | <ul style="list-style-type: none"> <li>A rare case of Oculogyric crisis in an infant</li> <li>Severe meningoencephalitis due to HHV 6 in immunocompetent children</li> </ul>   | Dr Suneeth V<br><br>Dr Shaziya M   |
| 21 | ID Week 2019 from 2 <sup>nd</sup> to 6 <sup>th</sup> Oct 2019, Washington  | <ul style="list-style-type: none"> <li>Clinical Performance of Film Array Meningitis Encephalitis Multiplex PCR Panel in CNS Infections"</li> </ul>  | Dr Rajalakshmi A<br>Dept. of Infectious diseases   |

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|----|---|--|---|
| 22 | Annual conference of Indian Academy of Neurology from 3 <sup>rd</sup> to 6 <sup>th</sup> Oct 2019, Hyderabad                                | <ul style="list-style-type: none"> <li>Clinical Profile of nonmotor symptoms in early Parkinson's Disease patients in a tertiary care in south India</li> <li>Sleep disorders in early Parkinson Disease: A comparative study</li> </ul> | Dr Krishnasree KS<br>Dr Ashok V P<br>Dr Deepak Menon<br>Dr Manorama D Rajan<br>Dr Syamlal S<br>Dr Suresh Chandran C J<br><br>Dr Jemini George<br>Dr Syamlal S<br>Dr Suresh Chandran C J |
| 23 | IANCON-2019 (Annual conference Indian academy of Neurology) on 4 <sup>th</sup> and 5 <sup>th</sup> Oct 2019, Hyderabad                      | <ul style="list-style-type: none"> <li>Clinical profile of non-motor symptoms in early Parkinson's disease in a tertiary care centre in south India</li> </ul>   | Dr Krishnasree KS<br>Dept. of Neurology   |
| 24 | IASGCON-2019 (Annual conference of Indian association of surgical gastroenterology) 9 <sup>th</sup> to 13 <sup>th</sup> Oct 2019, New Delhi | <ul style="list-style-type: none"> <li>Neutrophil lymphocyte ratio and platelet lymphocyte ratio diagnostic testing and predictive values in adenocarcinoma arising in chronic calcific pancreatitis</li> </ul>                          | Dr Sindhu RS<br>Dept. of Surgical Gastro  |
| 25 | Live webinar on 12 <sup>th</sup> Oct 2019, KIMS, Trivandrum   | <ul style="list-style-type: none"> <li>Risk scores and calculators in ACS</li> </ul>   | Dr G Vigayaraghavan<br>Dept. of Cardiology  |
| 26 | Handwashing Day-2019 on 15 <sup>th</sup> Oct 2019, Trivandrum   | <ul style="list-style-type: none"> <li>Hospital outbreak investigation and management</li> </ul>   | Dr Rajalakshmi A<br>Dept. of Infectious diseases  |
| 27 | Physician of India Kerala chapter on 21 <sup>st</sup> Oct 2019, Perinthalmanna  | <ul style="list-style-type: none"> <li>A short case series of common variable immunodeficiency</li> </ul>  | Dr Jenson George Varghese<br>Dept. of Internal Medicine   |
| 28 | Antimicrobial stewardship workshop on 24 <sup>th</sup> Oct 2019, Thiruvalla   | <ul style="list-style-type: none"> <li>Implementation science and its application in AMS</li> </ul>  | Dr Rajalakshmi A<br>Dept. of Infection disease  |
| 29 | World Congress of Neurology-2019  | <ul style="list-style-type: none"> <li>Unihemispheric demyelination -A rare variant of ADEM</li> </ul>   | Dr Suresh Chandran C J<br>Dept. of Neurology  |

### Publications

Pournami F, Upadhyay S, Nandakumar A, Prabhakar J, Jain N. Familial hemophagocytic lymphohistiocytosis: A rare mutation of STXBP2 in Exon 19. J Pediatr Genet 2019 July; DOI <https://doi.org/10.1055/s-0039-1694778>.

Dhar R, Singh S, Talwar D, Mohan M, Swarnakar R, Padmanabhan A, et al. Bronchiectasis Audit and Research Collaboration (EMBARC) and Respiratory Research Network of India Registry. doi:[https://doi.org/10.1016/S2214-109X\(19\)30327-4](https://doi.org/10.1016/S2214-109X(19)30327-4)

Krishnasree KS, Ashok VP, Menon D, Rajan MD, Syamlal S, Suresh Chandran CJ. Clinical Profile of nonmotor symptoms in early Parkinson's Disease patients in a tertiary care in south India. Ann Indian Acad Neurol 2019;22, Suppl S1:45-157

George J, Sasidharan S, Chandran S. Sleep disorders in early Parkinson Disease: A comparative study. Ann Indian Acad Neurol 2019;22, Suppl S1:45-157.

Dhar R, Singh S, Talwar D, Mohan M, Swarnakar R, P Arjun,

et al. Bronchiectasis Audit and Research Collaboration (EMBARC) and Respiratory Research Network of India Registry. The Lancet doi:[https://doi.org/10.1016/S2214-109X\(19\)30327-4](https://doi.org/10.1016/S2214-109X(19)30327-4)

Arjun P, Mathew Thomas. Intrathoracic extramedullary haematopoiesis. 11 September 2019. doi: 10.1136/postgradmedj-2019-137039.

Babu A, Pradeep, K R Devi L, Nair K. CASE REPORT North American Blastomycosis in South Indian girl. J Indian Medical Association 2019;117(9): 26 & 28.

[Upadhyay S](#), [Pournami F](#), [Nandakumar A](#), [Prabhakar J](#), [Nair PMC](#), [Jain N](#). Outcome of Very Preterm Infants With Early Optimal Nutrition Strategy: A Comparative Cohort Study. [Nutr Clin Pract](#). 2019 Oct 22. doi: 10.1002/ncp.10422.

Rao S, Chakrapani A, Uppiretla A, Don-Bosco D. Electrical Storm in the Absence of a Structural Heart Disease in a Young Girl. [Advanced Journal of Emergency Medicine](#). 2019 <https://doi.org/10.22114/ajem.v0i0.221>

### Appreciations

- Dr Ganesh, DNB candidate, Respiratory Medicine Dept, has secured a position in the top 20, in a Quiz conducted by the American College of Chest Physicians, ACCP.
- Dr Bala, DNB candidate, Respiratory Medicine Dept, qualified for the finals of the National Talent Search competition conducted by the Indian Chest Society at CMC Vellore on 15<sup>th</sup> September 2019. 36 candidates had participated in the south zone round. He also won second prize in the Quiz competition held alongside it.
- Dr Suneeth V, DNB Paediatrics, secured first prize for poster presentation on “A rare case of Oculogyric crisis in an infant” and Dr. Shaziya M, DNB Paediatrics, secured second prize for poster presentation on “Severe Meningoencephalitis due to HHV 6 in immunocompetent children” at the IAP conference NEUROCON 2019 - Eye To Brain, Alappuzha, 29<sup>th</sup> September 2019.
- Dr Arathy Raj and Dr. Divya, Dept. of Paediatrics secured 3<sup>rd</sup> prize in the Cardiology (Adult) Intercollegiate PG Quiz programme held in connection with the World Heart Day 2019 at Pushpagiri Medical College on 28<sup>th</sup> Sept 2019.
- Dr Sindhu R S, Dept. of Surgical Gastroenterology secured best paper award for the presentation on “Neurophil lymphocyte ration and platelet lymphocyte ratio: testing and pre” at the Annual conference of Indian association of surgical gastroenterology held from 9<sup>th</sup> to 13<sup>th</sup> Oct 2019 in New Delhi.
- The team consisting of Dr Suresh Chandran, Dept. of Neurology secured the 3<sup>rd</sup> Prize at the Quiz tournament held during the World Congress of Neurology 2019 on 28<sup>th</sup> October 2019 in Dubai.

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