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ROYAL CARE HOSPITALS

making life better

- **Editor & Publisher**

Dr. K. Madeswaran

Chairman - Consultant Neuro & Spine Surgeon

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CHAIRMAN'S COLUMN

Warm greetings to all !

It's heartening to see that the world has almost overcome the COVID-19 pandemic. However, there is uncertainty again owing to heightened geopolitical tensions and global risks.

There is severe economic stress in many parts of the world. Rising fuel, food, and fertilizer prices are impacting everyone. High inflation and supply disruptions threaten to trigger a global recession. Amidst this widespread unpredictability, India stands tall as a beacon of growth and stability.

We care for our employees and their families. We care for all our stakeholders – patients, shareholders, and partners. We care for the planet and its people. We care for India and 1.4 billion Indians. That's the basic reason why we have brought the latest revolutionary technology - Exablate Neuro MRgFUS (Magnetic Resonance guided Focused Ultrasound), non-invasive brain surgery for the very first time in India to treat essential tremors and tremor dominant Parkinson's disease.

Regards

Dr. K. Madeswaran

Founder Chairman

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From The EDITOR'S DESK

"Advanced technology is indistinguishable from magic "...

Arthur Clarke

We are continuing to push the horizons of the availability of technological advancements in the region and the new MRgFUS is the first of its kind in the entire Indian sub-continent and what it does to ailing patients is nothing short of magic. Disabling tremors get cured instantly giving the patients a new and improved life. Only a true visionary can bring in such advancements to benefit the people and for that, there is none better than our chairman and neurosurgeon Dr.K.Madeswaran. Already half a dozen patients have benefited from this advanced treatment.

Despite the geopolitical debacle and war going on in the world that affects our entire supply chain and has raised the cost of almost everything, we are trying to keep the general public in mind and maintain the cost at affordable levels. We are continuing to provide excellence in healthcare despite all the difficulties. We thank all our doctors and employees who worked tirelessly to help the patients.

Royal care ICU conducted a fantastic conference on sepsis and tropical infection which was attended by hundreds of doctors from around the state and nearby states. In the last few months, we have conducted a head injury rally, yoga awareness campaign, cancer awareness campaign, and many other CME programs for the dissemination of knowledge to all. We also celebrated International Nurses Day and Royal fest 2022 with great enthusiasm by all our employees and doctors.

We congratulate Dr.Pattabhiraman on being awarded the most eminent pulmonologist in India by the Economic Times group in New Delhi. In this edition, there are new and intriguing clinical cases for discussion on Neurosurgery, Urology, critical care medicine, and GI surgery. We welcome the new consultants who have joined Royal care Hospital and wish them success in their endeavors.

RCH ICU UPDATE 2022 - ROYAL CARE

Institute of Critical Care Medicine at Royal Care Super Speciality Hospital, conducted the annual RCH ICU UPDATE-CME event successfully this year, on the 3rd of July 2022.

We have been conducting theme-based CME for the past 15 years, which is widely appreciated and well attended by critical care practitioners and trainees. We are passionate about sharing knowledge and skills across the region to enhance the continuum of care for critically ill patients. We as a team take pride in delivering yet another successful, exciting scientific feast this year.

The CME theme for this year's ICU update was "SEPSIS and TROPICAL INFECTIONS". An overwhelming response from the medical fraternity to the CME event was evident, with 460 delegates attending the event. The scientific program included didactic lectures, interesting case discussions, panel discussions, and interactive question-answer sessions compiled thoughtfully to cater to the needs of practicing intensivists, emergency physicians, anesthetists, internal medicine specialists, surgeons, postgraduates, and paramedics.

The CME event was inaugurated by Dr. K. Madeswaran, Chairman of Royal Care Super Speciality Hospitals Pvt. Ltd. In the presence of dignitaries, Mrs. Kala Madeswaran, Dr.Jayalakshmi.J., professor of Microbiology, Critical care stalwart Dr. Ram E. Rajagopalan, Dr. Srinivas Samavedam, Dr. M. N. Sivakumar, Head – Institute of Critical Care Medicine, lamp lighting ceremony was auspiciously conducted. The presidential address was delivered by Dr. K. Madeswaran. Felicitation addresses by Dr. Ram E Rajagopalan and Dr. Srinivas Samavedam graced the occasion.

The inaugural event housed awarding ceremony as well. Our IDCCM- Indian Diploma in Critical Care Medicine, a one-year fellowship program conducted by the Indian Society of Critical Care Medicine, passed out candidates Dr. Aathira K Jose and Dr. Ponthelac were awarded certificates of merit. Our IDCCN- Indian Diploma in Critical

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Care Nursing, one year program conducted by the Indian Society of Critical Care Medicine, passed out to candidates Mrs. Vanaja, Mrs. Lakshmikutty, Ms. Paulkani Mr. Karthik and Mr. Arumugam. were awarded certificates of merit.

Mr. Sathish an alumnus of the Institute of Critical Care Medicine, Respiratory Therapist by profession, with his perseverance over the years had come up with his book: " Basic Life Support- for Paramedics and the common man", a simplified narrative of techniques and skills for the common man. The book was released by Dr. K. Madeswaran and duly received by Dr. N. Selvarajan.

Keynote Lecture by Dr. Ram E Rajagopalan on "Lessons learned from COVID pandemic- Implications for healthcare professionals" was very well received by the delegates.

Stalwarts in the field of critical care, namely Dr. Ram E Rajagopalan, Head of the Department of Critical Care Services at Sri Ramachandra Medical College Hospitals, Chennai, Dr. Srinivas Samavedam, Medical Director and Head of Critical Care Services at Virinchi Hospitals, Hyderabad, Dr. Ramesh Venkataraman, Senior Consultant Intensivist, Apollo Hospitals, Chennai, and other eminent speakers and Moderators were sharing their expertise, delivering excellent quality evidence for day to day practice was helpful for professionals. The well-chosen topics were appreciated by the mix of audiences including paramedical staff and medical professionals across the specialties.

The topics included surviving sepsis campaign guideline update, basics of microbiology including antibiogram interpretation, molecular diagnostics, and sepsis biomarkers, new onset fever evaluation, and management in ICU as Session I. Further sessions dwelt on fluids and vasopressors in sepsis and adjuvant therapy evidence. Panel discussion spelled out key aspects of prevention and dilemmas in tackling healthcare-associated infections in ICU which included Meningitis, ventilator-associated pneumonia, central line-associated bloodstream infection, and urinary catheter-associated infection. Further sessions detailed the basics of antibiotic therapy, antimicrobial stewardship, Therapies for multi drug resistant and pan-drug resistant organisms and a special session on candidal infection in critically ill patients. The tropical Infection section included sessions on Dengue shock, malaria, leptospirosis, and rickettsial infections and detailed an approach towards undifferentiated viral illness from community to ICU. The variety of topics enthralled the audience as per the feedback received.

The CME event was approved by the Tamil Nadu Medical Council with 2.0 Credit points aptly for this one-day program.

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MAGNETIC RESONANCE-GUIDED FOCUSED ULTRASOUND

MRg FUS

Magnetic Resonance-guided Focused Ultrasound(MRgFUS) is a treatment option for patients with essential tremor or tremor dominant Parkinson's disease who haven't responded to medication or are not willing to have invasive surgery. The procedure uses focused beams of ultrasonic energy guided by MRI to target areas deep in the brain with no incisions or permanent implants.

Royal Care Super Speciality Hospital is the one and only center in India and the middle east with the expertise and technology to provide MR-guided focused ultrasound therapy to patients.

Treatment Benefits

- Tremor Improvement: 40-80% improvement in tremor severity (many with immediate improvement) stably maintained at five years.
- Incisionless: Focused ultrasound technology allows sound waves to pass safely through the skull without incisions. No implants and no radiation are required.
- Quick Recovery: With no surgical cuts, there is minimal to no risk of infection. The treatment is often performed on an outpatient basis with local anesthesia, and you can expect to resume normal activities within days.
- Safe and Effective: FDA-approved treatment provides real-time thermal feedback to continuously monitor patient safety and temperature at the target site with minimal side effects.

For essential tremor

Essential tremor is one of the most common movement disorders, characterized by tremors during outstretched posture or action of the hands. MR-guided focused ultrasound reduces the abnormal brain activity responsible for the tremor, providing meaningful clinical benefits. Focused ultrasound is a viable treatment option when medications or local botulinum toxin injections don't provide adequate tremor control and/or there is poor tolerance to their side effects. This

How it Works

The concept of MR-guided focused ultrasound is much like using a magnifying lens to focus the sun's energy on a leaf. If you put your hand under the magnifying lens, you feel no heat, but the concentrated energy is strong enough to burn the leaf at the focal point. For the treatment of tremors, focused ultrasound therapy is applied on deep brain structures, creating a tiny ablation or lesion (like the pinpoint burn on the leaf). This lesion reduces the abnormal brain activity responsible for tremors, leading to tremor reduction and improving quality of life. The FDA has approved the use of magnetic resonance-guided focused ultrasound to perform an incisionless thalamotomy to treat patients with essential tremor or tremor-dominant Parkinson's disease.

treatment is particularly beneficial in patients whose tremor is most troublesome in one hand.

For tremor dominant Parkinson's disease

Parkinson's disease is the second most common neurodegenerative condition, affecting about 1% of people over 60 years old. MR-guided focused ultrasound has become an attractive treatment option to improve tremor control for patients who do not respond to dopamine replacement

medications.It is essential to recognize that focused ultrasound is not a cure for Parkinson's disease, and it does not stop the progression of the disease.

Patient Candidacy

It's extremely important to discuss all medical conditions with your neurologist to evaluate your suitability for the procedure properly. All patients considering focused ultrasound treatment must undergo a screening process. Generally, the steps in the focused ultrasound screening process include:

1. Discussion and process initiation with your neurologist.
2. Motor evaluation, videotaping of your movement examination, and overall health assessment.
3. Neuropsychological evaluation to determine various motor and cognitive abilities.
4. Computed tomography (CT) scan to measure skull thickness for focused ultrasound calculations.
5. Discussion of your focused ultrasound candidacy in a multi-disciplinary conference.
6. Hospital visit with the neurosurgeon who will perform your focused ultrasound treatment to discuss the procedure.

Treatment Day

Preparation on the treatment day, we begin by giving you a head shave. This head shave is necessary for the ultrasound waves to be appropriately transmitted through the skin and skull into the target region in the brain. Local anesthesia will be applied to numb areas of your scalp, and a frame will be secured to your head so that your head doesn't move during the treatment. We then attach a helmet to the frame. Cool water will circulate in the helmet around the top of your head to minimize potential heating near the scalp.

Your heart rate, blood pressure, and blood oxygen levels will be monitored throughout the procedure. You may be given additional medication to keep you comfortable.

You will also be given a "stop sonication" button to indicate to the physician that you want to stop the treatment for any reason.

Planning and Procedure

You will then lie down in the MRI scanner equipped with the focused ultrasound machine. A series of MRI images will be taken for planning the treatment according to your specific anatomy. The treating neurosurgeon will first apply light doses of ultrasound energy and real-time images of the ultrasound delivery will be taken. After each application of energy, called a sonication, you will be asked to perform specific tasks to evaluate your tremor improvement. Tasks may include drawing spirals on a board or performing tasks with your hands. The team will continue to fine-tune the therapy and identify any side effects. The treating neurosurgeon will then apply higher energy to create the permanent lesion. It is common to experience a noticeable reduction in tremors during the procedure itself. At the end of the procedure, a final MRI scan will be done to assess the treatment. The procedure will last approximately between 3-4 hours.

After Treatment

After the procedure, you'll be transferred to a recovery room for a short monitoring period. The frame will be removed. The physician will let you know when you can go home. Within days you should be able to return to normal activities.

CIRCUM PORTAL ANNULAR PANCREAS

A case report of a rare anomaly

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MS,DNB FRCS(Glasg), FRCS (Gen.Surg.)
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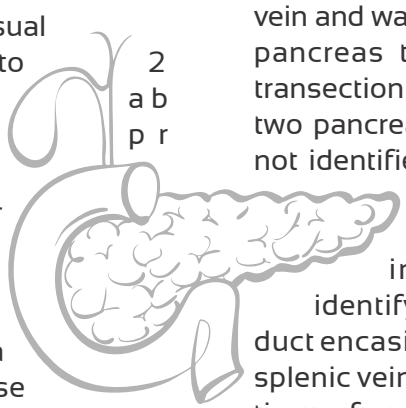
Consultant Surgical Gastro, Advanced Laparoscopic HPB & GI Onco Surgeon

Introduction:

Circumportal pancreas (CP) is an unusual pancreatic anomaly occurring in 1.1 to 2.5% of individuals, where there is an abnormal fusion of the uncinate process to the main pancreatic body occurring to the left of the portal vein-superior mesenteric vein (PV-SMV) junction, resulting in a complete encasement of the vessels. Since it was first reported in 1987 by Sugiura et al, there have only been a few case reports and small case series of this condition. Here we present our recent experience with one such patient with this condition which we diagnosed intraoperatively.



Case Report:

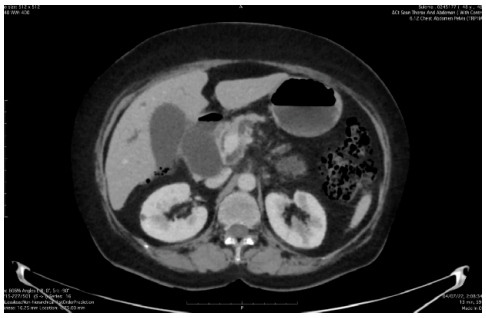
A 48-year-old female from West Bengal with type 2 diabetes mellitus presented with painless progressive jaundice for 3 months. Clinically she was icteric. Blood investigations showed altered LFT and elevated tumor marker [T.Bilirubin - 8.0; Direct - 7.97; CA 19-9 - 280 IU/ml]. CECT Thorax, Abdomen and Pelvis with MR screening revealed a polypoidal enhancing soft tissue mass with diffusion restriction at the periampullary region causing obstruction and upstream dilatation of CBD and MPD with regional lymphadenopathy suggestive of periampullary carcinoma. She was planned for classical pancreaticoduodenectomy (Whipple's procedure). During surgery, the uncinate process was seen extending posterior to the portal vein and was communicating with the body of the pancreas to the left of the portal vein. After transection of the pancreas at the neck, there were two pancreatic stumps. The pancreatic duct was not identified in the stump anterior to the portal vein. On reviewing the preoperative computed tomography (CT) scan intraoperatively, we were able to identify the pancreatic tissue with dilated duct encasing the portal vein superior to the splenic vein. We dissected the aberrant pancreatic tissue from the posterior surface of the portal vein and performed extended Whipple's procedure by transecting the pancreas at the level of the proximal body of the pancreas and we were able to

Intraoperative picture showing

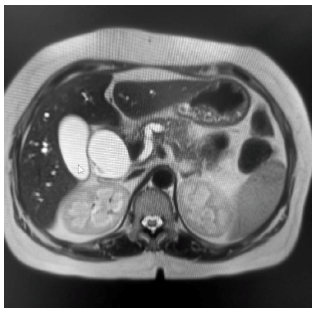
Retroportal Pancreatic Tissue

Post excision of retroportal pancreas cannulating MPD

CECT demonstrating circum portal pancreas



MRI Showing retroportal course of pancreatic duct



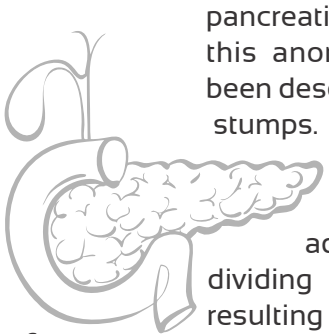
identify a single dilated pancreatic duct in the transected stump and performed a duct to mucosa Baumgart's pancreaticojejunostomy. Surgery proceeded with hepaticojejunostomy, gastrojejunostomy, and a feeding jejunostomy.

The postoperative period was uneventful. She did not have post-operative pancreatic fistula as evidenced by normal POD 3 Drain Fluid Amylase levels. She was discharged on POD-9.

Histopathology revealed a moderately differentiated adenocarcinoma of the periampullary duodenal mucosa (PT3N1PN1 LV0). Surgical margins were free of tumor invasion.

Discussion:

Circumportal pancreas (CP) is a rare congenital anomaly in which the portal vein and/or the splenoportal confluence are completely encased by the pancreatic parenchyma. CP is a lesser known relative of other anomalies, such as pancreas divisum and annular pancreas.



CP is classified based on the orientation of the pancreatic duct to the portal vein and the relationship of the aberrant pancreatic tissue with the splenoportal confluence.

CP can be diagnosed in a number of ways. Preoperative CT scans can reveal pancreatic tissue completely encasing the PV and/or SMV. Arterial phase imaging may be useful for demonstrating any variant hepatic arterial anatomy which is seen in 31% of cases (not seen in our case) which include replaced RHA arising from the SMA and replaced LHA arising from the LGA or even complete encasement of the common hepatic artery in the pancreatic parenchyma. The course of the pancreatic ducts may be better delineated by Magnetic Resonance Cholangiopancreatogram (MRCP), in which a pancreatic duct ring sign has been proposed to be diagnostic, or by intraoperative ultrasonography. Most often though as in our case, this condition is diagnosed intra-operatively when the pancreatic tissue is seen to be completely wrapped around the PV-SMV junction

Although CP usually does not cause any symptoms, it is important for surgeons to be aware of this condition because the postoperative pancreatic fistula (POPF) rates following pancreatic resection are higher in patients with this anomaly. No standardized technique has been described for the management of pancreatic stumps.

Various described techniques to minimize POPF formation in CP include additional pancreatic body resection by dividing the pancreas distal to the fused area resulting in just one cut surface which we did in our case, narrowing the pancreatic surface by suturing and division of the region of fused pancreatic tissue and creating a longitudinal side-to-side Puestow PJ if the MPD is significantly dilated

Every surgeon planning for pancreatic surgery, apart from looking for anatomical variations in the blood supply of the hepatopancreatic biliary system, should also be aware of this rare anomaly which can be identified before surgery by CT scan and not be an intraoperative surprise so that an appropriate plan can be made regarding the type of pancreatic resection and anastomosis.

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GLIMPSE

Cancer Awareness Talk Program held at Royal Care Hospital on 04.02.2022 towards World Cancer Day

Celebrated World Blood Donor Day at Royal Care on 14.06.2022

Oratorical competition conducted at Royal Care on 08.03.20223 towards International Women's day

Dr.GS.Sameeran IAS Coimbatore District collector flags off Helmet Awareness Rally towards World Head Injury Day on 21.03.2022

The Worshipful Mayor Tmt.A.Kalpana - Coimbatore Corporation and Royal Care's Chairman inaugurated Spring Fest at Whispering Stones, Coimbatore on 02.04.2022. Organized by Rotary Coimbatore.

Nursing Training Program held at Royal Care. Organized by BD Medical device company on 18.04.2022

Royal Fest 2022. 5th Year Annual day celebration held at Sri Devi Mahal Coimbatore on 23.04.2022

CME Program held at Dindigul on 24.04.2022. Chairman Dr.K.Madeswaran and Dr. A. Sandip Chandrasekar delivered special lectures.

Cultural Program held at Royal Care towards International Nurses Day on 12.05.2022

Royal Care Temple Kumbabishekam on 13.05.2022

Fire and Safety Mock Drill held at Royal Care on 11.06.20222

The yoga Training program was organized by the Universal Peace Foundation for International Day of Yoga on 21.06.2022 at Royal Care Campus

PERCUTANEOUS TREATMENT FOR TRIGEMINAL NEURALGIA (TIC DOULOUREUX)

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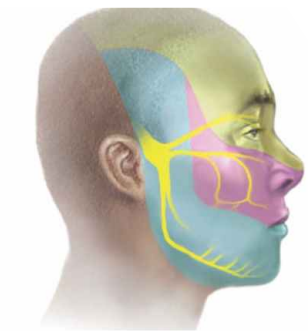
Consultant Neuro Surgeon

Trigeminal neuralgia is a condition that causes sharp, short electric shock-like paroxysmal lancinating pain on one side of the face. This chronic pain condition affects Trigeminal Nerve, which carries sensation from the face to the brain. If a person has Trigeminal Neuralgia even mild stimulation of the face such as brushing the teeth or washing the face may trigger a jolt of severe excruciating pain.

Initially, Trigeminal Neuralgia is short and the pain attacks are milder. When it progresses over a period of time it causes long-lasting attacks of severe pain- Trigeminal Neuralgia affects women more often than men, in the age group of 50 and above. Younger individuals are also affected.

A 56-year-old female, who has been suffering from Trigeminal Neuralgia for the past 12 years came to RCH, with severe continuous pain, not responding to medications for 2 months. The pain persisted in spite of 1800 mg of oxcarbazepine and high doses of pregabalin. The clinical examination was normal. Her Neurological examination and MRI Brain were normal. No vascular compression on the Trigeminal root entry zone. She was treated with Percutaneous Trigeminal Ganglion Balloon compression. Had immediate pain relief and oxcarbazepine doses were reduced to 200 mg/day.



Branches of the trigeminal nerve

Trigeminal neuralgia results in pain occurring in an area of the face supplied by one or more of the three branches of the trigeminal nerve.

Discussion:

Trigeminal Neuralgia results in pain occurring in an area of the face supplied by one or more branches of the trigeminal nerve.

Symptoms:

- Episodes of severe, sharp, shooting pain that feels like an electric shock on one side of the face.
- Spontaneous attacks of pain triggered by touching the face chewing, brushing the teeth, or speaking.
- Pain attacks last for a few seconds to several minutes
- Pain that occurs with facial spasms.
- Bouts of multiple attacks lasting days, weeks, months, or longer.
- Pain in the areas supplied by Trigeminal Nerve- cheek, jaw, gums, lips or eye, forehead.
- Pain focused in one spot or spread in a wider pattern.
- Pain rarely occurs at night while sleeping.

Causes :

- Usually caused by a neurovascular compression by an artery/vein at the root entry zone.
- Multiple sclerosis.
- Tumour compressing the Trigeminal Nerve.
- Rarely surgical injuries, stroke, facial trauma.

Triggers :

- Shaving
- Touching the face.
- Eating, drinking, brushing the teeth, talking, putting on makeup, breeze blowing over the face, smiling, etc.
- Diagnosis based on the description of pain, location of the pain and triggers, and MRI Brain.

Treatment :

Usually starts with medications. Some people get relief only with medications.

However, some stop responding to medications, or they may experience unpleasant side effects. For those people, either surgical or percutaneous pain relief procedures are the treatment options.

Medications :

1. Anticonvulsants - Carbamazepine, Gabapentin, Phenytoin, Clonazepam.
2. Antispasmodic agents: such as Baclofen may be used alone in combination with carbamazepine.
3. Botox injections.

Surgical therapy :

1. Refractory to medical treatment.
2. In patients when side effects of medications exceed risks and drawbacks of surgery.

Surgical option :

I. Peripheral procedure :

Neurectomy - A neurectomy is a type of nerve block involving the severing or removal of a nerve. Depending on the divisions involved

Supraorbital neurectomy for V1

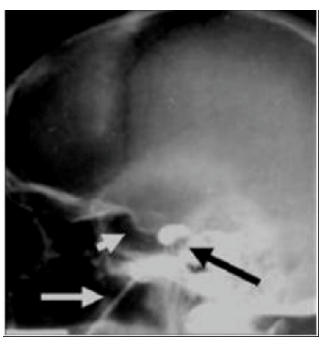
Infraorbital neurectomy for V2

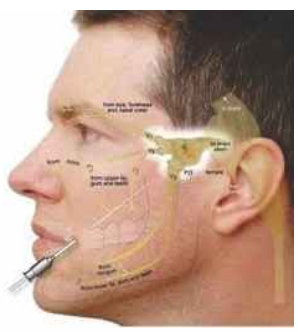
II. Trigeminal Nerve - RHIZOTOMY.

Rhizotomy is a minimally invasive surgical procedure. The nerve fibers which are transferring the pain signals to the brain can be destroyed to control the pain. This causes severe facial numbness.

Types of Rhizotomy :

1. Glycerol Injection: Glycerol injection into the Meckel's cave. Less incidence of sensory loss / Anaesthesia Dolorosa.
2. Percutaneous Trigeminal Ganglion Balloon compression.
3. Radiofrequency thermal lesioning: Radio frequency energy is used to thermocoagulate the nerve fibers.





White short arrow: sella turcica

White arrow: needle containing balloon

Black arrow: balloon inflated in retrosellar position (Meckel cave)

Percutaneous Trigeminal Ganglion Balloon Compression :

Mechano trauma via inflation of 4F balloon catheter.

Does not require the patient to be awake.

Indications :

- Patients who are at poor risk for General Anaesthesia.
- Elderly
- Who wish to avoid major cranial surgery.

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- Have an unresectable intracranial tumor
- MS - Multiple sclerosis.
- Have limited life expectancy but have severe pain.
- When other procedures have failed.

Advantages :

- Minimal invasiveness.
- A high proportion of patients are pain-free after the procedure
- Low incidence of complications.
- Results immediate.

Complications :

- Balloon rupture.
- Cheek hematoma
- Occipital headache due to dural stretch.
- Hypoaesthesia in all 3 divisions.
- Corneal sensory blunting.
- Trigeminal motor weakness (Temporary)

III. Microvascular Decompression:

Surgical procedure in which the involved blood vessel which is in contact with the Trigeminal Nerve root is relocated or moved away by placing a soft cushion between the nerve and face arteries.

If no vascular compression is identified nerve sectioning can be done.

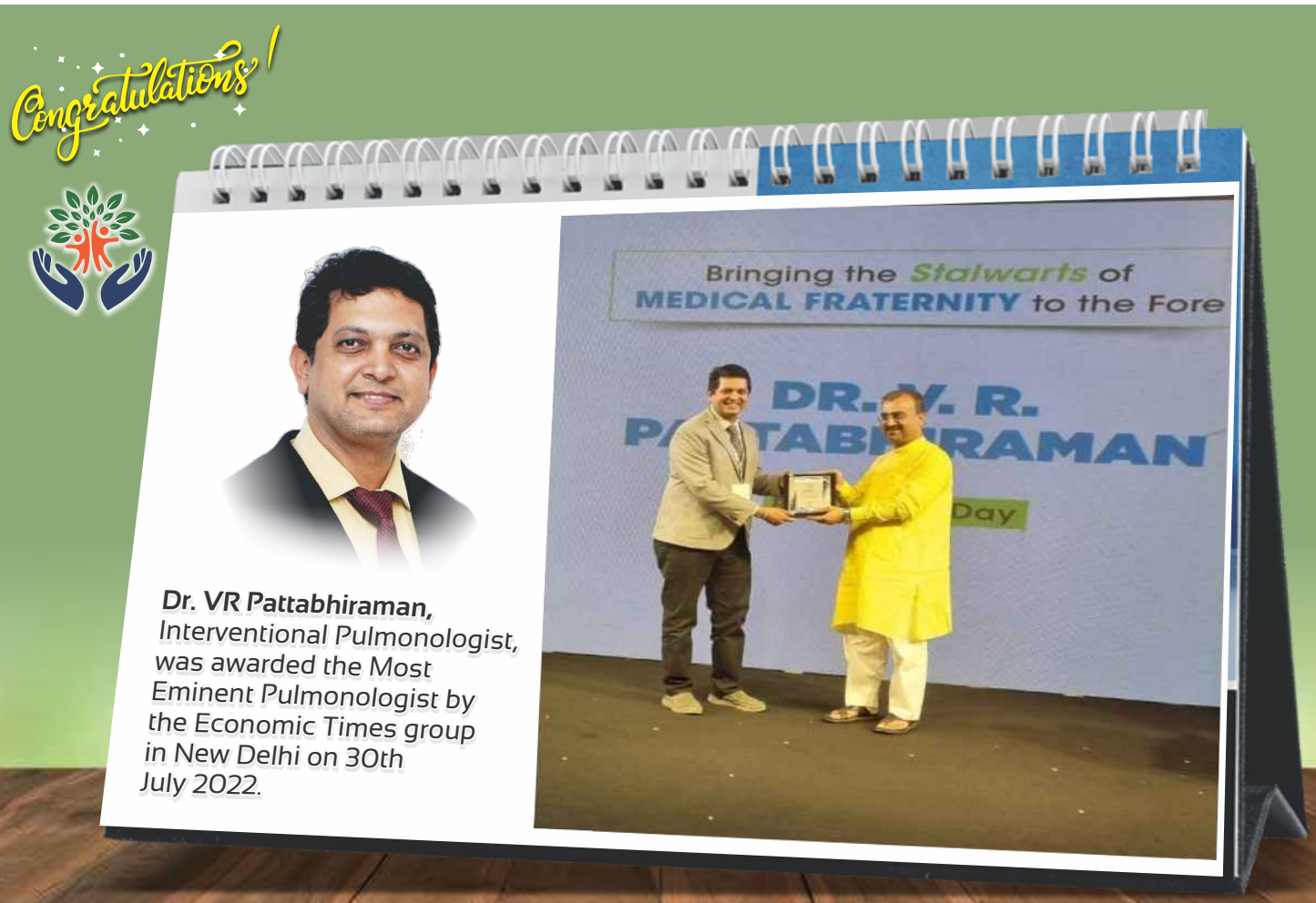
Microvascular decompression can successfully eliminate the pain but pain can recur by 10 years in three out of 10 people.

IV. Brain stereotactic radiosurgery (gamma knife)

In this procedure, a focused dose of radiation is directed to the root of the trigeminal nerve.

Relief occurs gradually and may later up to a month. Facial numbness is a side effect and may occur after months or years.

Because of the variety of treatment options available, having Trigeminal neuralgia does not necessarily mean that you are doomed to a life of pain. Trigeminal Neuralgia, can be effectively managed with medications, injections, or surgery.



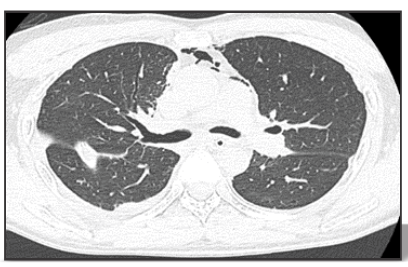
Dr. VR Pattabhiraman, *Interventional Pulmonologist, was awarded the Most Eminent Pulmonologist by the Economic Times group in New Delhi on 30th July 2022.*

EXPECT THE UNEXPECTED - SPONTANEOUS ESOPHAGEAL RUPTURE

Department of Intensive Care Medicine
Surgical Gastroenterology and Cardiothoracic Surgery

46 years old male Mr. X with no known comorbid conditions admitted to the outside hospital with complaints of chest pain, breathing difficulty, and hypoxia. Initially, ECG was done which was normal then he underwent CT thorax in view of worsening hypoxia which showed right hydropneumothorax. Promptly an ICD was placed to address the finding and he was referred to our hospital for further care.

On arrival, the patient was in severe shock with overt signs of sepsis. He was admitted to ICU, resuscitated with fluids and all sepsis bundles were followed. For further evaluation, a CECT chest with oral contrast was done. It showed mid-thoracic esophageal rupture with severe mediastinal contamination and bilateral pleural collections. After an initial stabilization of vitals, he was taken for OT.



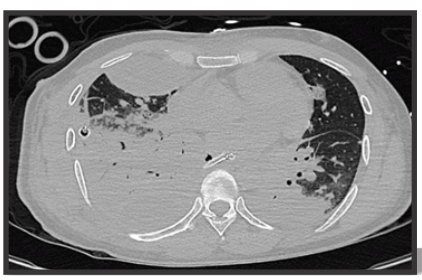
CT showing mediastinal air

In the operating room, a UGI endoscopy was done which confirmed the diagnosis. Further, he underwent repair of mid esophageal perforation with a pedicled pleural patch over a T tube and open drainage of right pleural collections with an ICD placed for left side pleural effusion. Feeding jejunostomy was done, considering difficult enteral access.

Evacuated pleural food contents

Esophageal perforation with T- Tube in situ

Post-procedure after an initial improvement, the patient further spiked the temperature on day 8. After blood cultures and escalation of antibiotics, a repeat CECT chest was done which showed right anterior and posterior pleural collections. Day 9 patient was taken up for relook right thoracotomy and decortication. The esophageal anastomosis was intact at that time hence it was left undisturbed.



CT showing T tube, right-sided collection treated with ICD

CT with right-sided collection which was drained

48hours post-procedure, the patient still had ongoing sepsis. Further evaluation with bedside lung USG, picked up left-sided empyema and pleural thickening. Considering the patient clinical status and hypoxia, he was not in a condition to tolerate left thoracotomy and one-lung ventilation. Hence it was planned to undergo a minimally invasive procedure Video Assisted Thoracoscopic Surgery, which drained loculated pleural collections of around 500ml.

On day 13 patient developed feed intolerance due to paralytic ileus. Right side ICD drainage was suggestive of small bowel contents. A probable

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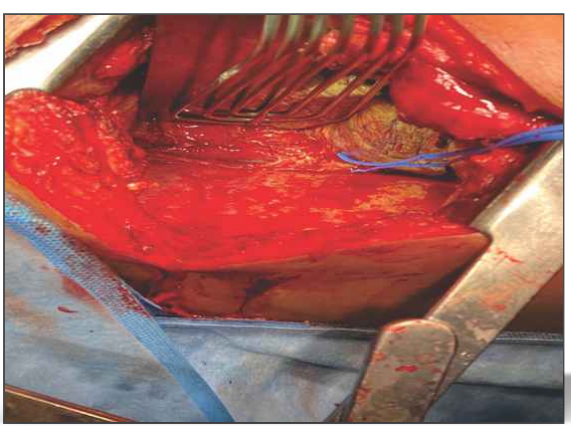
anastomotic leak was suspected. Contrast-enhanced CT picture showed small bilateral pleural collections with left lung lower lobe collapse and ileus. After a multidisciplinary meeting, it was decided to continue the conservative approach since doing surgery for an anastomotic leak at this stage would be carrying a high risk of mortality. Bronchoscopy was planned at the bedside to address the left lung collapse and hypoxia.

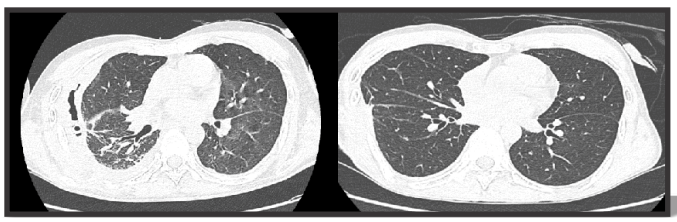
After three weeks of ICU stay, the patient did not show any consistent improvement. He had a stormy course with minimal improvement and worsening clinical phases. He was started on renal replacement therapy to address acute renal failure. A few small pleural collections on both sides of the lung were addressed with pigtails during this period.

On day 25, another multidisciplinary meeting was held to address the ongoing sepsis. The conservative approach with pigtails was inadequate with an ongoing leak. Therefore, it was decided to undertake surgical correction of the anastomotic leak. On day 26 relook right thoracotomy was done with cervical esophagostomy and gastric end fundoplication. After this procedure, over the period of 10 days patient showed gradual clinical improvement in his shock, acute kidney injury, and nutrition. He underwent a tracheostomy for weaning on day35 of his ICU stay and he finally got shifted out of ICU on day 46.



4 cm long perforation in posterolateral wall of lower esophagus with ryles tube in the lumen (Right posterolateral thoracotomy)

Though the patient had a high morbid clinical condition and multiple complications, all complications were addressed promptly with a multidisciplinary approach. He underwent multiple procedures owing to his extensive complications. In spite of the higher mortality that the condition had posed, prompt suspicion of the diagnosis, treatment of severe sepsis, timely surgical and minimally invasive interventions based on a multi-disciplinary approach, and general ICU care for a prolonged multiorgan failure patient as a whole, rendered a fruitful outcome.



CT date 2nd May and 6th August showing resolution

Discussion :

Oesophageal perforation is a surgical emergency with high morbidity and mortality. High morbidity is attributed to bacterial translocation and leakage of digestive enzymes into the mediastinum which causes severe mediastinitis and vital organ infection. The nonspecific presentation of this condition often leads to diagnostic delays which further adds to the mortality.

Oesophageal perforation may be spontaneous or iatrogenic. Therapeutic endoscopic procedures account for the majority of the iatrogenic causes of oesophageal perforation. Other causes include spontaneous, nasogastric tube placement, difficult endotracheal tube intubation, trauma, foreign bodies, caustic agents' ingestion, and some rare infections.

The essential attribute of the diagnostic approach to oesophageal rupture is to have a high index of suspicion.

For any patient who presents with pain or fever following forceful vomiting, oesophageal instrumentation should be aggressively evaluated, for perforation of the oesophagus. Though neck and chest x-ray can help, usually a chest CT with oral contrast would need to be done to diagnose this condition.

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Once the diagnosis is established, the basic principles to treat these conditions are appropriate hemodynamic monitoring and support, antibiotic therapy, restoration of luminal integrity when feasible, and control of extraluminal contamination. This can be achieved eighter with a conservative line of management or surgical management.

Non-operative management includes management of sepsis with organ support, NG free drainage, ICD to decompress the chest, when necessary, initiation of TPN and gastrostomy, or feeding jejunostomy. Non-operative management strategy is indicated in early diagnosis or delayed diagnosis of esophageal perforation with a contained leak, Perforation not in the abdomen, contained perforation in the mediastinum, the content of the perforation draining back to the esophagus, perforation does not involve neoplasm or obstruction of the esophagus, absence of severe sepsis and presence of experienced thoracic surgeon and contrast imaging facility in the hospital.

Operative management is preferred in Early post emetic perforation, severe shock, intra-abdominal perforation, extravasations of contrast into adjacent body cavities, presence of underlying malignancy, and obstruction or stricture in the region of the perforation. Operative management includes primary closure of the perforation or closure with buttressing repair with pleural or pericardial tissue. "T" tube drainage or simple drainage of collections can be performed in selective cases. Some patients will require esophagectomy and diversion procedures as well.

Esophageal perforation in adults is a highly morbid condition with high mortality. Mortality rates mainly depend on the time of presentation and etiology of perforation. Iatrogenic perforation has lower mortality of 10%, and post-emetic perforation has a higher mortality rate up to 60%. Mortality from treated esophageal perforation is 10% to 25% when therapy is initiated within 24 hours, but up to 40% to 60% when the treatment is delayed. Mortality rates are higher in patients with thoracic and abdominal rupture and underlying esophageal diseases like malignancy and benign stricture.

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SUPINE PCNL

"Old wine in a new bottle"

Dr.Kirubanand Jaganathan
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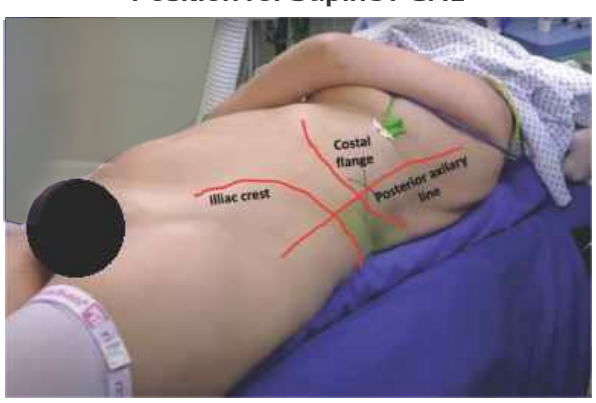
Consultant Urologist & Laparoscopic
Urological Surgeon

Introduction

PCNL-Percutaneous Nephro-Lithotomy was first described by Fernstorm & Johansen in 1976 in prone position. Since then PCNL has become the gold standard for the treatment of large renal stones. In 1987, Valdivia postulated that PCNL can be performed in the supine position. PCNL has evolved over time resulting in a decrease in invasiveness, morbidity, and outcomes

With the advent of modern CT imaging and better understanding of peri-renal anatomy Supine PCNL is being increasingly used over the last decade.

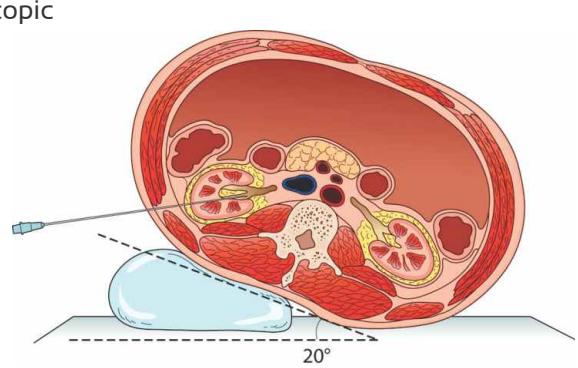
Position for Supine PCNL



Modified MGV position for Supine PCNL

Procedure

Position - patient lies in a supine position slightly rotated toward the opposite side to which will be operated, the ipsilateral arm is placed over the patient's chest, enabling proper flank exposure. In the modified MGV position, the ipsilateral leg remains straight on half of the operating bed without the stirrup and a single stirrup is placed to support the contralateral leg so that there is



Schematic Diagram for Supine PCNL

substantial room for a second surgeon to perform simultaneous retrograde ureteroscopy.

Safety landmarks must always be drawn one bordering the iliac crest, coastal flange/12th rib, and then over the posterior axillary line. The space between these lines is a safe place for puncture.

Targeting and puncture of calyx

A proper assessment of the patient and imaging is done preoperatively to rule out retrorenal structures and plan the best approach. After placement of the ureteral catheter and instillation of contrast material, the chosen calyx should always be targeted fluoroscopically and confirmed by aspiration of contrast material/urine. Once inside the collecting system and guide wire is directed into the ureter, the tract is dilated by serial metal dilators, or balloon dilatation is done. A rigid nephroscope is inserted into the collecting system, stone identified, lithotripsy done and stone fragments retrieved. A flexible nephroscope is used if necessary to identify and remove any residual fragments, Stone clearance is confirmed by visual inspection and also fluoroscopically.

ECIRS (Endoscopic combined intra-renal surgery) can be combined in Supine PCNL in complex stone disease it enables better stone clearance by gaining access to all the renal calyces

Advantages

- Due to supine position, anesthetists have improved access to respiratory and CVS management
- Fluid absorption is reduced in the supine position due to gravity and decreased intra-renal pressures reduce the risk of bacteremia and infection.
- Shorter operative time.
- Decreased radiation exposure to surgeon's hands and improved ergonomics of fluoroscopy.
- ECIRS- Retrograde flexible uretero-renoscopy can be combined in this position.
- Improved access to upper pole from lower pole access compared to prone PCNL.

Disadvantages

- In Supine PCNL, the mobility of the kidney is greater during puncture and subsequent dilatation due to unrestrained movement of the kidney anteriorly. This can be stabilized by applying abdominal compression with the surgeon or assistant's hand.
- Longer percutaneous tract as the puncture comes from a more lateral position on the patient's flank, limits the maneuverability of rigid nephroscopy.
- Renal pelvis usually doesn't distend much in supine PCNL due to gravity of the anterior abdominal wall limiting the space for manoeuvering the scopes.

CONCLUSION –

In spite of Prone & Supine PCNL having equivalent stone-free rates and complication rates, many urologists are reluctant to change their practice which they have learned from their mentors.

Worldwide only 20% of PCNL are performed in the Supine position versus 80% done in the prone position. These statistics are bound to change in the future as newer generation urologists are taking up Supine PCNL due to all its advantages and similar stone-free rates.

In our hospital, we have done nearly 25-30 cases over the last 24 months with good stone clearance rates(>90%) with less morbidity.

Welcomes...

Dr. Vijay Vishnu Prasad. N

MBBS., MD (Pathology)

Consultant Pathologist

Completed MBBS from PSG IMSR, Coimbatore in 2008 and he achieved MD PATHOLOGY from BJMC, Ahmedabad in 2013. Worked as a Junior Resident in Kidwai Cancer Institute, Bangalore from 2013-2014, as Junior Pathologist in Sagar Hospitals, Bangalore from 2014- 2017, and as a Consultant Pathologist in Coimbatore Kidney Centre, Coimbatore from 2017- 2019. He worked as Specialist-Laboratory Medicine & Clinical Pathology/Lab Head/Infection Control Officer/Medical Director in Allevia Medical Center, Qatar before joining our Royal Care Hospital.

Dr. Ramesh Kumar. T

MBBS, DMRD, DNB (Radio_diagnosis).,

Consultant Radiologist

Completed MBBS from Coimbatore Medical College, Coimbatore in 1995, and got his DMRD from Madurai Medical College, Madurai in 2005. He did his DNB training at KG Hospital, Coimbatore in 2010, and worked as a consultant radiologist at Kumaran Hospital, Tiruppur, and Kongunad Hospital, Coimbatore before joining our Royal Care.

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