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MMJ REACHING OVER **10,000** DOCTORS



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## UNIQUE LAP SURGERY



**UNIQUE LAP SURGERY at MMHRC :** In a first in Tamil Nadu, MMHRC has recently performed a unique lap Procedure known as "**Cortical - sparing adrenalectomy, on a 33 Yr old woman from Sivagangai district and Successfully treated B/L Pheochromocytoma**" a rare case of tumours in both adrenal glands on 25<sup>th</sup> February-2024. This intricate Procedure was performed by **Dr. Ramesh Ardhanari**, Medical Director, MMHRC, Head and Sr. Consultant - Dept. of SGE, along with his teammates **Dr. Mohan**, Sr. Consultant, Dept. of SGE, MMHRC and **Dr. N. Maharajan**, Sr. Consultant and Head Dept of Anaesthesiology, MMHRC.

## DEPARTMENT OF SURGERY & GASTROENTEROLOGY

- 24x7 availability of gastroenterologists and surgeons
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**From the Editor's Desk**

Dear Friends,

As February unfolds, may your dedication and healing touch continue to illuminate the path to health. In this month of compassion, we extend our gratitude to the guardians of well-being – our esteemed doctors. Your commitment to care is a beacon of hope. **Happy February!**

The demanding nature of the medical profession often attracts individuals with a strong work ethic and a commitment to patient care. However, this dedication can sometimes lead to workaholic tendencies among doctors, making them more susceptible to **BURNOUT SYNDROME**.

Workaholic doctors often find it challenging to establish boundaries between their professional and personal lives. The demanding schedules, long working hours, and the constant pressure to deliver optimal patient care can contribute to chronic stress, emotional exhaustion, and a sense of depersonalization. Despite their best intentions, these healthcare professionals may find themselves caught in a cycle of overworking, neglecting their own well-being in the process.

Addressing burnout among workaholic doctors requires a multi-faceted approach. It involves promoting a culture of self-care within the medical community, encouraging physicians to prioritize their well-being, and implementing measures to ensure a healthy work-life balance. Recognizing the signs of burnout early on and providing support systems, such as counseling and peer mentorship, can be crucial in preventing and mitigating the impact of burnout among doctors who are driven by a strong work ethic. It is essential to acknowledge the importance of fostering a sustainable and supportive work environment that allows doctors to thrive both professionally and personally.

Thanking you,  
Yours sincerely,

**Dr. P. ANANDA SELVAKUMAR** MD(RT), DNB(RT)

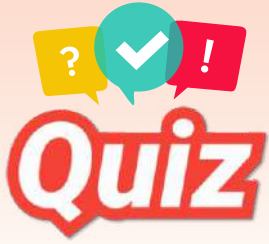
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## SPOTTER - 02



Quiz prepared by :  
**Dr. P. Ananda Selvakumar**

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A 40 years old male presented to an emergency room after a fall downstairs. Chest x ray had been done as a part of trauma workup. AP radiograph had opacity at the right lung base; hence CT THORAX had been done. What's the most likely diagnosis?

- Please send your answer before **26<sup>th</sup> of March, 2024.**
- Write your full name, qualifications and place of practice.
- Answer can be sent through **SMS - 7373747905**
- **E-mail: mmjquiz@gmail.com**
- For enquiries please contact above phone number.

## SPOTTER - 01



## last Month



## quiz ANSWER

A 50 years old smoker presented with breathlessness to an emergency room with the history of sternotomy and CABG 3 years back. He is also getting medications for his palpitation for more than 2 years. CT chest had been done to evaluate. What could be the reason for his shortness of breath ?

### The answer is : AMIODARONE

Amiodarone lung refers to the various manifestations of amiodarone toxicity in the lung including acute lung injury, fibrosis, nodules, haemorrhage and pleural disease. Amiodarone is a vasodilator which was found to be an effective anti-arrhythmic agent. The reported prevalence of pulmonary toxicity in patients receiving amiodarone is ~10%. Toxicity is related to cumulative dose and typically occurs after at least two months on 400 mg/day or two years on 200 mg/day. The minimum effective dose should be used and baseline pulmonary function assessed.

Risk factors include:

- Dose and duration of treatment
- Increasing age
- Pre-existing lung disease
- Cardiothoracic surgery, e.g. pneumonectomy
- High-dose supplemental oxygen
- Pulmonary angiography.

# MMHRC, Congratulates

The following doctors for the correct answer. (Last Month Quiz)

## ➤ Coimbatore

Dr. P.V. Ramalingam

Dr. J. Suresh

Dr. Thuthasan Pava

## ➤ Tuticorin

Dr. M. Dhanushkodi

## ➤ Kanyakumari

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Dr. P. Jagadees Manuel (Nagercoil)

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## ➤ Tirunelveli

Dr. Aruna

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## MMHRC WISHES

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D/o. Dr. G. Adiththan - Dr. A. Vall Sree Mala  
Trichy -20

21.02.2024

**Dr. P. Priyadharshan, MD.(Gen.Med),**  
S/o. Dr. P. Prabakar, MD., DM.(Cardio),  
Dr. Prema Prabakar, MD.(OG),  
Kasthuri Priya Speciality Hospital, Melur, Madurai  
WEDS

**Dr. R. Arthi, MD.(Derm),,**

26.02.2024

**Dr. Nikitha. S. Kumar, MBBS.,**  
D/o. Prof. Dr. R. Selvakumar, M.D., D.A. DNB.,  
HOD & Professor of Anaesthesiology,  
Madurai Medical College, Madurai  
WEDS

**Mr. M. Prabu, B.E., PGPEM**



## CONGRATULATIONS



Our Masters in Emergency Medicine (MEM) residents achieved 1<sup>st</sup> place in the **Trauma Live Sim Wars Competition** organized by the faculty of MEM at **George Washington University, USA** in January 2024. The competition featured participation from over 190 residents, including many local faculty members from India, four visiting faculty members from overseas, and three online faculty members from GWU - USA.



# MIDDLE MENINGEAL ARTERY EMBOLIZATION FOR CHRONIC SUBDURAL HAEMORRHAGE - A NOVEL THERAPY

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## INTRODUCTION

Chronic subdural hematoma (cSDH) is a common disease characterized by an organized collection of blood beneath the dural membrane. In India, the overall incidence of cSDH is estimated to be around 5 per 1, 00,000 population per year<sup>1</sup>. To keep that in a perspective, out of 8 crore estimated population of the state of Tamil Nadu, about 4000 persons are affected by cSDH every year.

Aside from age, other well-established risk factors include dependency on antiplatelet or anticoagulant medication and chronic alcoholism. Clinical diagnosis may be challenging, especially in early stages when the patients may present without clear symptoms and in later stages present with headache, weakness, speech difficulties and behavioural symptoms. Patients may present with coma in severe cases.

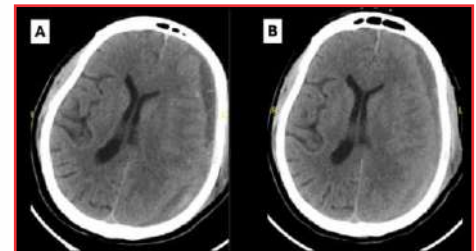
One of the very difficult aspects of treating a patient with cSDH is the recurrence. Many strategies were tested and adopted over the course of time to minimise the risk of recurrence but still the rate of recurrence is significantly large. About 5% to 30% of patients with cSDH

may have a recurrence and patients who develop recurrence once are at a significantly higher risk of developing subsequent recurrences<sup>2</sup>.

One significant advancement in such strategies is Endovascular Embolization of Middle Meningeal Artery which works by reducing the vascularity of the dura and thereby reduces the risk of recollection of blood under the dura. We hope to elaborate the technical aspects, safety profile and clinical benefits of this novel procedure as evident with our experience with such case.

## CASE REPORT

A 61-Year-old gentleman came with complaint of headache for two weeks, followed by right side hemiparesis for 5 days. He underwent Percutaneous Transluminal Coronary Angioplasty (PTCA) 1 year back and is on dual antiplatelet therapy (DAPT). On examination GCS was E4 M6 V4, vital stable with right side hemiparesis grade 4/5. CT Brain was done which showed Left frontotemporoparietal (FTP) cSDH with significant mass effect (Fig.1A). He was posted for left Frontal and parietal burr hole and evacuation of



**Fig 1 : A.** Axial section of initial plain CT brain of the patient showing heterogenous left FTP subdural collection suggestive of cSDH with significant mass effect and midline shift.  
**B.** Postoperative plain CT brain after burr-hole and evacuation showing significant residual collection with mass effect

haematoma. Intra operatively loculated thick membranes were noted and the cSDH evacuation was inadequate for this reason. Postoperative scan (Fig.1B) residual heterodense collection. In view of thick membranes and high risk of recollection, patient was given options of either craniotomy with membranectomy or Endovascular Middle meningeal artery embolization. Patient's family opted an embolization considering higher cardiac risk for a major surgical procedure. He was planned for Endovascular Middle meningeal artery embolization.

With right femoral artery approach under general anaesthesia, with the help of a guiding catheter in left common carotid

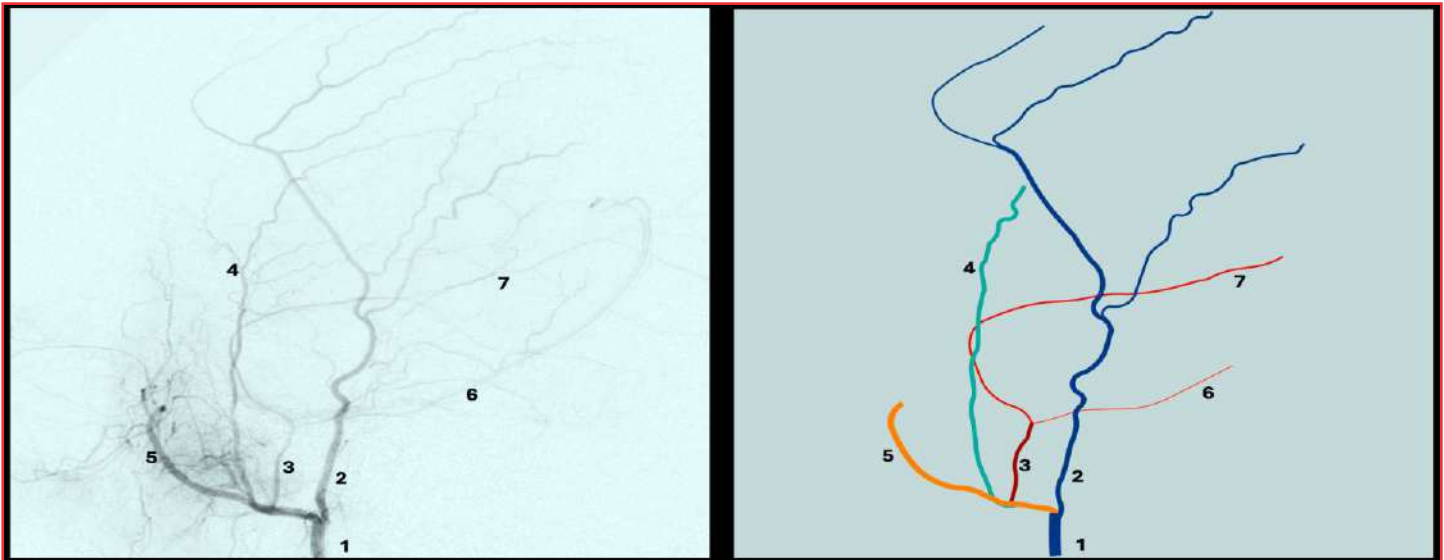


Fig 2 : Lateral view of DSA (left) and corresponding graphic representation (right) of left external carotid artery (ECA) with guide catheter parked just proximal to the branching point of left superficial artery (STA). 1. Terminal segment of left ECA before its bifurcation, 2. Superficial Temporal Artery (STA), 3. Middle Meningeal Artery (MMA) main trunk, 4. Posterior Deep Temporal Artery, 5. Internal Maxillary Artery main trunk, 6. Parietal branch of left MMA, 7. Frontal branch of left MMA

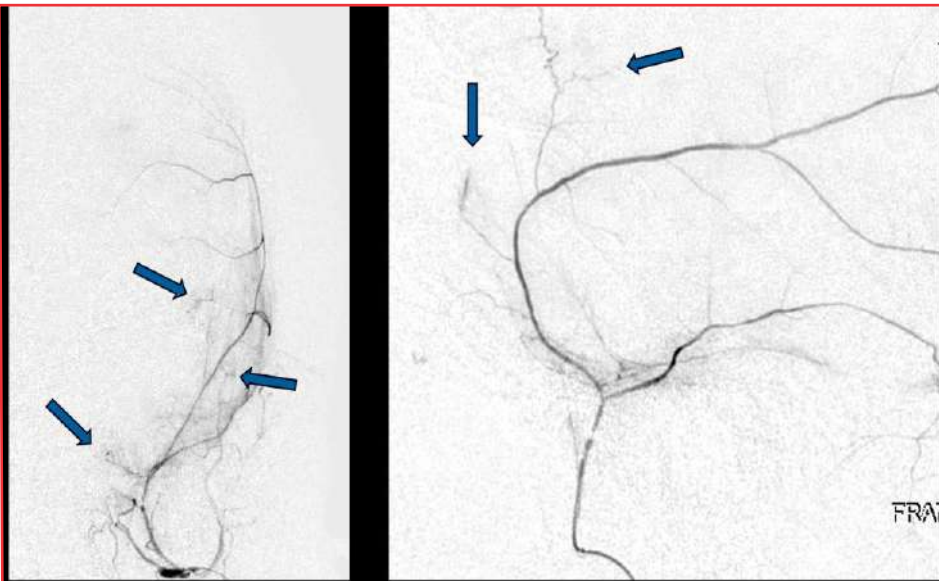


Fig 3 : Anteroposterior (left) and Lateral (right) views of DSA after superselective catheterization and injection of left middle meningeal artery (MMA). Cotton wool staining seen at the hypervascular regions marked with the blue arrows, predominantly seen to be originating from the frontal branch of middle meningeal artery

artery, microcatheter was navigated into the left middle meningeal artery (MMA) under fluoroscopic guidance. Selective injection showed the typical “cotton wool” appearance in the hypervascular regions of cSDH membranes (Fig.2, Fig.3). After superselective catheterization of frontal branch (Fig.4) which appears to be the predominant supply to the cSDH, PVA particles were injected ensuring no spillover of the particles into major anastomotic networks. After embolization, no opacification was evident in the frontal branch of left MMA with normal filling of all remaining normal branches of the External Carotid Artery (ECA) (Fig.5). Good retinal blush was also seen after embolization.



Fig 4 : Lateral road-map view of left MMA with guide catheter parked in the proximal main trunk of left internal maxillary artery (IMA) (green arrow), microcatheter is being advanced into the frontal branch of MMA (blue arrow) over the microwire (orange arrow) that was navigated much distally into the selected branch



Fig 5 : Lateral view of DSA of left external carotid artery before (left) and after (right) embolization. Frontal branch of left MMA that is clearly seen before embolization (blue arrow) is absent after embolization (orange arrow). No change is seen in all other normal branches of left ECA

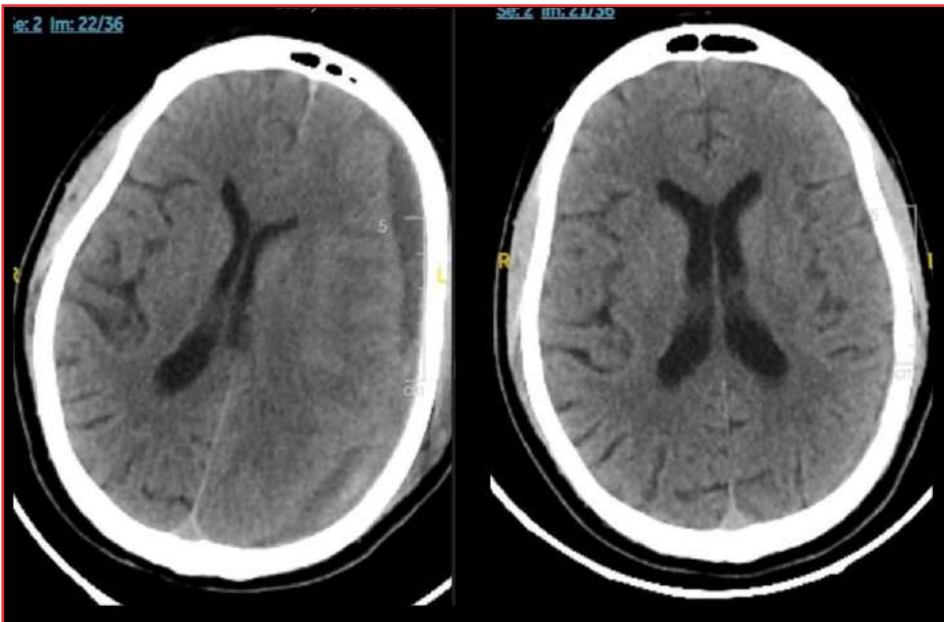


Fig 6 : Axial section of plain CT brain at the time of admission (left) and at 3 months follow-up (right) showing complete resolution of the cSDH

exacerbates this process by creating a larger subdural space and reducing the brain's ability to tamponade against the dura mater, thereby predisposing them to cSDH. Moreover, the decreased elasticity of the aging brain contributes to recurrent hematomas post-evacuation.

The neomembrane, formed in response to blood products, undergoes fibroblast proliferation and angiogenesis, resulting in an immature vascular network within the dura mater. This neovasculature, characterized by increased VEGF levels, remains in a leaky state, perpetuating plasma extravasation and continual growth of the hematoma. Selective angiography reveals an extensive, newly formed, irregular capillary network

Postoperative course of the patient is uneventful with no new onset deficits. He was managed with antiepileptics and regular physiotherapy. He was discharged on 2nd post operative day after embolization, and he is regular with the follow-up and compliant with the medications. His weakness completely resolved over the next 2 weeks and repeat CT brain done after 3 months follow-up showed complete resolution of cSDH with no evidence of recurrence (Fig.6).

**DISCUSSION**

Chronic subdural hematoma (cSDH) is a complex medical condition with a multifactorial etiology that has evolved over centuries of medical inquiry. Initially proposed by Virchow in 1857, the pathogenesis of cSDH was linked to a generalized inflammatory process rather than trauma alone<sup>3</sup>. This seminal observation laid the groundwork for subsequent investigations into the intricate mechanisms underlying the formation and recurrence of cSDH.

The inflammatory response triggered by blood in the subdural space after trauma initiates a cascade of events leading to the formation of a vascular neomembrane<sup>4</sup>. Brain atrophy, particularly prevalent in older individuals,

Risk Factors	Sample size	RR (95%CI)	p - value	I <sup>2</sup>	Egger's / begg's test	Class of evidence
Male	8316	1.32 (1.50, 1.51)	< 0.001	0	No / No	Class I
Bilateral hematoma	6619	1.41 (1.20,1.67)	< 0.001	28.8	No / No	Class I
No drainage	1836	0.45 (0.33,0.60)	< 0.001	0	No / No	Class I
Large hematoma volume	1346	0.73 (0.51,0.94)	< 0.001	38.6	No / No	Class II
Diabetes mellitus	7511	1.40 (1.18,1.68)	< 0.001	28.7	No / No	Class III
Brain atrophy	1230	1.94 (1.26,3.01)	0.003	26.6	No / No	Class III
No goreisan	8813	0.79 (0.67,0.93)	0.005	0	No / No	Class III
Antithrombotic drugs	11889	1.29 (1.14,1.45)	< 0.001	18.8	Yes / No	Class III
Hematoma width >20mm	1335	2.37 (1.56,3.60)	< 0.001	24.1	No / No	Class III
Midline shift > 10mm	2277	1.61 (1.17,2.22)	0.004	41.7	No / No	Class III
Elderly	4509	0.10 (0.01,0.18)	0.027	0	No / No	Class IV
Liver injury	6820	1.15 (1.02,1.31)	0.026	0	No / No	Class IV
No atorvastain	347	0.31 (0.14,0.69)	0.005	0	--- / No	Class IV
No corticosteroid	662	0.41 (0.24,0.70)	0.001	0	No / No	Class IV
Craniostomy	3252	0.71 (0.52,0.99)	0.042	40.8	Yes / No	Class IV
No MMAE	888	0.24 (0.08,0.75)	0.014	39.5	No / No	Class IV
No endoscopic	656	0.39 (0.17,0.92)	0.031	41.4	No / No	Class IV
Saline lavage	354	0.35 (0.19,0.63)	< 0.001	0	No / No	Class IV
The drainage position is not in the frontal	1395	0.61 (0.37,1.00)	0.048	25.9	No / No	Class IV
High + Mixed density hematoma	3919	1.78 (1.13,2.78)	0.011	73.6	Yes / Yes	Class IV
Heterogeneous hematoma	3003	0.76 (0.60,0.98)	0.030	43.4	No / No	Class IV

Fig 7 : Table showing the factors associated with risk of recurrence of cSDH2.(Table source: Zhu F, Wang H, Li W, Han S, Yuan J, Zhang C, Li Z, Fan G, Liu X, Nie M, Bie L. Factors correlated with the postoperative recurrence of chronic subdural hematoma: An umbrella study of systematic reviews and meta-analyses. EClinicalMedicine. 2022 Jan 1;43.)



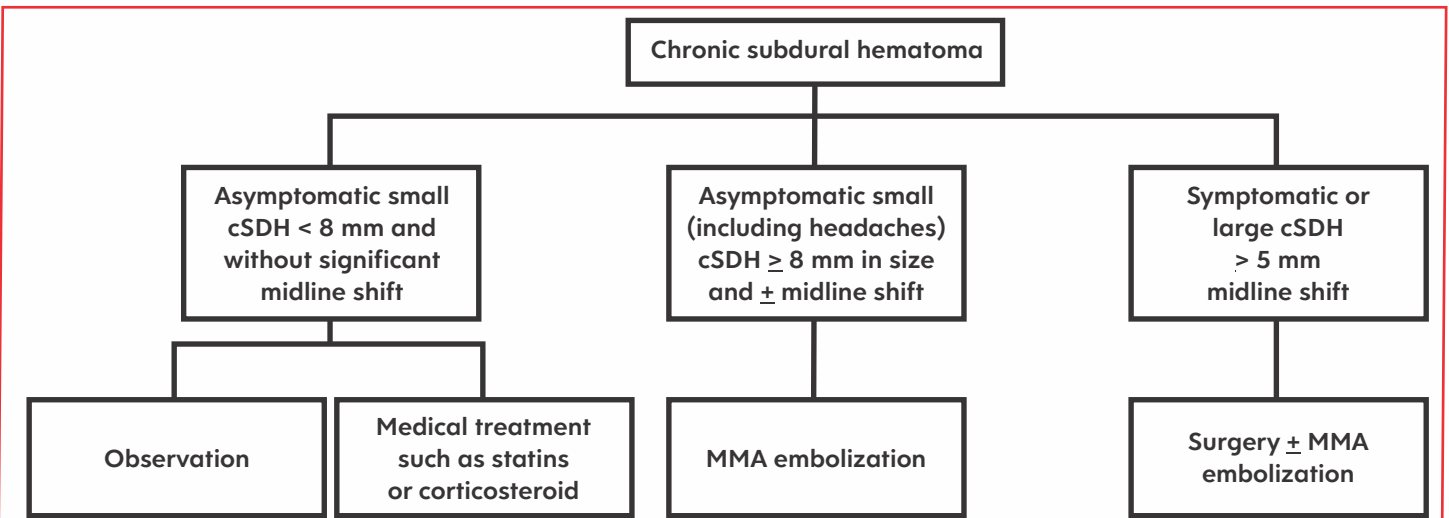


Fig 8 : Current recommendation for endovascular management of cSDH (Table Source: Catapano JS, Nguyen CL, Wakim AA, Albuquerque FC, Ducruet AF. Middle meningeal artery embolization for chronic subdural hematoma. *Frontiers in neurology*. 2020 Oct 20;11:557233.)

(“cotton wool cloud” or “cotton wool-like staining”) that penetrates the dura mater and is connected with the branches of the MMA<sup>5</sup>. This angioneogenic capillary network with increased blood flow through hypertrophied MMAs into the capillaries leads to recurrent microhemorrhages from the neomembrane. Taking anticoagulants or antiplatelet drugs could enhance this process.

Our patient was initially posted for burr hole and evacuation of cSDH, but intraoperatively thick loculated heterogeneous cSDH with membrane formation was noted which resulted in an incomplete evacuation. Post operative scan showed a significant residual cSDH with mass effect. A remarkable and extensive meta-analysis that was published by Zhu et al gives a clear overview of all the risk factors associated with a recurrence in cSDH (Fig7). Our patient had many of these risk factors including, 1. Male gender, 2. Large volume of cSDH, 3. Width of cSDH >20mm, 4. Antiplatelet medication, 5. Mixed density cSDH and 6. Heterogeneous hematoma. In view of multiple risk factors for recurrence, we offered an option to undergo endovascular MMA

embolization or craniotomy involving opening the skull vault and excision of membranes. Patient’s family opted to undergo endovascular management. It is also interesting to note in the above-mentioned meta-analysis that “not doing MMA Embolization” as a routine procedure is also a significant contributor to recurrence of cSDH.

Another meta-analysis published by Jumah et al also emphasizes the efficiency and safety of endovascular MMA embolization as a routine management strategy for cSDH<sup>6</sup>. They also reported the rate of treatment failure to be 2.8% which needed a surgical rescue and embolization related complication rate of 1.2% which include transient facial weakness, asymptomatic extradural hemorrhages, dural AV fistulas (DAVF) and others combined.

### CONCLUSION

Endovascular Middle Meningeal Artery Embolization is a minimally invasive procedure where we target the feeding vascular network that plays the most important role in development, progression and recurrence of cSDH. By occluding the vascular supply, we disrupt the growing environment for the cSDH. Even though a body of evidence is evolving pointing the safety and efficacy of this novel procedure as a part of routine management of all cSDH patients, its role is more pronounced in a selected group of patients who are at high risk of recurrence

like patients on anticoagulant or antiplatelet therapy, patients with various acquired or congenital coagulopathies, patients with thick loculated membrane formation that are not amenable to simple burr hole procedure etc.

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# GALL BLADDER WALL THICKENING AS AN EARLY PREDICTION TOOL IN SEVERE DENGUE

## - A PROSPECTIVE OBSERVATIONAL STUDY

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Institute of Emergency Medicine

### INTRODUCTION

Dengue is the most common virus in the Flaviviridae family to cause human infection. It is transmitted via the mosquito vector, *Aedes aegypti* and *Aedes albopictus*. In 17<sup>th</sup> march, 2023 WHO stated Dengue fever into Dengue and Severe Dengue. Severe dengue is characterized by severe plasma leakage; severe bleeding and/or organ impairment. A main feature of severe dengue is increased capillary permeability, represented by escape of fluid and albumin into extravascular space. Gall Bladder Wall Thickening is one of the manifestation of increased of capillary permeability. Gall bladder wall thickening above 3 mm is significantly associated with more cases of dengue and a thickness greater than 5 mm could identify dengue patients with a higher risk of developing hypovolemic shock. The main advantage of ultrasonogram is its high sensitivity to detect even smaller amounts (minimal) of pleural effusion, ascites and the possibility to visualise the gall bladder wall thickening. Gall bladder wall thickening resolves fast, there are higher chance of obtaining positive findings of gall bladder wall thickening

when ultrasound examination is performed more than 5 days from the onset of fever. Here we have correlated Gall bladder wall thickening with the total leukocyte counts, platelets, and AST levels.

### METHODOLOGY

#### AIM OF STUDY

The aim of study is to describe the correlation of gall bladder wall thickness with the severity of dengue fever. To determine gall bladder wall thickness in patients with dengue fever. To compare gall bladder wall thickness with platelets, AST levels, and leukocyte count.

### MATERIALS AND METHODS

This prospective observational study was conducted in the Meenakshi Mission Hospital and Research Centre, Madurai, South Tamil Nadu, India from October, 2023 to December, 2023 for a period of 3 months. Patients who provided consent were enrolled in this study. Bedside ultrasonography was performed in the Emergency Department and was recorded. Patients were divided into two groups: those with gall bladder wall thickness  $\leq 3$  mm and  $> 3$  mm.

### INCLUSION CRITERIA

- Dengue patients with a history of fever for 5 days, positive result of Dengue NS1Ag, IgM.
- Age- all age group patients presenting to ED who is diagnosed to have serology positive.
- Informed consent will be obtained from all the patients participating in this study after explaining about the nature and purpose of this research.

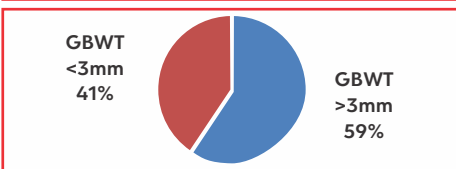
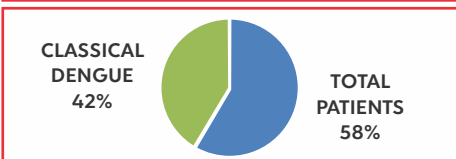
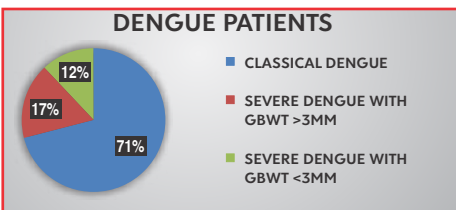
### EXCLUSION CRITERIA

- Participants with only Dengue IgG positive (whose presence alone signifies previous infection).
- Patients who are not diagnosed with Dengue NS1Ag or IgM positive.
- Patients diagnosed with other viral illnesses which can be co-existing with Dengue.
- Patients with acalculouscholecystitis (diagnosed on USG abdomen & pelvis by a Radiologist).
- Pregnant females, those with intrinsic gall bladder disease and those with a history of CCF or CLD.
- Physiologically contracted gall bladder, cholecystitis, hepatitis, cirrhosis, CHF, renal failure.

- Gall bladder wall thickness measured in post prandial state.
- Patient diagnosed with other tropical illnesses except dengue.

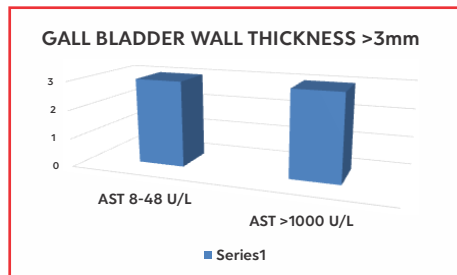
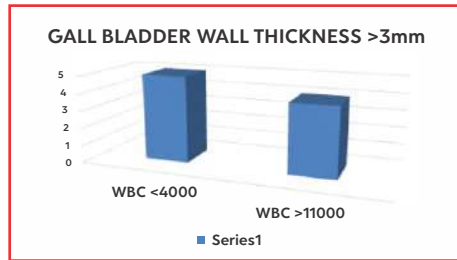
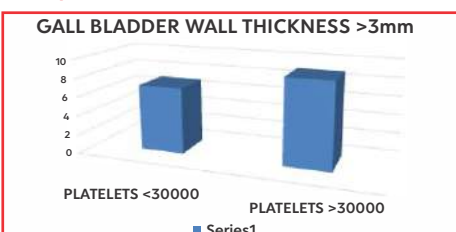
**CASES AND RESULTS**

- Bedside ultrasonography in the Emergency Department was performed for Gall bladder wall thickening in 93 patients (patients presenting more than 5 days of fever and dengue serology positive) and were recorded.

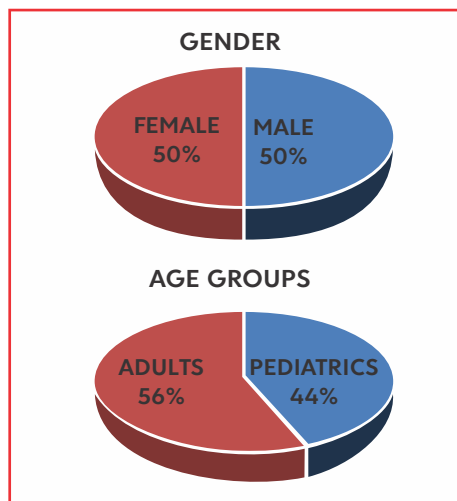


- There were a total of 93 patients, who presented to the Emergency Department between October, 2023 and December, 2023.
- Bedside ultra sonogram was performed on all 93 patients.
- Out of 93 patients, 27 patients were diagnosed with Severe Dengue at the time of discharge
- Out of 27 patients, 16 patients were found to have Gall Bladder wall thickening of more than 3mm in the Emergency Department.

**Correlation of GBWT with Platelets/WBC/AST**



**CORRELATION OF GALL BLADDER WALL THICKNESS AND SEVERE DENGUE AMONG GENDER/AGE GROUPS**



**DISCUSSION**

The common finding was gall bladder wall thickening more than 3mm. 16 patients out of 27 (59.25%) with gall bladder wall thickness more than 3mm were found to have diagnosed with Severe dengue at the time of discharge. The rapid resolution of gall bladder wall thickening and ascites suggests that the underlying mechanism was a transient increase in permeability rather than inflammation.

So far gall bladder wall thickening has not been included in WHO plasma leakage criteria, therefore ultrasound examination of gall bladder in the febrile phase may be needed to detect the presence of plasma

leakage and thus, the severity of disease before they become clinically apparent.

**FUTURE AREA OF RESEARCH**

- Multi centric study
- Predicting prognostic outcome with respective intervention in cases of early screening of Severe Dengue by assessing the gall bladder wall thickness.
- Correlating the IgG and NS1 titres with the severity of Dengue fever.
- Correlating gall bladder wall thickness with other signs of plasma leakage.

**CONCLUSION**

Use of bedside ultrasound to evaluate third space fluid loss in patients presenting with >5th day fever with thrombocytopenia in the febrile phase can predict the progression of the same patient to Severe dengue.

This study concludes that gall bladder wall thickness measured by ultrasonography can be used in both children and adults for an early prediction of the severity of Dengue and, those clinicians can include gall bladder wall thickness as admission criteria during epidemics.

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# A CASE SERIES OF EXTRA NODAL NK/T CELL LYMPHOMA

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## INTRODUCTION

NK/T cell lymphomas are rare type of haemato-lymphoid neoplasm, originating from peripheral T cells / NK cells. They are more common in China and Japan and very rare in Indian subcontinent. Here we present two cases of NK/T cell lymphoma.

## CASE SERIES

### CASE 1

A 41 year old male, underwent Functional Endoscopic Sinus Surgery (FESS) with Septoplasty for nasal block and nasal discharge outside hospital. He came to us with recurrent nasal block and blackening with swelling over nose and right cheek. There was associated voice change. There was no history of fever, loss of appetite, loss of weight.

On examination he was having bilateral nasal congestion with right orbital swelling. There was no lymphadenopathy and hepatosplenomegaly. CT scan of Paranasal sinuses showed recurrent mass in right nasal cavity and right ethmoidal sinus. His routine investigations were normal and LDH level was mildly elevated (324 IU/L).

He underwent Diagnostic Nasal Endoscopy guided biopsy, which showed large atypical lymphoidal cells suggestive of lymphoma. Immunohistochemistry was positive for CD3, CD2, CD 56 and EBER and negative for CD20, CD30 and ALK. Clinical and histopathological features were suggestive of extra nodal NK/T cell lymphoma, nasal type.

Further staging evaluation was done with PET/CT and Bone marrow evaluation. PET CT showed intense metabolic uptake (SUV 22.2) in irregular heterogeneously enhancing soft tissue involving the right nasal cavity, right ethmoidal air sinus, right maxillary sinus with extending into right orbit. There was no abnormal uptake in Lymph node / Liver / spleen / Bone marrow. Bone marrow aspiration and biopsy was negative for lymphoma infiltration. Final stage was I AE (Ann Arbor stage) with PINK E risk score of 0 (low risk group). He was managed with 4 cycles of chemotherapy with DDGP regimen (Dexamethasone, Cisplatin, Pegaspargase and Gemcitabine). Post 4 cycles of chemotherapy, reassessment PET CT showed complete response. There were no clinical symptoms and signs.

Patient received consolidation radiation therapy with 45 Gy / 25 fractions / 5 weeks. He is on regular follow up and still continues to be in complete remission.

Fig 1 : PINK and PINK E risk scores

### PROGNOSTIC INDEX OF NATURAL KILLER CELL LYMPHOMA (PINK)

#### RIKS FACTORS

Age >60 y  
Stage III or IV disease  
Distant lymph-node involvement  
Non-nasal type disease

	Number of risk factors
Low	0
Intermediate	1
High	≥2

### PROGNOSTIC INDEX OF NATURAL KILLER CELL LYMPHOMA WITH EPSTEIN-BARR VIRUS DNA (PINK-E)

#### RIKS FACTORS

Age >60 y  
Stage III or IV disease  
Distant lymph-node involvement  
Non-nasal type disease  
Epstein-Barr virus DNA

	Number of risk factors
Low	0-1
Intermediate	2
High	≥3

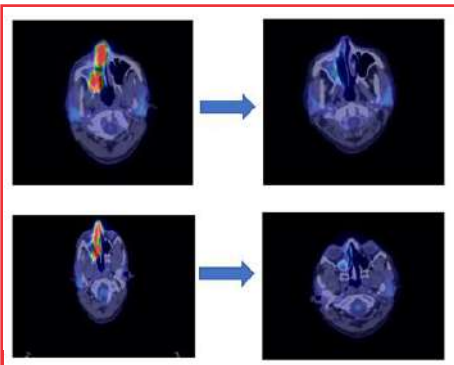


Fig 2 : PET CT showing pre treatment and post treatment (Case 1)

**CASE 2**

A 65 year old female with multiple comorbidities (diabetes mellitus, hypertension, coronary artery disease, hypothyroid) presented with complaints of swelling in right side of neck. There were no B symptoms. CECT of neck showed heterogeneously enhancing mixed density lesion (4.5 cm X 3.2 cm) in right lobe of thyroid with retro tracheal extension with enlarged right supra clavicular lymph node. Excision biopsy of node was suggestive of lympho proliferative disorder. Immunohistochemistry was suggestive of extranodal NK T cell lymphoma (CD 45 and CD 56 positive; all other markers are negative).

PET CT showed intense metabolic activity in a heterogeneously enhancing soft

tissue lesion in right lobe of thyroid gland suggesting a probability of thyroid lymphoma. There was no other abnormal uptake elsewhere. Bone marrow evaluation was negative. Final diagnosis was extra nodal NK/T cell lymphoma, non nasal type (thyroid origin) with high risk PINK score. In view of advanced age and comorbidities she was started on less intense chemotherapy with P – GemOx regimen (Pegaspargase, Gemcitabine, and Oxaliplatin). She is currently on chemotherapy.

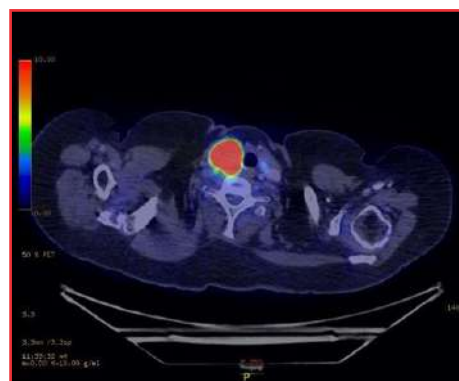


Fig 3 : PET CT showing intense metabolic activity in Right lobe of thyroid (Case 2)

**DISCUSSION**

NK/T cell lymphomas constitute around 5-10% of all Non Hodgkin's Lymphoma in Chinese and Japanese population. Meanwhile they are very rare

in Indian and western population (less than 1% of all NHL). Median age of presentation is 52 years and males are more affected than females. Pathogenesis is less understood. Many cases are associated with EBV infection. Genetic mutations have been studied in some cases including TP53 mutation, JAK/STAT pathway abnormalities and TP73 hypermethylation. P glycoprotein expression by these tumors makes them resistant for many of the conventional chemotherapy drugs. NK/T cell lymphomas are classified into nodal and extra nodal types. Extra nodal type has been further subdivided into nasal and extranasal type. Nasal type of extra nodal NK/T cell lymphoma is the most common subtype. Extra nasal type generally involves gastro intestinal tract, upper airway, Waldeyer's ring, skin, testis, lung, eye, or soft tissues. Lymph nodal involvement is usually secondary (primary nodal type is very rare). In 10% of cases bone marrow involvement can be seen and B symptoms are usually present in 35% of cases.

On immune histochemistry they are positive for both NK cell markers (CD56) and T cell markers (ex: CD3) and they are negative for B cell markers. Risk stratification of NK/T lymphomas is different from routine NHL including PINK and PINK E scores (Prognostic Index of Natural Killer Lymphoma +/- EBV DNA). Backbone of treatment is asparaginase based combination chemotherapy regimens along with concurrent or sequential radiotherapy. These regimens include Modified SMILE protocol, DDGP regimen, and P- GemOx and AspaMetDex regimens. Among these regimens DDGP has more increased survival. With advances in treatment modalities survival has increased in the last decade especially in patients with early stage disease, nasal type and low PINK / PINK-E score.

Fig 4 : NCCN guidelines for treatment of NK/T cell lymphoma

INDUCTION THERAPY	
Combination chemotherapy regimens (asparaginase-based)	<p><b>Preferred regimens</b></p> <ul style="list-style-type: none"> <li>Modified SMILE (steroid [dexamethasone], methotrexate, ifosfamide, pegaspargase, and etoposide) x 4-6 cycles for advanced stage</li> <li>P-GEMOX (gemcitabine, pegaspargase, and oxaliplatin)</li> <li>DDGP (dexamethasone, cisplatin, gemcitabine, and pegaspargase) x 3-6 cycles</li> </ul> <p><b>Useful in certain circumstances</b></p> <ul style="list-style-type: none"> <li>AspaMetDex (Pegaspargase, methotrexate, and dexamethasone)</li> </ul>
Combined modality therapy	<p><b>Preferred regimens</b></p> <ul style="list-style-type: none"> <li>Concurrent chemoradiation therapy (CCRT) - RT and DeVIC (dexamethasone, etoposide, ifosfamide, and carboplatin) x 3 cycles</li> <li>Sequential chemoradiation - Modified SMILE x 2-4 cycles followed by RT,**</li> <li>Sandwich chemoradiation - P-GEMOX x 2 cycles followed by RT followed by P-GEMOX x 2-4 cycles</li> </ul> <p><b>Other recommended regimens</b></p> <ul style="list-style-type: none"> <li>CCRT : RT and cisplatin followed by VIPD (etoposide, ifosfamide, cisplatin, and dexamethasone) x 3 cycles</li> <li>Sequential chemoradiation : DDGP x 3-6 cycles followed by RT**</li> </ul>

\*\*For stage I-II, recommend modified SMILE x 2 cycles or DDGP x 3 cycles

**RT alone (if unfit for chemotherapy)**

- RT as a part of initial therapy has an essential role in improved overall and disease-free survival in patients with localized ENKL, nasal type, in the upper aerodigestive tract.

Table 1 : differences between B cell NHL and NK/T cell lymphomas

	B cell NHL	NK/T cell lymphoma
Incidence	Common	Very rare (<1%)
Risk scores	IPI R- IPI	PINK PINK – E
Treatment regimen	CHOP regimen +/- Rituximab	Modified SMILE DDGP P –GemOx
Role of radiation therapy	Not routinely recommended ( only in bulky disease or extranodal involvement)	Sequential or concurrent RT needed in almost all cases
Prognosis	Relatively good	Poor

**CONCLUSION**

In our patients one of them is a young patient with nasal type and low risk group who responded well to chemotherapy and radiotherapy and continues to be in remission. On the other hand, other

patient is an elderly lady with non nasal subtype of extranodal NK/T cell lymphoma with high risk group (currently undergoing treatment). Due to extreme rarity of presentation and different treatment options, high index of suspicion

is needed in these cases since they are potentially curable.

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CHILD DEVELOPMENT CENTRE, MMHRC, Organized **ORION-2024**, on 18<sup>th</sup> February-2024, to Celebrate our little Rockstars' unique talents. **Mayor Thirumathi V. Indirani Ponvasanth**, was the Chief guest.



# TOTAL SCALP AVULSION – SUCCESSFUL MICROVASCULAR REPLANTATION

## – A CASE REPORT

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**ABSTRACT:** Total scalp avulsion is a severely disfiguring and devastating injury. The tangential force and the severity of injury makes reconstruction challenging. Replantation must be attempted at the earliest to preserve the hair bearing scalp and to prevent permanent disfigurement.

**KEYWORDS :** Scalp Avulsion, Replantation, Microvascular Surgery.

### INTRODUCTION

Total scalp avulsion is a rare but potentially devastating injury, posing a challenge to reconstructive surgeons. The scalp, with its unique hair bearing properties, should be replaced in kind. Replantation is the best form of reconstruction, as it helps restore a sensate and hair bearing scalp. This aesthetic result cannot be achieved by any other form of reconstructive procedure. Herein we present a case report of a total scalp avulsion that underwent successful microvascular replantation.

### CASE SERIES

A 30 years female patient, presented to our emergency department at around 6.30 pm with a history of accidental pull of hair by a machine at workplace around 3 pm. On receiving, vitals were stable. There was complete avulsion of the entire scalp, including the forehead and both eyebrows and upper 2/3<sup>rd</sup> of left ear. The



entire skull bone was exposed. The avulsed scalp was brought without any preservation in a polythene cover.

Patient was resuscitated and simultaneously the avulsed scalp was prepared and properly transferred to an ice container to reduce the warm ischemia. Concomitant brain and spine injuries were ruled out. Post resuscitation patient was immediately shifted for emergency surgery.

Bench dissection of the avulsed part was done and scalp side superficial temporal arteries and veins were identified and patency was confirmed. Under general anesthesia, the bilateral superficial temporal donor arteries and veins dissection was done. Scalp was repositioned and suturing done. Microvascular anastomosis of bilateral superficial temporal arteries and veins was done with 10-0 nylon. Patency of anastomosis was confirmed and we were

able to achieve good vascularity of the replanted scalp. Patient was extubated and shifted to ICU and started on anticoagulation with heparin infusion.

**Fig 3 : Bench dissection of avulsed Scalp after preparation**



**Fig 4 : INTRA OP – Scalp reattachment and superficial temporal artery and vein anastomosis**



**Fig 5 : On table – Final result**



On the first postoperative day, venous congestion of the replanted scalp was noted. Hence patient was taken up for emergency reexploration. Venous anastomosis on the left side was revised. Successful revascularization was achieved. Heparin infusion was continued for 5 days. Patient recovered well. The entire forehead, eyebrows, left ear and scalp survived in toto. There was a small area of necrosis of the posterior neck skin due to the avulsion injury which was later debrided and grafted. On follow up the patient is happy with well settled scars and her scalp showing signs of hair growth.

## DISCUSSION

Total scalp avulsion injuries are relatively rare. It commonly results from entrapment of long hair in high speed rotary parts of industrial machinery. The avulsed part might include the eyebrows and parts of ears and the plane of avulsion is usually the loose connective tissue between the galea and the periosteum. Avulsion injuries produce traction forces, causing vessel intimal damage making microvascular replantation even more cumbersome, with more chance of thrombosis.

The first scalp replantation was performed by Miller et al in 1976. Microsurgical replantation is the best technique following total scalp amputation. No other autologous hair bearing tissue exists that can substitute scalp. The reconstructive option otherwise would be to use skin grafts on areas of intact pericranium, making burr holes in areas of absent pericranium to promote granulation and then skin grafting. This leads to prolonged healing periods, unstable scar and an unpleasant permanently disfiguring aesthetic outcome with absent hair growth. Proper preservation of the amputated part is essential during the transport to the hospital, to reduce the warm ischemia time, which results in better outcome. A 2 team approach to prepare donor and recipient sites should be utilized to reduce ischemia time.

Although the rich anastomotic network of the scalp allows for reperfusion and survival on a single vascular pedicle, literature suggests better outcome with multi pedicle replantations. The superficial temporal vessels are commonly utilized, due to their sufficient calibre and convenient location, without necessitating positional changes. Vein grafts may be required to get beyond the zone of injury to healthy vessel segments. A tension free anastomosis should be prioritized.

A vigilant postoperative monitoring and anticoagulation must be followed. Immediate reexploration in case of arterial insufficiency or venous congestion must be done, for refashioning of anastomosis and preventing ischemic damage.

**Fig 6 : 7<sup>th</sup> day POST OP**



**Fig 7 : 2 weeks POST OP**



**Fig 8 : 2 months followup**





**CONCLUSION**

'Replace tissue with like tissue' is the basic concept of reconstructive surgery. Microvascular replantation of scalp would be the gold standard management for total scalp avulsions, to replace the hair bearing scalp and preventing permanent disfigurement and morbidity in the patient.

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**CME Programme @ SIVAGANGAI**



IMA Sivagangai Branch, Manamadurai Branch, Madurai Meenakshi Branch & MMHRC organised a CME on 24.02.2024 at Sivagangai.

Speaker : **Dr. K. Selvamuthukumar,**  
Sr.Consultant-Dept.of Neuro Surgery, MMHRC  
Topic : Minimally Invasive Neuro Surgery

Speaker : **Dr. P. Ananda Selvakumar,**  
Sr. Consultant, Dept. of Radiation Oncology, MMHRC  
Topic : Recent Trends in Radiation Oncology

**WORLD CANCER DAY - 2024**



**Dr. Binita Jena,** Sr. Consultant & HOD,  
Dept. of Plastic Surgery, MMHRC, Madurai  
attended as speaker on TANPAPS 2024 held  
at Mahabalipuram.



**Dr. P. Ananda selvakumar,** Sr. Consultant, Department of  
Radiation Oncology, delivered a cancer awareness talk on the  
occasion of **WORLD CANCER DAY** at Sonai Meenal College of  
Art and Science, Mudukulathur on 15<sup>th</sup> February 2024, which  
was organized by Marketing Dept. MMHRC, Madurai.

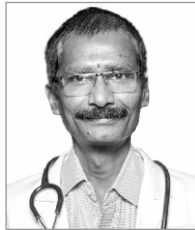


# LUMBAR FACETAL ARTHROPATHY

- A POTENTIAL SOURCE OF PERSISTING LOW BACK PAIN

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**ABSTRACT :** Lumbar facet arthropathy is a relatively common degenerative condition involving the lumbar facet joints resulting in chronic low back ache (LBA) and functional limitation in individuals. It is one of the important causes of persistent low back ache in middle-aged and elderly populations. However, the diagnosis and management are challenging owing to various other pain generators in the spine and the overlap of symptoms. This manuscript throws light on the pathogenesis of lumbar facetal degeneration, anatomical aspects to be considered in management and the various minimally invasive options available in treating the facetal pain.

**KEYWORDS :** Facetal arthropathy, chronic back pain, pain generator, minimally invasive, management

## INTRODUCTION

Lumbar spine interventions are one of the commonly performed procedures in interventional pain practices. Transforaminal Selective nerve root blocks, epidural steroid injections, and lumbar facetal injections are few routinely administered in daycare clinics. In spite of these modalities, the diagnosis of lumbar facetal disorders and their interventions are challenging to the clinician. The lumbar facet joints play a pivotal role in providing stability and enabling movements of the lower back such as flexion, extension, and rotation. These joints aid in the unhindered functioning of the lumbar spine. However, over time, these joints degenerate due to wear and tear, leading to facet arthropathy. The resulting chronic pain, stiffness, and reduced mobility significantly reduce the overall quality of life. Various strategies have been developed over time to minimize the pain

due to facetal origin. This manuscript aims to provide a comprehensive overview of lumbar facetal arthropathy, its underlying mechanisms, and various treatment modalities.

## LUMBAR MOTION SEGMENT

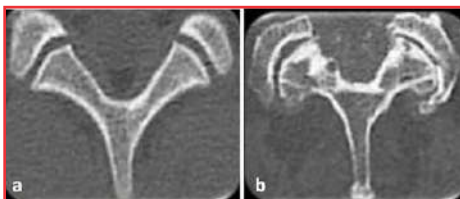
A Spinal motion segment is the basic functional unit of the spine. It includes two adjacent vertebrae with the intervening disc. Mobility of this segment is contributed by the facet joints and the discal tissues ensuring a smooth dynamic motion. This three-joint complex forms the articular triad of the spine. While the discs are anterior to the spinal canal, facet joints are diarthrodial zygapophysial joints that are located posterior to the vertebral bodies, intervertebral disc, and spinal cord, and play a critical role in the transmission of axial loads. They have a complex three-dimensional (3D) anatomy, variable mechanical functions in different spinal

movements and effects on the overall spine mechanical behavior. The stresses in the facets are more in the lumbar spine owing to their critical location in the spinal column and also the transitions including the thoracolumbar and lumbosacral region. Also, the orientation of the facets varies considerably in the upper (more sagittal) and lower lumbar regions (L4-5, L5-S1), contributing to degeneration.

## FACETAL LOADING AND LUMBAR FACETAL DYSFUCTION

Loading of the facet joints and transfer of the axial compressive forces is more of an innate property for the lumbar spine because of the erect posture of the human spine, the lumbar facet joints are synovial joints with low friction and almost vertical articulating surfaces. The three possible mechanisms of load transfer in the lumbar region are (1) through the articular joint surfaces, (2) through capsular ligaments, and

(3) through direct contact between the tips of articular processes and the neural arch or the pars interarticularis. Various ranges of motion also affect the facetal biomechanics. Several authors have postulated that with hyper-extension movements, impingement of the facetal capsule between the tips of the inferior articulating process and the pars, resulting in axial back pain. The Kirkaldy-Willis cascade of spinal degeneration, though begins with disc degeneration, ultimately results in the dysfunction of the facet joints leading to instability. Facetal arthritis is typically characterized by joint space narrowing, cartilage thinning and fissuring, subchondral sclerosis, and osteophyte formation (Fig 1). These changes result in chronic symptoms to the patients like LBA typically aggravated in extension, sometimes associated with radiating pain.



**Fig 1 : Axial CT scan showing  
(a) Normal facet joint and  
(b) Severely arthritic facet joint**

Clinical facet joint syndrome is defined as a unilateral or bilateral back pain radiating to one or both buttocks, sides of the groin, and thighs, and do not extend below the knees. However, in some cases, patients' symptoms in the setting of low back pain may lack specificity, as facet joints may mimic discogenic pain. History and physical examination may suggest, but not confirm facet joint as the source of pain. A diagnostic positive facet joint block can indicate facet joints as the source of chronic spinal pain, but the rate of false positives remains high. The capsule of the facet joints, subchondral bone, and synovium are richly innervated with nociceptive and autonomic nerve fibers. Substance P nerve fibers Inflammatory mediators such as prostaglandins and

cytokines (IL6, TNF $\alpha$ ) have been identified in subchondral bone in degenerative lumbar facets. All these explain the origin of low backache in the case of facetal arthritis.

### FACETAL INNERVATION AND THE INTERVENTIONS

Each lumbar facet joint is innervated by the medial branch of the dorsal rami (MBDR). It emerges from the inter-transversal ligament. This branch crosses the superior margin of the medial end of the transverse process, passing around the superior articular process. At this level, the nerve runs downwards and then enters the multifidus muscle. Each joint is innervated by a dual supply from the medial branch at the same level and the level above with ascending and descending branches (fig 2). These serve as the target zone for LBA due to facetal origin. Facetal joint MBDR blocks, facetal steroid injections, and radio frequency / cryoablation are some of the therapeutic options to treat LBA the same.

### FACET JOINT MBDR AND FACET JOINT INJECTION

These injections are primarily used in pain management and also in the diagnosis of LBA



**Fig 2 : showing the medial branch of the dorsal rami innervating the lumbar facet joint.  
Note the highlighted red lines show the L4-L5 facet innervated by descending and ascending branches**

due to facet etiology. The NASS guidelines recommend failure of at least 3 months of conservative therapy (defined to include exercise, Physiotherapy, and/or analgesics) before consideration of diagnostic facet joint blocks and nerve ablation. These procedures can be done under either CT or fluoroscopy guidance and position of the needle is confirmed by radio-opaque dye. In the MBDR block, the cocktail mixture of rapid-acting local anesthetic (eg: Bupivacaine) with a long-acting corticosteroid is injected at the middle in the junction of the superior articulating facet and transverse process (fig 3). As the innervation to the facet is from both the descending and the ascending branches, the injectate is given at two levels to treat a single-level facet pathology (example: L4-5 facetal arthritis requires L5 and L4 MBDR block). While in the facet joint block, the mixture is directly injected in the intra-articular location at the corresponding level. For lumbar Intra Articular (IA) injections, studies have reported the occurrence of failed blocks, ranging between 29% and 38% per joint using fluoroscopy. However, the precision could be improved using CT guidance. Weininger et al. reported a success rate of over 90% in CT-guided IA facet block. Lastly, Neuroablation techniques can be performed using heat (radiofrequency) or cold (cryo) application to the target neural structure. An ideal candidate for neuroablation technique is a patient who underwent medial branch block with significant pain relief after a failed conservative management. At present,



**Fig 3 : showing CT guided medial branch block of Dorsal Rami at L4-L5 facet joint.  
(a) \* showing the placement of the spinal needle at the target point: midpoint of the junction of Superior Articular Process and Transverse Process  
(b) showing the injected contrast dye  
(adapted from article by Perolat et al.)**

the International Spine Intervention Society recommends a maximum of two attempts of ablation per year. These procedures are technically demanding and needs skilled personnel for optimum results.

**CONCLUSION**

Lumbar facet arthropathy is a challenging condition to diagnose and primarily can be done only after thorough clinic radiological evaluation. Facet joint-related anatomical,

clinical, and radiologic knowledge is essential for successful management of facet joint syndrome. Diagnostic blocks are a keystone of facet syndrome diagnosis and if diagnostic blocks relieve the patient's pain, a denervation procedure of the same nerves can be offered to provide prolonged benefit.

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**Dr J.C.Bose's Published Papers Presented on OSSICON 2024**



**Dr. S. Jegadesh Chandra Bose**, Sr. Consultant, Robotic G.I Surgeon & Endo-Bariatric Surgeon MMHRC, Madurai has been invited to present his "Unique 4 Published Short Papers on Bariatric Surgery (Published on Journal of Bariatric Surgery)" at OSSICON 2024, organized by Obesity & Metabolic Surgery Society of India at Kochi from 7<sup>th</sup> to 10<sup>th</sup> February 2024.

**CME @ MMHRC**



IMA Madurai Meenakshi Branch & MMHRC organised a CME on 10.02.2024 at MMHRC  
**Speaker : Dr. S. Vidhya**  
 Positive & Transcultural Psychotherapist Founder  
 Consultant Psychiatrist, Madurai  
**Topic:** Burn Bright Not out  
 (How to handle the burn out syndrome?)



**Dr. Narendra Nath Jena**, Director & Head, Institute of Emergency Medicine, MMHRC was invited as a faculty and chairperson at the National Industrial Emergency Medical Services NIEMS 2024 in Ahmedabad.



Our final year MEM resident **Dr. Aravind** was selected to do a one month observership program at **George Washington University, D.C, U.S.A.**

# TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR)



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## DEPARTMENT OF CARDIOLOGY

An aortic valve that is constricted and doesn't open completely can be replaced with transcatheter aortic valve replacement (TAVR) surgery. The body's main artery and the left lower heart chamber are separated by the aortic valve. In this procedure, doctors insert a thin, flexible tube into the leg or chest and guide it to the heart. A replacement valve is inserted through the tube and guided to the heart. The artificial valve will then be released and secured to replace the existing valve.

### WHY IS IT DONE?

Aortic valve stenosis is treated by transcatheter aortic valve replacement (TAVR). The aortic valve in the heart hardens, stiffens, and narrows with this illness, which is also known as aortic stenosis. The valve is unable to open completely as a result, and the body receives less blood.

TAVR may be advised by your physician if you have:

- Shortness of breath and chest pain is signs of severe aortic stenosis.
- An inadequately functioning biological tissue aortic valve.
- An additional medical issue that increases the risk of open-heart valve replacement surgery, such as kidney or lung disease.

### WHO'S A GOOD CANDIDATE FOR THIS TYPE OF VALVE SURGERY?

Patients in all risk groups can get the surgery.

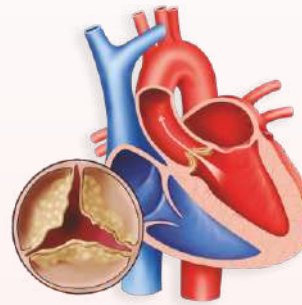
Patients who would normally have few options for aortic valve repair may find that TAVR is a useful option for improving their quality of life.

### RISKS

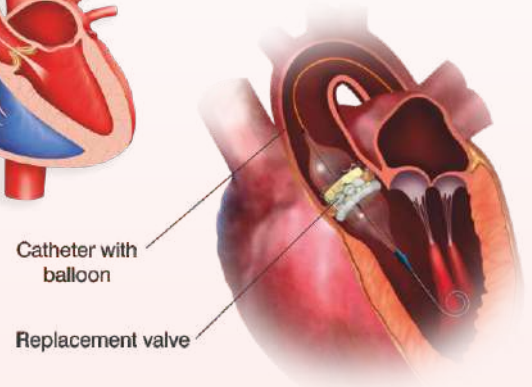
All surgeries and medical procedures come with some type of risk. Possible risks of transcatheter aortic valve replacement (TAVR) may include:

- Bleeding.
- Blood vessel problems.
- Problems with the replacement valve, such as the valve slipping out of place or leaking.
- Stroke.

### Aortic valve stenosis



### Transcatheter aortic valve replacement (TAVR)



### BENEFITS

- Less pain & less mortality
- Shorter procedure time
- Shorter hospital stay
- Can be easily done in high surgical risk patients

### RESULTS

Aortic valve stenosis symptoms may be lessened with transcatheter aortic valve replacement (TAVR). Reduction in symptoms could enhance life quality.

### OUR EXPERIENCE IN TAVR

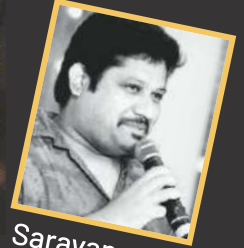
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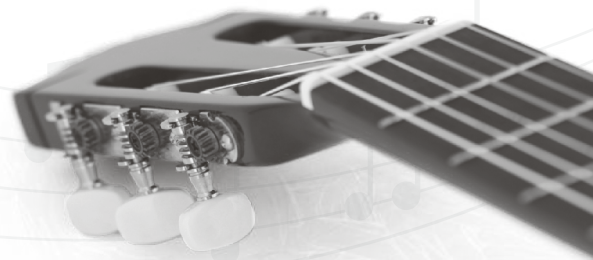
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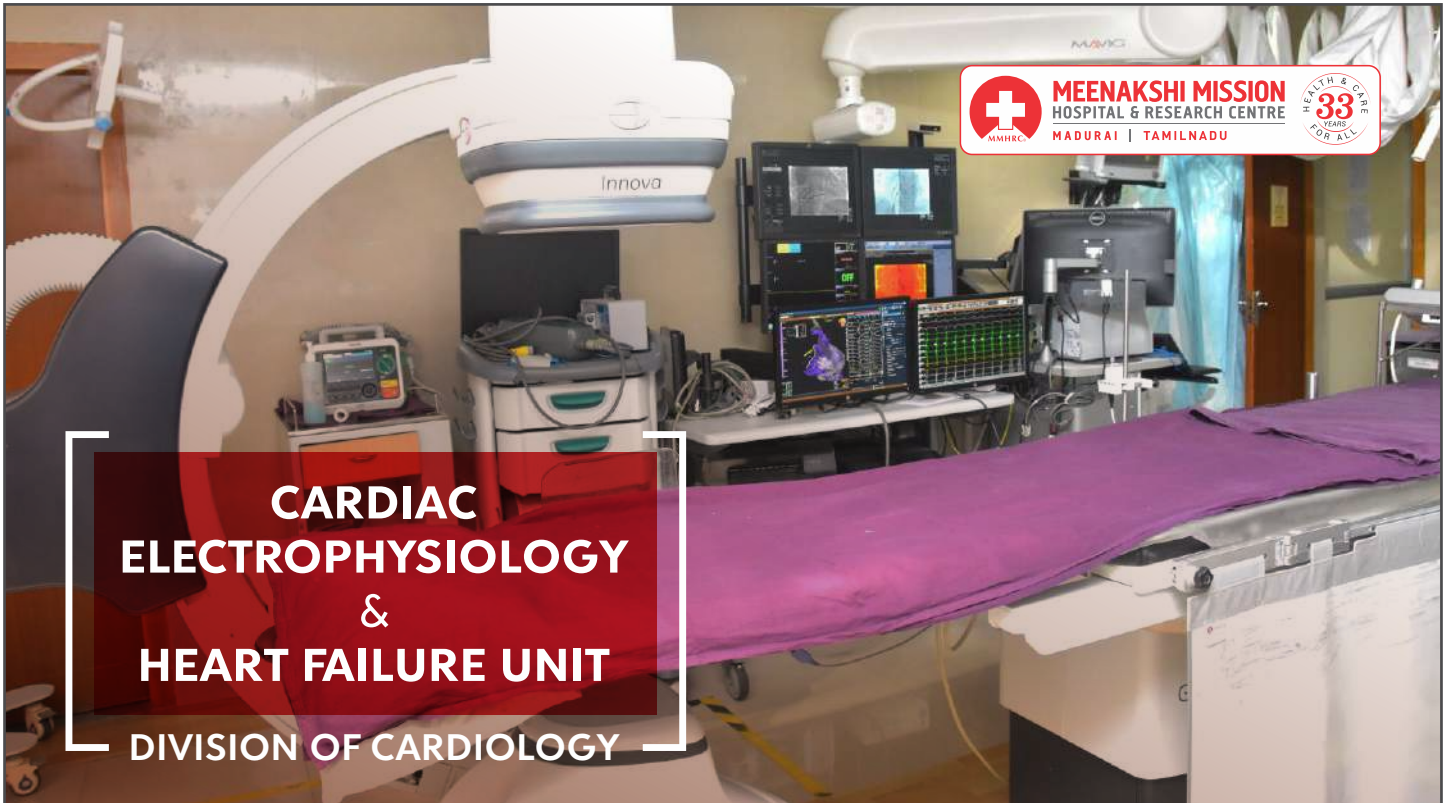


Our Orthopaedic surgery department Doctors, MMHRC, **Dr. V. Sathyanarayana** (HOD, Senior Consultant), **Dr. Vetri Nallathambi** (Spine Consultant), **Dr. Selvaraj Velusamy** (Trauma & Arthroplasty Consultant), **Dr. Nishant** (DNB Resident), **Dr. Ajay** (DNB Resident) attended 57<sup>th</sup> Annual Conference of TNOACON 2024 at Erode from 9<sup>th</sup> to 11<sup>th</sup> February 2024.

## TNISGCON



**TNISGCON** : Annual Conference of the Indian Society of Gastroenterology, Tamil Nadu Chapter was held on 10<sup>th</sup> & 11<sup>th</sup> February 2024, under the valuable guidance of **Dr. PL. ALAGAMMAI**, Sr. Consultant, Dept. of MGE, MMHRC at Madurai.



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