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Kauvery capsule

Medi News

A quarterly Newsletter from Kauvery Hospital

Volume - 6 | Issue - 13 | June 2015

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From the Editor's Desk



Dr. S. Senthil Kumar, M.S., DNB., (Uro)

Senior Consultant Urologist

Dear Friends, Colleagues, Well wishers
and Partners

Kauvery Hospital is, and has been since its inception, committed to transforming the way health care is delivered. It is our mission to not just provide health care, but to make sure that the care we provide is the best it can be, and is what best meets the needs of our communities and patients.

Today's India health care system faces significant challenges – from the lack of access to an affordability crisis. Our lifestyles are increasingly out of balance and we are placing our health at risk through unhealthy habits. We are ageing as a population and more likely to suffer from chronic diseases as we get older. As a result, our healthcare systems are under increasing demand for costly and complicated care.

These changes are affecting everything from energy to transport, food to health. "We must learn individually and as organizations, to welcome transformation as vigorously as we have fought change in the past (Peters, 1987)."

With change comes opportunity, and by working together to identify new and innovative solutions to improve the quality of health care, we will build a healthier future for everyone. The challenge with this issue of the Capsule is to give readers some history, explanation, encouragement, and reality while recognizing the challenges.

Unusual Presentation Of ABPA

From the departments of Radiology and Internal Medicine
A 55 year old lady presented with h/o fever associated with dry cough for 4 days and breathlessness for 1 week. There was no h/o asthma, sneezing, chest pain or weight loss. She had FESS for fungal sinusitis in the past.

Chest radiograph revealed multifocal predominantly mid and lower zone linear and branching opacities. These opacities were seen as mucus filled dilated bronchi on CT chest giving the classic finger-in-glove appearance. In addition centrilobular branching nodules giving the tree-in-bud appearance was also seen in the right lower lobe. Based on the classical CT appearance, a provisional diagnosis of allergic bronchopulmonary aspergillosis was made.

Lab investigations revealed elevated IgE. Bronchial wash also showed thin slender branching hyphae. Bronchoscopy revealed right middle and lower lobe bronchi and left lingular and upper lobe bronchi obstructed with thick mucoid and mucopurulent secretions respectively.

She was put on oral steroids and itraconazole. On follow up after 6weeks she had good clinical improvement. Chest radiograph and CT chest done showed significant clearing of the impacted mucus within dilated bronchi.

The case is presented since ABPA is unusual in non-asthmatics and without h/o recurrent episodes.

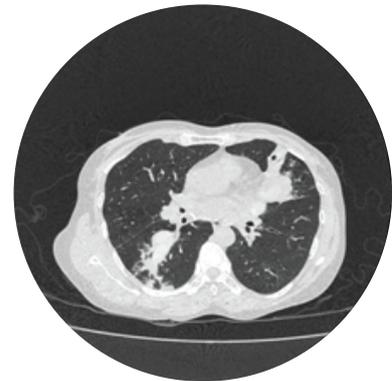
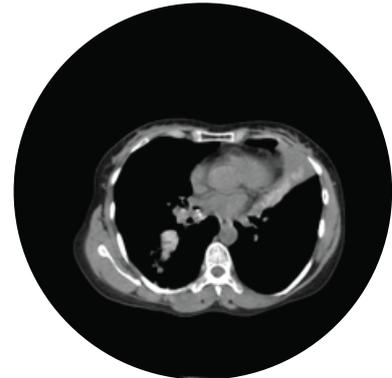
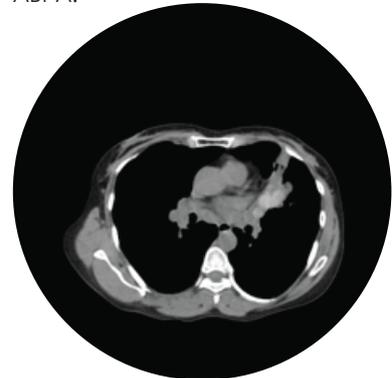


Perihilar opacities due to the presence of mucus-filled, dilated, central bronchi close to the hilum.

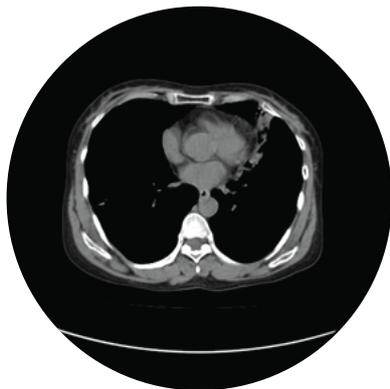


Xray after 1 month shows significant clearing up of the linear opacities.

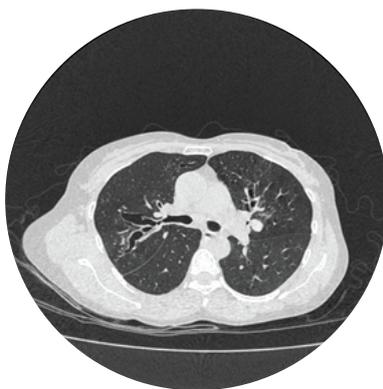
CT shows high-attenuation mucoid impaction of the tubular branching type producing a finger-in-glove appearance. Peripheral tree-in-bud opacities in the right lower lobe are also seen which is common in central bronchiectasis associated with ABPA.



Post treatment CT shows resolution of the mucoid impaction within the dilated central bronchi.



Allergic bronchopulmonary aspergillosis (ABPA) is the best-known allergic manifestation of *Aspergillus*-related hypersensitivity pulmonary disorders. Most patients present with poorly controlled asthma, and the diagnosis can be made on the basis of a combination of clinical, immunological, and radiological findings. The chest radiographic findings are generally nonspecific, although the manifestations of mucoid impaction of the bronchi suggest a diagnosis of ABPA.



Tram-line shadows, band-like (toothpaste) shadows showing sometimes "V," inverted "V," or "Y" shaped shadows and finger-in-glove opacities are the most characteristic finding of ABPA and represent mucoid impaction in dilated bronchi with occlusion of the distal end. These shadows are often transient, disappearing with the expulsion of secretions either spontaneously or following treatment. High-resolution CT scan (HRCT) of the chest has replaced

bronchography as the initial investigation of choice in ABPA. HRCT of the chest can be normal in almost one-third of the patients, and at this stage it is referred to as serologic ABPA (ABPA-S). The importance of central bronchiectasis (CB) as a specific finding in ABPA is debatable, as almost 40% of the lobes are involved by peripheral bronchiectasis. High-attenuation mucus (HAM), encountered in 20% of patients with ABPA, is pathognomonic of ABPA. ABPA should be classified based on the presence or absence of HAM as ABPA-S (mild), ABPA-CB (moderate), and ABPA-CB-HAM (severe), as this classification not only reflects immunological severity but also predicts the risk of recurrent relapses.

Dr. Susila Krishnan

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Aesthetic Surgery- Emerging Awareness And Changing Trends

“Lasers are emerging as permanent solution for hair reduction. It is feasible to get rid of unwanted hairs from any part of the body using the modern laser technology. Spotless, uniform colored glowing skin can be obtained using various chemical peels/serums and assisting devices. Hair loss could be prevented using combination of medications applied topically and intra-dermally along with PRP injections and Laser treatment. Skin could be tightened using radio frequency and ultrasonic waves. Fat deposit's resistance to any form of diet and exercise could be removed by liposuction. Sagging breasts could be lifted to improve the self image. Increase or decrease in the size of the breasts is possible by safe surgeries. All procedures are now performed with international standards at Kauvery Hospital. Like all other sub super-specialties we now have plastic surgeons trained exclusively to perform these procedures in India.

Liposuction

Liposuction is a surgical procedure wherein fat deposits over certain areas of the body are removed by suctioning by various techniques (Syringe, power assisted, VASER). Maximum benefit is obtained when specific areas like abdomen, hip rolls, buttocks, thighs or arms are targeted for contouring. Liposuction is done as a day care procedure and patient is sent home the same evening. When two or more areas are targeted in the same sitting general anesthesia is preferred. Access ports are usually concealed along skin creases that could be hidden by undergarments. Client is expected to wear the custom made compression garment for a minimum of three months. Returning to social life may vary from one to three weeks depending on the areas targeted.

Abdaminoplasty

Abdaminoplasty or “Tummy tuck is aimed in restoring post pregnancy lax abdomen back to contour. It involves removal of sagging skin, fat and repositioning the umbilicus. The scar is concealed in skin creases within the bikini line. The procedure is done under general anaesthesia and client may need to be hospitalized for a day. The client is expected to be available for follow up for two weeks and could resume social activities after three weeks.

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Management of pediatric septic arthritis

INTRODUCTION :

Septic arthritis results from presence of microbial agents in the joint space. Though uncommon, septic arthritis must be ruled out in any child presenting with a painful joint. Septic arthritis is a true orthopedic emergency and a delay in diagnosis or treatment may lead to irreversible damage to the joint.

A clinical algorithm for the diagnosis is based on clinical predictors proposed by Kocher et al (Ref 2)

- fever >38.50C,
- difficulty in weight bearing,
- white cell count of > 12 x10⁹cells/L,
- an ESR of >40mm/hr

When all the four were present, it was suggested that the septic arthritis was very much likely to be the diagnosis

- This was modified by Caird et al 3 to include C Reactive protein
- CRP >20mg/L as a fifth predictor had a 98% predicted probability of septic arthritis

A definitive diagnosis of septic arthritis can be made only when the pathogen has been isolated from the synovial fluid. The introduction of antibiotics

substantially improved the prognosis 4.

However empirical antibiotic therapy without isolation of the bacteria might affect the treatment, thus increasing the risk of complications. The delayed complications are avascular necrosis, growth arrest with shortening and deformity, secondary arthritis and osteomyelitis¹.

AIMS AND OBJECTIVES:

The aim of our study is to show that a high index of suspicion will lead to early diagnosis of septic arthritis and to prove that correct diagnosis and prompt treatment with culture proven antibiotics after arthrotomy would result in good outcome.

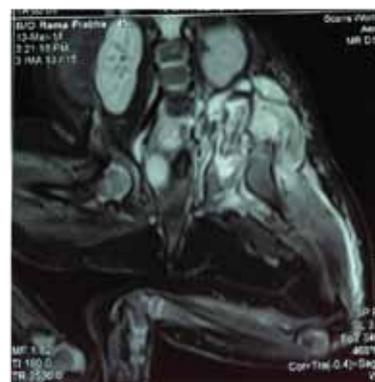
MATERIALS AND METHODS:

This is an observational study based on retrospective and prospective data in a multispecialty tertiary care hospital. The study includes 32 consecutive children who were diagnosed with septic arthritis out of a total of 15535 in-patients admitted to the pediatric department from June 2010 to June 2014. The study takes into account the age, sex incidence, clinical features including modified

Kocher's criteria (Ref 2), laboratory investigations, bacteriological analysis, imaging and intra-operative findings. All patients were managed according to standard protocol followed by Pediatrics and Orthopedics department.

RESULTS:

1. Our study showed a bimodal distribution of septic arthritis with 20 children below the age of 1 year and 8 children in the 5-10 year age group.
2. Septic arthritis was found to be more common in male children (71.8%) and most commonly



Septic arthritis of the left hip joint with osteomyelitis of the iliac bone

affected joint being the hip.

3. Risk factors for developing infection of the joint included a history of admission to the NICU and prematurity.

4. 85.7% of infants presented with pseudoparalysis, while in older walking children pain on weight bearing was a symptom in only 18%. The second most common presentation was fever in 56%

5. In our study only 19% of the patients had 3 and none had all the four Kocher's criteria. This is in contrast to the original study by Kocher et al where 84 % had all three or all the four criteria

6. 25% of the children were diagnosed to have associated osteomyelitis of the bone adjacent to the joint.

7. 12.5% (4/32) of the children diagnosed with septic arthritis had a normal CRP at admission. Out of the four children with normal CRP, three had a bacteriologically confirmed diagnosis of septic arthritis.

8. MRI proved useful in diagnosing septic dislocation in 2 children, subperiosteal abscess in 7 and associated osteomyelitis of the adjacent bone in 8 children. MRI was also useful in diagnosing multifocal septic arthritis and silent septic arthritis.

9. 59.3% of the children had received antibiotics prior to surgical drainage of the affected joint. Even though antibiotics had been administered prior to surgery, most of them (68.4% of these children) had isolation of the bacteria.

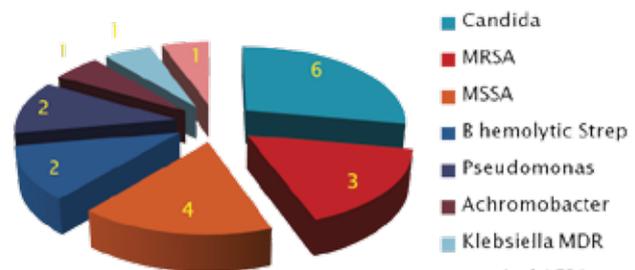
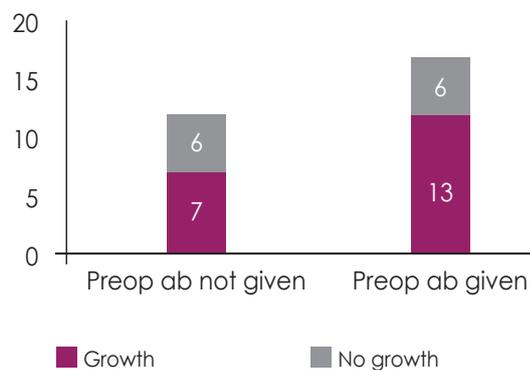
10. The chances of identifying the bacteria were higher with the neonates. (81% chance of culture positive septic arthritis in neonates and infants vs 27% chance in older age groups)

11. Candida was the culprit in 50% of the preterm neonates and 41.6% in NICU admitted neonates. Rare micro organisms like MDR Klebsiella and Achromobacter were also grown from the synovial fluid of children with a history of NICU stay.

CONCLUSIONS:

Based on our experience, results and literature we recommend that

1. We recommend high index of suspicion in children with septic arthritis with particular attention to preterm children and children with history of NICU admission.



2. No single clinical feature on its own is pathognomonic for septic arthritis.

3. Clinical diagnosis should be supplemented with appropriate investigations such as MRI.

4. Organism should be identified by sample collection to guide appropriate culture proven antibiotics rather than empirical treatment (Ref 4). Candida should be high on the list in preterm babies and NICU admitted babies.

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Analysis of femoral neck fracture in octogenarians and its management.

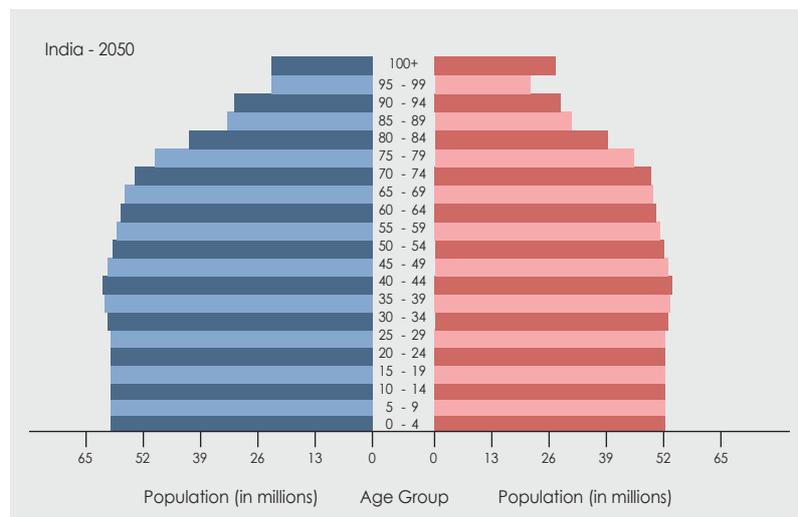
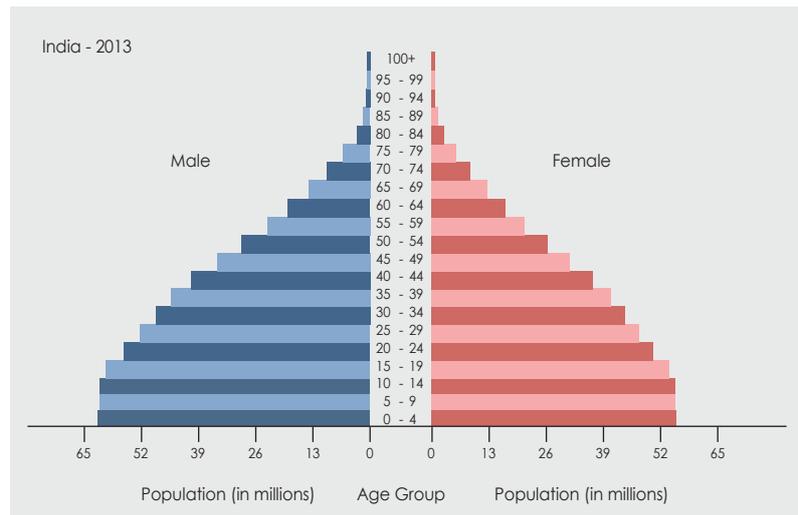
A study at Kauvery Hospital, Cantonment, Tiruchirappalli.

The 6 million populations of people in India above 80 years in 2013 will rise up to 30 million in 2050[1]. (Ref 1) The grand elderly suffer from co-morbidities like osteoporosis, medical problems, financial problems and most of them are dependent on others for their care. Falls are the 5th leading cause of death in elderly (Ref 2). 5 % of those elderly people who have falls have major fractures like fracture neck of femur, distal radius fracture, and vertebral fractures.

A fracture of femur is a significant trauma in life, that occurring in an elderly is disabling. If left untreated leads to high mortality and morbidity. We have analyzed the neck of femur fracture in 80+years and above, admitted in our Kauvery Hospital, Cantonment branch from 2009 -2015 and the management with their outcome.

STUDY MATERIALS AND METHOD:

- The Study period was 2009-2015, we analyzed patients aged 80



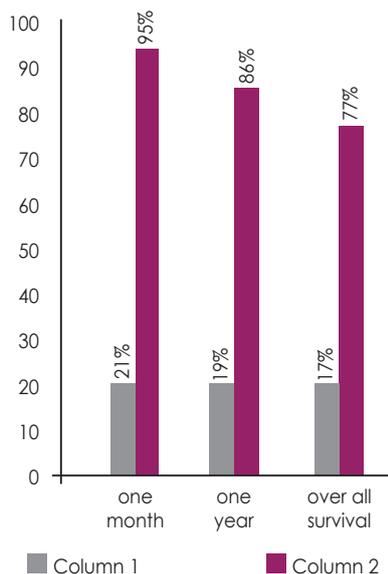
and above admitted for Fracture neck of femur.

- 22 patients were chosen based on the criteria; they were followed up for mean 4 years.
- It was a retrospective study with data collected prospectively. Medical records were reviewed and latest follow up done through telephone.

- Fracture incidence to presentation to hospital:
 - < 2 days-13 patients (59%)
 - >2 days-9 patients (41%)
- Delay in surgery for more than 48 hours – 7 (32%)
- More than three significant co morbidities - 8 cases (36%)

RESULTS OF THE STUDY:

Survival after the surgery
(total 22 cases):



The one year mortality is 14%, is well below the international rate of 25%

COMPLICATIONS(SURGERY SPECIFIC):

The surgery specific morbidities like wound infection, hip dislocation following surgery, revision surgery, Instability was nil. Symptomatic DVT was in 2 cases (9%).

Medical complications were:

- RTI-1, Electrolyte imbalance-2,
- CAUTI (catheter associated urinary tract infection)-2, Bed sore-1

DISCUSSION:

Results of the study indicates that aged 80 years ambulatory persons

who sustaining a fracture neck of femur, if operated and rehabilitated do well in the short and medium term.

The literature review suggests high mortality rate in this group of patients. However we have achieved better results.

a) Low mortality rate is due to early intervention as soon as the patient presented and their co morbidities management with multispecialty team co management includes Orthopaedician, Anesthetist, Cardiologist, Geriatrician, Diabetologist, Nephrologist and other departments to the care of the patient preoperatively results in stabilizing the patient.

b) The delayed presentations of patients to the hospital had no affect on the post operative outcomes.

c) Surgical management was delayed intentionally up to 48hours to medically stabilize the patient.

d) The duration of the hospital stay was in average 5-14 days, which was possible due to early mobilization and co management.

e) We do not recommend

chemical Thromboembolic prophylaxis in this group of patients. We recommend mechanical thromboprophylaxis. (Our incidence of DVT – 9% PE – Nil). The mechanical venous thromboembolism care given to all the elderly was effective (91%). International literature states that pneumatic compression reduces the relative risk by 63%. The pneumatic DVT pump is efficient in DVT prophylaxis.

f) Functional independence is the need for the elderly, when deprived leads to life of solitude and depression. The care for the elderly is focused upon to functional independence of them. In our practice we did not deny surgery citing age and co morbidities due to co morbidities and age. All the co morbidities were properly managed and treatment given thereby providing functional independence to the elderly.

CONCLUSION:

Based on our experience and literature review:

- We do not recommend denying surgery based on preoperative co morbidity, delayed presentation
- When co morbidities dictate, delay appropriately to optimize

does not increase Preoperative mortality. Multi disciplinary approach is needed for care in elderly.

- Early surgery, mobilization and bed sore prevention yields good results. Dedicated pain management protocol, standard Catheterization and infection protocol specialized for the grand elderly should be followed.

- Mechanical DVT prophylaxis is a safer option in elderly patients with hip fractures.

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“Isolated” Cryptococcal arthritis of the wrist joint in an “Immunocompetant” patient – A case report

HISTORY:

A 45 yrs/ old gentleman came with complaints of swelling & pain over right wrist for 7 months. He had a history of fall during farming - 7months before. Took native treatment for it. He Underwent biopsy at local hospital 2 months before.

- No H/O fever, cough, loss of weight or appetite.

ON EXAMINATION:

- Diffuse swelling around the wrist predominantly over volar aspect which was not fluctuant.
- Joint line tenderness over radiocarpal joint.
- Linear scar over radial aspect of wrist following biopsy.
- Muscle wasting of hand over thenar eminence. Sensory disturbance over radial 1 1/2 finger.
- Other joints were normal.
- Movements : 30 deg DF to 20 deg PF

INVESTIGATIONS:

- Hb- 13 gm/dl, ESR-36mm/hr, CRP-49.6mg/L, RA factor-1.8IU, Urea-26 mg/dl, Creat-0.8mg/dl, HIV-Negative, Mantoux-Negative

- Old biopsy report – Soft tissueXanthoma

MRI FINDINGS:

- Hyper intensity in abductor muscles & in 1st web space.
- Cortical distension present involving base of 1st metacarpal, trapezium, trapezoid, scaphoid bones.
- Fluid collection extending between flexor tendons. Extensive subcutaneous edema in dorsal space.

PROVISIONAL DIAGNOSIS:

- Chronic non specific arthritis of wrist joint.



Procedure planned:

Volar decompression of right hand (carpal tunnel release), wrist and distal forearm.

Procedure done:

Carpal tunnel was decompressed. Tenosynovitis of flexor tendons was minimal. Volar wrist joint capsule was opened. 20ml pus evacuated & radio carpal joint washed out. Necrotic bones debrided. Culture sent for histopathology and microbiology.



Post operative lab report:

- Gram stain - No bacterial growth, many gram positive capsulated budding yeast present.
- India ink stain – Encapsulated budding yeast cells
- KOH mount - Budding yeast cells
- Culture and sensitivity - No bacteria grown.

POST OPERATIVE PICTURES:



Antifungal Treatment given to patient:

- Lyophilized Amphotericin B 1mg/kg in 5% dextrose over 4 hrs for 2 weeks



- Oral Flucanazole - 200mg B.D for 6 months.

LITERATURE REVIEW;

- 27 reported cases of cryptococcal arthritis.
- 24 /27 reported cryptococcal arthritis in immunocompromised patients.
- Wrist joint involvement was in 3 reports.

CONCLUSION:

- Cryptococcus arthritis including wrist has been reported predominantly in immunocompromised patients. This article reports "the first case" of isolated cryptococcal arthritis of wrist in "Immunocompetant" patient.
- In the previous case reports of cryptococcal wrist joint arthritis, all the patients had disseminated fungal infection. The current case is the "first isolated" one.



- Fungal etiology should be considered in chronic non specific arthritis of wrist joint even in an Immunocompetant patient.

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(Wrist joint - immunocompromised)

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CT Robot Guided Interventions @ Kauvery Hospital

We are happy to announce the installation of a new CT guided robot in our hospital. CT guided robotic positioning system helps in fast and accurate tumor targeting and tool placement for interventions like biopsy, FNAC, pain management, drainage and tumor ablation.

It can be used for targeting and tool placement in deep seated lesions requiring orbital or crano-caudal angulation or a combination of both. It helps to reduce the number of needle punctures, check scans, procedure time, patient pain and radiation exposure.

ADVANTAGES OF ROBOT GUIDED PROCEDURES:

- Precision for small sized lesions
- Time saving
- Reduction in radiation exposure
- Better patient compliance since procedures can be done in different positions
- Reduced number of passes during biopsy
- Low risk of non target biopsies
- Low complication rate

CLINICAL APPLICATIONS:

- Pain interventions like facet joint injection, selective nerve root block.
- Image guided biopsy of Liver, Kidney, Pancreas, Vertebra, Retroperitoneal nodes
- Image guided FNAC
- RF Ablation for Liver, Lung, Renal Cancer and osteoid osteoma of bone
- Alcohol Ablation like celiac plexus ablation
- Drainage Procedures like deep seated intra abdominal abscess drainage
- Fiducial Marker placement for radiotherapy

Dr. Iyappan Ponnuswamy

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Chief Radiologist

Complete Surgical Excision Of Cauda Conus Dermoid With Cauda Equina Syndrome

CASE SUMMARY:

Spinal dermoid are rare spinal tumors accounting to less than 2% spinal tumors. They are usually associated with spina bifida and other dysraphisms. Cauda conus lesions are attached to conus medullaris (spinal cord segments s2-S4) and caudaequina (nerve fibres L2-S4). Excision of such lesions are technically challenging as they are densely adherent and can result in significant neurological deterioration. This illustration is about a adolescent girl with caudaequina syndrome with complete neurological recovery.

CASE HISTORY:

12 Year old female child had weakness in her left lower limb for 2 months with high stepping gait and numbness in the left leg. Patient had sudden worsening of deficit with difficulty in walking and urinary retention and she was catheterised. Clinical examination revealed power 2/5 in left knee extension and below 1/5, with significant foot drop. Right lower

limb power was 3/5. Sensation was decreased asymmetrically more on the left than the right with significant absence in perianal sensation.

IMAGING:

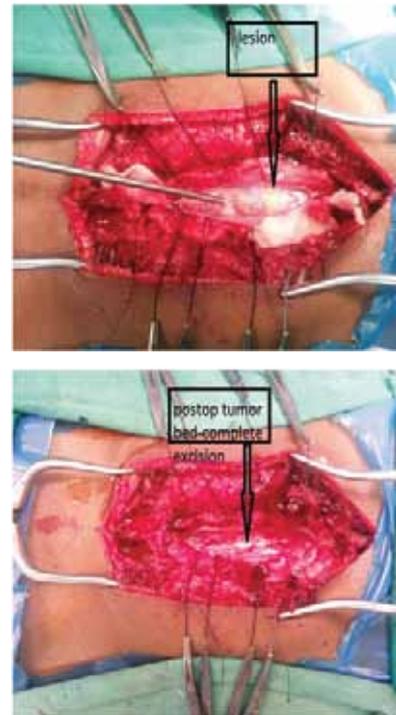
MRI revealed T1-isointense and T2 hyperintense lesion with faint capsular enhancement with contrast. MRI was suggestive of epidermoid with no dysraphism and lesion extending from D12 till L2



TREATMENT:

With 2 Level laminectomy and laminotomy in other areas, the lesion was exposed completely. Capsule opened and internal

debulking done. Tumor capsule which was densely adherent to spinal cord at the level of conus and to the caudaequina carefully dissected preserving all nerve fibres. Meticulous dural closure was done



DISCUSSION:

Post op recovery was uneventful. Complications that can arise include-worsening of deficit, chemical meningitis, wound csf leak. Her motor power improved to 4/5 in the immediate postop and patient is now walking on her own. Patient was trained for clean intermittent self catheterisation as she had significant post voidal residual urine. 6 months postop

patient has got complete bladder control with residual urine less than 50 ml.



Patient with spinal cord lesions with cauda equina syndrome can have good prognosis if operated early. Once the patient develops neurological deficits recovery can be delayed or permanent. Bladder



and bowel function are the last to recover and if proper meticulous intraop dissection is not done, can result in permanent dysfunction.

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Consultant Neurosurgeon

Tracheal Mass with Stridor - A Case Report

ABSTRACT:

Central airway tumor with airway stenosis is a medical emergency. Metal airway stenting can relieve the obstruction due to tumor and improve the quality of life and provide time for further treatments.

Key words : Airway Stenosis, Metallic Stenting

INTRODUCTION :

Obstruction of Trachea and main bronchus due to Primary bronchial carcinoma or metastasis is not an uncommon condition. This may be due to exophytic endoluminal growth or extrinsic compression by the tumor. When major airway obstruction becomes severe, patients develop progressive dyspnoea and stridor. Various treatment modalities available including stenting, cryotherapy, electrocautery, mechanical core-out have been recommended. Tracheal stenting is an effective treatment for acute stridor due to malignant airway stenosis. It offers immediate relief of dyspnoea and improves the quality of life.

CASE REPORT:

A 80 yrs old gentle man came to our outpatient department with complaints of progressive breathing difficulty for 3 months more since 2 weeks. He also had noisy breathing since 2 weeks. He was initially evaluated outside with X ray chest and CT chest showed soft tissue mass in the trachea with stenosis. He underwent flexible bronchoscopy at his hometown evaluation showed tracheal mass one inch below the vocal cord, biopsy was deferred due to bleeding at that time. On admission to our hospital he was dyspnoeic, tachypnoeic, febrile, inspiratory stridor. He could not lay down due to severe breathlessness. He was treated with antibiotics, bronchodilators and other supportive medications. After stabilisation he underwent bronchoscopy showed soft tissue mass one inch below the vocal cords and completely obstructing the lumen was noted. Elderly man with tracheal mass and acute onset of severe breathlessness with stridor, tracheal stenting with self expandable metallic stent (SEMS) was discussed with the attenders. After informed consent self expandable metallic stent was

deployed with delivery catheter under image guidance with topical anaesthesia. Repeated bronchoscopy was done showed properly positioned stent covering the entire tumor, and able to pass the scope beyond the tumor. Immediately after the procedure patient was relived from breathlessness and air entry improved and stridor disappeared. Post procedure x ray showed nicely placed metallic stent. Patient was discharged after 48 hrs with smiling face. Patient came for follow up after 2 weeks completely relived off breathlessness, stridor and voice quality was maintained.

Discussion :

Airway stenting is an important supplementary therapy that improves respiration and the quality of life in cases with malignant airway stenosis (1, 2).

Placement of endoluminal stent offers a rapid and effective means of airway patency, thereby leading to dramatic improvement of symptoms and pulmonary function (3). It has been shown increasing popularity with benign disease such as tracheal strictures and tracheobronchomalacia due to large-sized goiter compressing over the tracheal structures for a long duration (4-6).

Tracheobronchial stent is indicated in both benign and malignant airway obstruction but most common is malignant stenosis. Follow-up of patients is mandatory to prevent formation of obstructing granulation tissue. It can be inserted via flexible bronchoscope with light sedation and local anaesthesia compare to the Dumon stent, insertion of which often needs to be done using the rigid bronchoscope under general anaesthesia.

Conclusion:

Tracheal stent implantation is an effective palliative treatment for acute airway stenosis caused by malignant tumors.

Acknowledgements :

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Difficult Cases Managed At Kauvery Hospital, Karaikudi

1) 26 year old male H/O assault on 09/03/15.

Diagnosis : Grade II open severely comminuted fracture , dislocation left elbow.

Procedure: Wound debridement and Open reduction internal fixation with plate and screws done within 4 hours.

Pre operative x-ray



Post operative x-ray



post operative image-I



post operative image-II



Out come: Fracture united, good range of movement retained.

2) H/O RTA, 60 years old male, fell from two wheeler by himself.

Diagnosis: Comminuted segmental fracture left forearm.

Procedure: Open reduction internal fixation with plate and screws.

Pre operative x-ray Post operative x-ray



Result: Good reduction ,outcome.

3) H/O Fell at home 3 month back, Jaundice 3yr, chronic alcoholic.

Diagnosis: Non union fracture neck of femur left hip

Procedure: Bipolar arthroplasty

Pre operative x-ray



Post operative x-ray



Out come: Patient is walking comfortably

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Consultant surgeon

Tool to aid Central venous catheter tip placement in appropriate position

Central venous catheterisation is a routine procedure carried out in day to day practice in Intensive care unit, Emergency department, patients undergoing major surgery, cardiac surgery, etc. Major indications for Central Venous Catheter (CVC) placement being

- (1) Central venous pressure (CVP) monitoring,
- (2) Transvenous cardiac pacing
- (3) Administration of Vasoactive drugs, chemotherapy, Fluids, etc
- (4) Aspiration of air emboli
- (5) Pulmonary artery catheterisation and monitoring and many more.

Nowadays measurement of IVC diameter with the help of Ultrasound gives a clue regarding the volume status of the patient and determines the need of fluid to be infused. Still CVP measurement with the help of CVC remains the mainstay in many centres to monitor the volume status of the patient.

Correct positioning of the catheter tip is a critical factor for successful outcome of clinical therapy and misplacement may put the

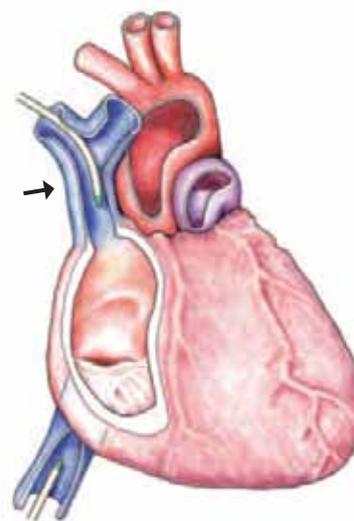
patient's life at risk. The debate is "WHERE SHOULD THE CATHETER TIP BE PLACED". It is universally accepted that the catheter tip should be placed about 2cm before the confluence of Superior vena cava with Right Atrium. That is the tip should be positioned within the lower third of SVC, close to the junction of SVC and RA.

If the tip is situated high up in SVC, it may cause vessel wall erosion and if it is low down into RA, it may cause arrhythmia and endocardial injury.

An X-ray is usually done after the procedure which shows the position of catheter tip, sometimes too deep into RA or high up in SVC. Sometimes the tip would have gone to same side IJV or opposite side Subclavian vein if we have chosen to cannulate one sided subclavian vein. So after the X-ray we need to completely redo the procedure to place the tip in right position which becomes more time consuming and expensive. Ultrasound guided Central venous cannulation is the gold standard nowadays to avoid neighbouring structure injury. But USG will not give much evidence about the catheter tip. We can use Trans esophageal echo (TEE) which aids in placing the tip exactly

above the RA, that too is much expensive and has to be done only in ECHO room.

In our hospital we are using UNIVERSAL ADAPTER which aids lively, to position the catheter tip just above RA during the procedure itself. The Universal Adapter (UA) is connected to Right chest lead of the patient. Right lead from the ECG monitor is connected to UA. Another wire, that is the intra-atrial ECG lead is connected from the straight end of the 'J' tip guide wire to the universal adapter. The 'J' tip can be made just to protrude out of the CVC tip which is clearly identified with a black mark present in the other side (straight end) of the 'J' tip guide wire. Once the circuit is complete the CVC is threaded in, and once the 'J' tip reaches the RA we will get a tall 'P' wave in ECG monitor. From



CVC tip 2cm above RA

there the Catheter along with 'J' wire is slowly withdrawn till the 'P' wave shows normal configuration. It infers that the catheter tip has slowly come out of RA and it has occupied the position in distal third of SVC.

With the aid of Universal adapter we need not take an X-ray immediately as it clearly tells that it has gone into right path and it has been placed in right position. If it all an X-ray has to be taken it shall be taken only after 8 to 12 hrs that too for ruling out pneumothorax or hemothorax. Since to develop pneumothorax or hemothorax it really takes more than 8 hrs after a CVC procedure. After usage of universal adapter we are very confident and accurate in getting the central venous pressure.



Universal Adapter by BRAUN
With an Intra atrial ECG lead

Tall 'P' wave if the 'J' tip is in RA - Normal 'P' wave if the 'J' tip is in SVC

A complete circuit of Universal adapter.

- UA is connected to right chest lead of the patient.
- Red lead from ECG monitor to UA.
- A white cable connecting straight end of 'J' wire and UA

Tall 'P' wave - 'J' tip with CVC in RA

Normal 'P' wave - 'J' tip with CVC pulled out to SVC

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Events at **Kauvery**

WORLD KIDNEY DAY RALLY
at TRICHY



CM SCHEME CAMP
at T VALAVANUR

CARDIO CON
at SANGAM



OBESITY MEET
at SANGAM

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Intensivist
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Dr. T. Arunkumar, M.B.B.S.,
Fellow in Diabetology
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"When there are tears, you are a shoulder
When there is pain, you are a medicine
When there is a tragedy, you are a hope"

"Thank you always for
giving your best"

Happy Doctors' Day

- Kauvery Family



Special focus

*Paediatric Cardiology facilities now @
Kauvery Hospital*

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Coming soon...



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