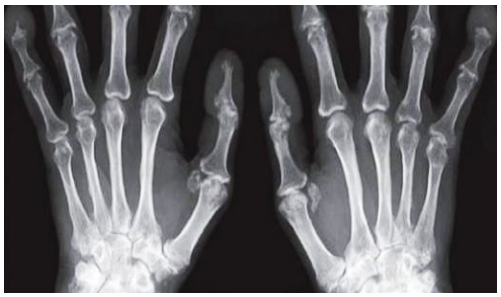
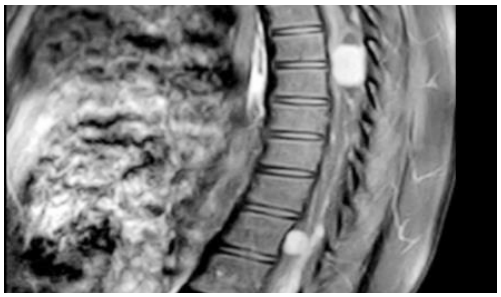
Issue 21 Jul 2024

IRIA Telangana e-Newsletter





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Indian Radiological & Imaging Association

Telangana State Chapter 2024

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Banjara Hills, Hyderabad - 500 034.
Ph. No: 040-29803049,
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From the President's Desk

Dear Esteemed members,

The 78th Annual conference at Hyderabad work has started. Formation of committees are in progress. Theme, Logo and Web site design are in final stages. All efforts to make it a grand success. Dr. Prabhakar Reddy and other members are working hard to plan the conference program. Please support the committees and contribute to conference your time and expertise.

Our state conference in October 2024 theme is Neuro Radiology. It is US -India CME. Four distinguished speakers from abroad have agreed to participate. Program will be finalized soon and brochure released. It will be very useful for residents and practicing radiologists to update themselves.

Monthly meetings and other academic activities of our association are finalized for this year .Some teaching programs are scheduled for exam going students. Exam going PGs will benefit from these CMEs.

Trade representative meeting was held recently and trade issues related to us were discussed .It was decided to have common guidelines on PCPNDT for entire state and decided to represent to state ministry

As a Radiologist, we have major role to play in the society to provide Radiological services to reach common man at affordable rates maintaining international standards.

Our TSIRIA Newsletter is released once in three months. It includes academic activities, articles from experts, case reports from post graduates and achievements from members. I request members to contribute articles, interesting cases and other useful information to the Newsletter.

Please give feedback about our association and newsletter for improvement.

I thank and congratulate the Newsletter team for their hard work and bringing out newletter regularly.

Wish you all the best

Dr. Ramesh T
President TS IRIA Chapter

From the General Secretary Desk

Dear Colleagues,

As the General Secretary of the IRIA Telangana State Chapter, I am excited to invite you to our upcoming state conference from October 25th to 27th, themed "Neuroradiology." This event will feature distinguished international faculty from the USA, bringing their expertise to our platform.

Highlights of the Conference:

- *Dates*: October 25-27
- *Theme*: Neuroradiology
- *Special Guests*: Renowned international experts from the USA

Additional Announcements:

- *Membership Drive*: We warmly welcome all postgraduates and radiologists to join our esteemed body. Becoming a member provides access to invaluable resources and a vibrant professional community.
- *HARP Online Radiology Physics Conference*: We strongly encourage first-year postgraduates to register for this essential conference on August 4th and 11th.
- *Indemnity Insurance*: Ensure you are covered by securing your indemnity insurance through the IRIA website.
- *Opportunities for Engagement*: Radiologists interested in delivering guest lectures or conducting quizzes at our monthly meetings are invited to submit their names and resumes to the IRIA TS chapter mailbox.

Your participation and support are crucial for the success of these initiatives. Let's come together to enhance our knowledge, share experiences, and contribute to the growth of our field.

Jai Hind!

Long Live IRIA!

Warm regards,

Dr P. Krishna Mohan
General Secretary
Indian Radiological Imaging Association
Telangana State Chapter

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TELE RADIOLOGY

INTRODUCTION:

Telehealth is defined as the use of communication technologies to provide health care at a distance, uses electronic information and telecommunication technologies to support and promote long-distance clinical healthcare, patient and professional health-related education, public health, and health administration (Health Resources and Services Administration [HRSA], 2022). The terms telehealth and telemedicine are often used interchangeably, but telehealth encompasses a broader scope of remote healthcare services.

Teleradiology is the practice of using telecommunication and information technologies to transmit and interpret medical images, such as X-rays, CT scans, and MRIs, for diagnostic purposes. It allows radiologists to remotely access and analyse images, providing medical care services across distances.

Teleradiology benefits:

- Improved access to specialist radiologists
- Faster interpretation and diagnosis
- Enhanced image quality
- Increased efficiency
- Better patient care

Common applications:

- Emergency and trauma care
- Remote consultations
- Second opinions
- Research and education
- Image archiving and storage

In India Ultrasound studies can only be in- hospital due to procedural guidelines. Interventional radiology and mammography procedures are also read in- house.

In mammography, the large file size and issues related to image resolution required for detection of microcalcification remain a barrier. Teleradiology allows radiologists to provide services without actually having to be at the location of the patient.

History of Tele Radiology:

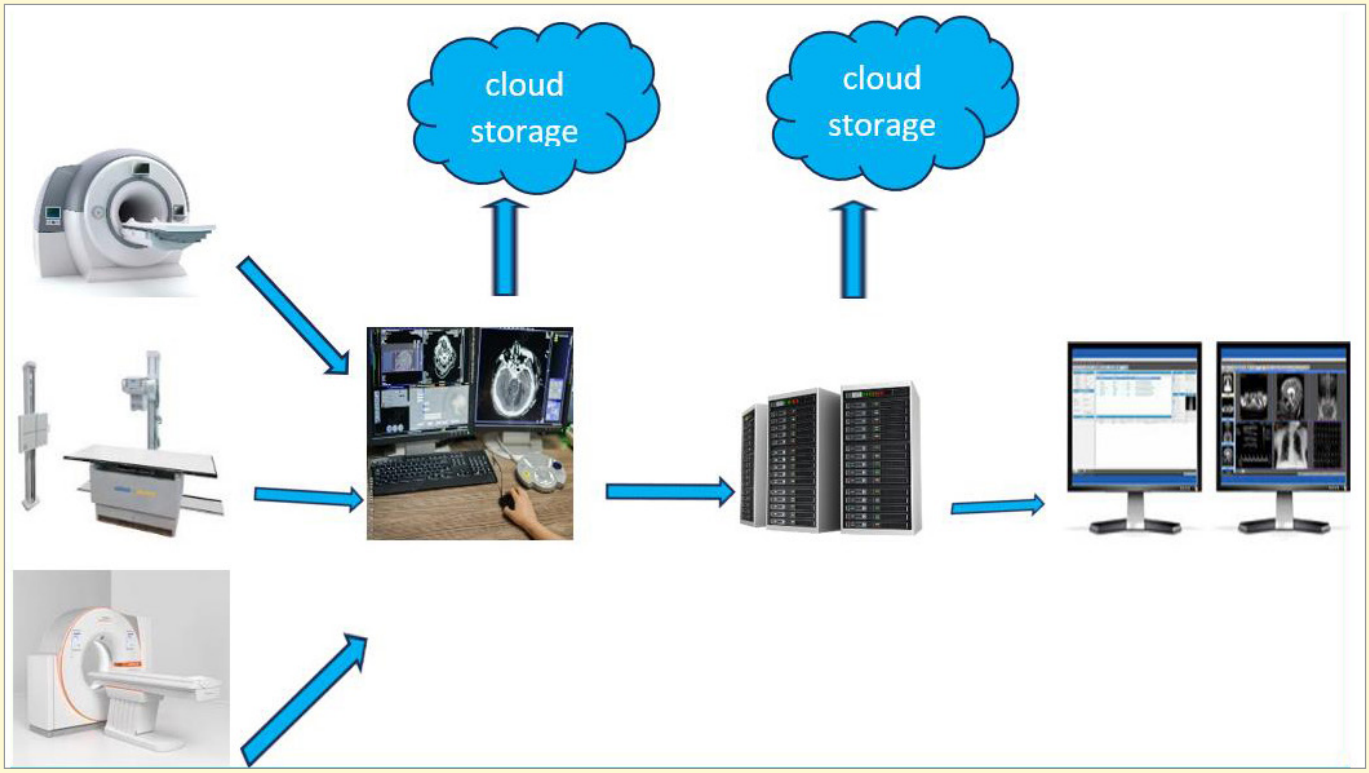
Teleradiology was introduced in the 1960s when television technology was utilized to send images, utilized in emergency situations with images of low quality, time taking method. As technology advanced, there are betterquality images and faster transmission. During the COVID-19 pandemic, the use of telehealth and teleradiology expanded to meet the changes and demands the pandemic placed on the healthcare system with high-quality images being transmitted nationally and internationally to gain the insight and expertise of radiologists (Agrawal, 2022; Hanna et al., 2020).

Acquisition, Transfer and Viewing of Images:

The process of teleradiology is based on an essential triad;

1. An image sending station,
2. A transmission network,
3. A receiving image station that must have a high-quality display screen that has been cleared for clinical purposes.

Acquisition: Images can be stored on a network or a workstation in the DICOM format. Plain radiographs obtained non-digitally may need to be scanned



Transfer of images High-speed lines, allowing different centres to connect directly or over the Internet are available for transmission of images, directly transferred or streamed, depending upon the software being used.

Viewing of images Image viewing requires a workstation that can display high-resolution images. Many types of software are currently available, which allows viewing, manipulation, measurements, 3D reconstructions, etc.

Conveying reports: With the advent of PACS (picture archiving and communication system) RIS (radiology information system) is now integrated into the teleradiology system, resulting in efficient and instant communication of findings to the clinician

Advantages: One of the major advantages in India is we have a pool of skilled radiologists, advanced technology, and infrastructure to bridge this demand and supply gap, especially when it comes to extending radiology services to the rural sector where ~65% of population lives.

The benefits of teleradiology are numerous. Rural and frontier areas are especially vulnerable to radiologist unavailability on-site. As accidents needing radiology services are higher in rural, Teleradiology can address this unavailability gap and connect rural settings to more extensive facilities where radiologists are present (Alonso-Que et al., 2019; Mendel et al., 2019).

Teleradiology can provide radiology interpretation at all hours of the day and night as well as on weekends and holidays, thus increasing access to radiologist expertise. In addition, the use of teleradiology provides a rapid interpretation of images leading to faster diagnosis, treatment, and transfer to a higher level of care.

Teleradiology improves patient care by allowing radiologists to provide their expertise without being present with the patient. This is particularly important when radiologist sub specialists, such as, Paediatric radiologists, and neuro-radiologists, to name a few, are needed. Many of these highly specialized professionals are generally only located in large well-established areas and work during daytime hours; therefore, their availability to the larger population may be limited outside of the teleradiology setting. By utilizing teleradiology services, specialized radiologists can provide effective input for diagnosis and symptom control, as it often helps with obtaining a second professional opinion.

The incorporation of outsourcing companies or radiology groups to provide and maintain required radiology coverage also allows smaller hospitals to

make better use of their own on-site professionals. furthermore, it allows for the radiologists who are employed by these smaller hospitals to maintain their normal working hours without compromising on patientcare.

Limitations:

Barriers do exist in teleradiology with reduced payments to the reporting radiologists by the companies. Radiology association has fixed prices on Tele Radiology services. However, the vendors are actually paying less than recommended to the Tele Radiologist and this also has effect on the full time Radiologist packages. Tele Radiologists should insist for association recommendation and also voice together about practicing challenges.

The radiologist interpreting an image is typically provided a small description or rationale for the ordered test and does not have immediate access to the patient or provider to ask questions. The healthcare provider must provide sufficient information to the radiologist to ensure an accurate interpretation of findings. As communication and images are being sent via technology, miscommunication may occur, leading to a missed diagnosis (Hanna et al., 2020; Lopez, et al., 2021).

There are also several problem statements India is overcoming with, when it comes to providing Teleradiology services that include:

- Difficult to reach rural India
- Physical unavailability of Physician/Radiologist at location
- Limited out-patient hours
- Healthcare cost
- High turnaround time (Investigation to Report interpretation)
- Limited Quality Controls and guidelines
- Multiple touchpoints and patient's discomfort to avail Radiology service.
- Old diagnostic and imaging equipment
- Limited pay to the Radiologist

International Outsourcing: Some of the Radiologists having overseas license e.g. USA, UK are working in India remotely. Time difference in India has advantage of emergency night cases are instantly reported day time in India especially from USA.

Other potential applications:

Peer Review: Tele Radiology can be used as standard procedure for Peer Review across hospitals for quality cheque.

Research: Since large data is pooled in Teleradiology companies, great scope for research especially with Artificial intelligence projects.

Teaching: The data from Tele Radiology can be used for teaching Radiology trainees remotely

Conclusion:

Tele Radiology has evolved dramatically since its inception and is well-poised to play a significant role in shaping the future of Radiological services. Understanding the etiquette, rules, and regulations surrounding Tele Radiology is vital as health-care providers strive to ensure the delivery of safe and effective care using different modalities.

Teleradiology growth and advancement will continue to improve patient access to timely and quality care. Now clinical governance, medico legal aspects and quality assessment are the issues which still remain to be streamlined

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2. Alonso-Que et al., 2019, H.T. Alonso-Que, L. Castillo-Uribe, S. Gomez-Fraga, J.L. Ramirez-Arias. A general approach to modern teleradiologyAnales of Radiologia, 17 (3) (2019), pp. 166-173
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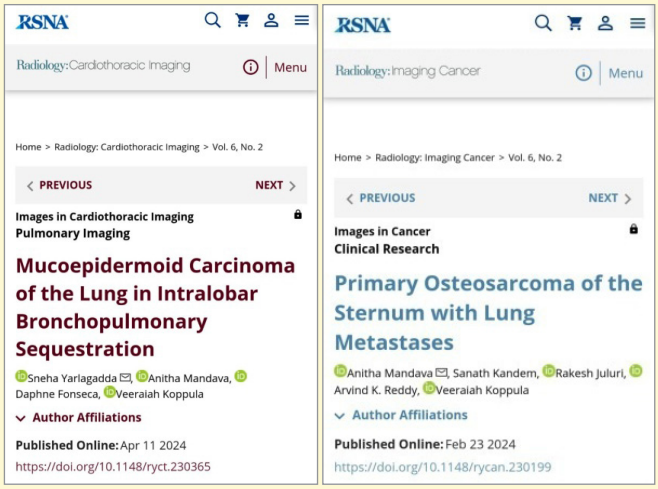
ACHIEVEMENTS

Congratulations to Dr. Varsha Joshi,

Consultant Radiologist,
Vijaya Diagnostics

Heartiest Congratulations to Dr.Bharanitharan,

Osmania Radiology Resident got Awarded by president with Gold medal, for securing highest score in country in DNB exam



Congratulations to Dr. Anitha Mandava,

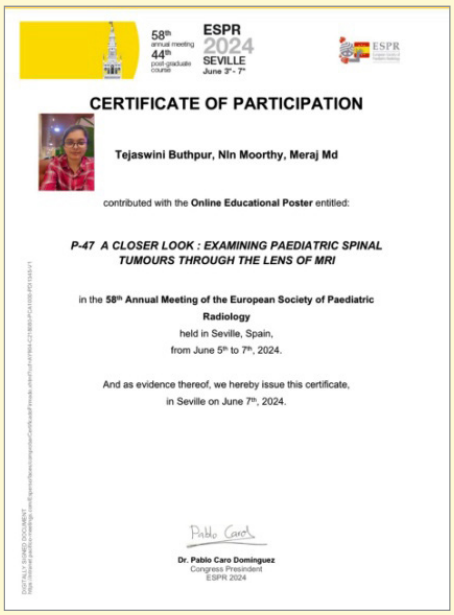
Senior Consultant Radiologist, Department of Radiology, Basavatarakam Indo American Cancer Hospital & Research Institute

Congratulations to Dr. Sudha Bindu

promoted as HOD Mamata Medical College, Bachupally

Congratulations to **Dr. Chapala Shashank**, MD (Post Doctoral Fellow), Department of Radiology, Asian Institute of Gastroenterology Hospitals, Hyderabad, Telangana, India for paper publications

- Platelet-rich Plasma as Effectiveness in the Treatment of Osteoarthrosis of the Knee in a Tertiary Care Center- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11000861/
- Published an article "Different faces of Osteosarcoma "in Calcutta Academy of Radiology Newsletter recently
- Imaging in shoulder arthroplasty: Current applications andfuture perspectivesin Journal of Clinical Orthopaedics and Trauma


CERTIFICATE OF PARTICIPATION

Tejaswini Buthpur, Nln Moorthy, Meraj Md

contributed with the **Online Educational Poster** entitled:

P-47 A CLOSER LOOK : EXAMINING PAEDIATRIC SPINAL TUMOURS THROUGH THE LENS OF MRI

in the **58th Annual Meeting of the European Society of Paediatric Radiology**
held in Seville, Spain,
from June 5th to 7th, 2024.

And as evidence thereof, we hereby issue this certificate,
in Seville on June 7th, 2024.

Dr. Pablo Caro Dominguez
Congress President
ESPR 2024


CERTIFICATE OF PARTICIPATION

Nikita Srilalitha Addepalli, N L N Moorthy, Padmaja Singireddy, Srija Kashetty

contributed with the **Online Educational Poster** entitled:

P-197 IMAGING SPECTRUM IN PAEDIATRIC INTRACRANIAL TUBERCULOSIS AND ITS ASSOCIATED COMPLICATIONS.

in the **58th Annual Meeting of the European Society of Paediatric Radiology**
held in Seville, Spain,
from June 5th to 7th, 2024.

And as evidence thereof, we hereby issue this certificate,
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Dr. Pablo Caro Dominguez
Congress President
ESPR 2024


CERTIFICATE OF PARTICIPATION

Nikitha Gopadi, Moorthy Nln, Ramesh Goud Gandete

contributed with the **Online Educational Poster** entitled:

P-203 UNRAVELLING THE INTRICACIES OF PAEDIATRIC POSTERIOR FOSSA BRAIN LESIONS THROUGH THE LENS OF MRI

in the **58th Annual Meeting of the European Society of Paediatric Radiology**
held in Seville, Spain,
from June 5th to 7th, 2024.

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Congress President
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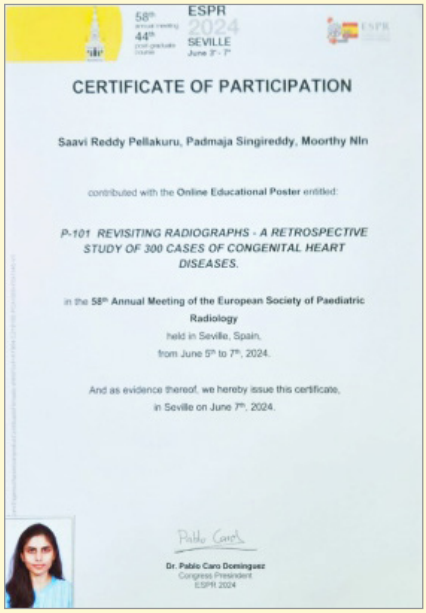
CERTIFICATE OF PARTICIPATION

Saavi Reddy Pellakuru, Padmaja Singireddy, Moorthy Nln

contributed with the **Online Educational Poster** entitled:

P-101 REVISITING RADIOGRAPHS - A RETROSPECTIVE STUDY OF 300 CASES OF CONGENITAL HEART DISEASES.

in the **58th Annual Meeting of the European Society of Paediatric Radiology**
held in Seville, Spain,
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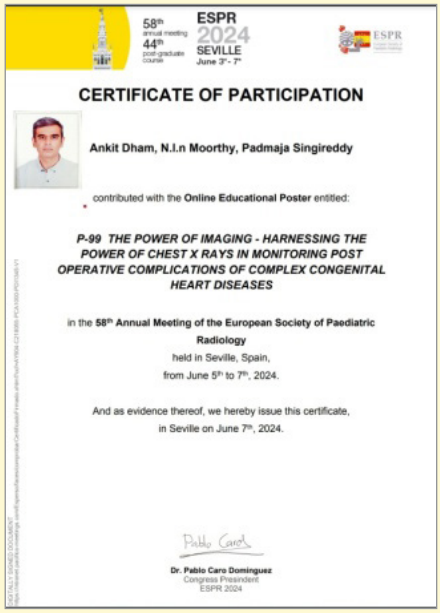
CERTIFICATE OF PARTICIPATION

Ankit Dham, N.l.n Moorthy, Padmaja Singireddy

contributed with the **Online Educational Poster** entitled:

P-99 THE POWER OF IMAGING - HARNESSING THE POWER OF CHEST X RAYS IN MONITORING POST OPERATIVE COMPLICATIONS OF COMPLEX CONGENITAL HEART DISEASES

in the **58th Annual Meeting of the European Society of Paediatric Radiology**
held in Seville, Spain,
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And as evidence thereof, we hereby issue this certificate,
in Seville on June 7th, 2024.

Dr. Pablo Caro Dominguez
Congress President
ESPR 2024

Congratulations to all the participants in the

ESPR -2024,

from Apollo Medical College

ARTICLES

Dr. Madhusudana Rao Tummala
MD Radiologist, USA

CONVENTIONAL IMAGING OF THE HANDS IN ENDOCRINAL AND METABOLIC DISORDERS

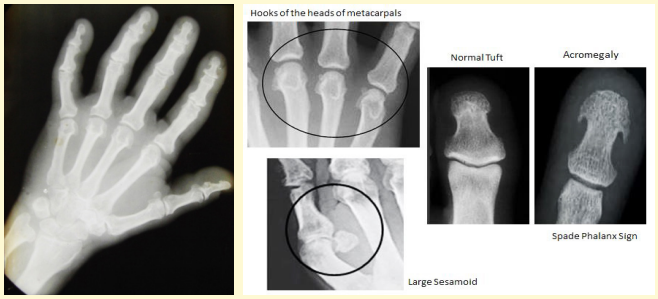
Endocrinal and metabolic disorders are major contributors to alterations in skeleton. A simple radiograph of the hand often reflects and mirrors endocrinal and metabolic diseases and should form part of investigation.

Major Endocrinal glands include Pituitary, Parathyroid, Thyroid, Adrenals, Gonads (Ovaries, Turner, PCOD), Testes, and Pancreas.

ACROMEGALY

Acromegaly is due to excessive secretion of the growth hormone by the anterior pituitary gland.

Radiographic findings in hands include spade shaped distal phalangeal tufts, tabulation of the phalangeal shafts, exostoses, widened joint spaces, and sesamoid enlargement.



(a) *(b)*

Fig. 1 (a)- 40 year old with thickened palm - Acromegaly – Pituitary Adenoma, (b) – Acromegaly

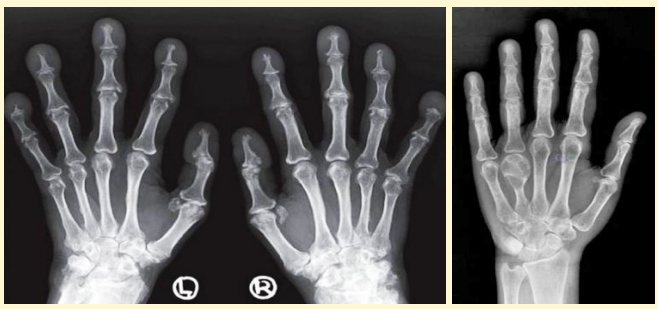
HYPERPARATHYROIDISM

Hyperparathyroidism is due to increased level of parathyroid hormone in the blood. It has three types: primary, secondary, and tertiary.

Primary hyperparathyroidism is due to autonomous hyperfunction of parathyroid glands. Single (60 to 80 per cent) or multiple (10to 20 per cent) of the cases are due to adenomas of the parathyroid glands.Diffuse hyperplasia of the parathyroid glands accounts for 10 to 40 per cent of the cases.Carcinoma of the parathyroid glands accounts for 5 per cent of the cases.

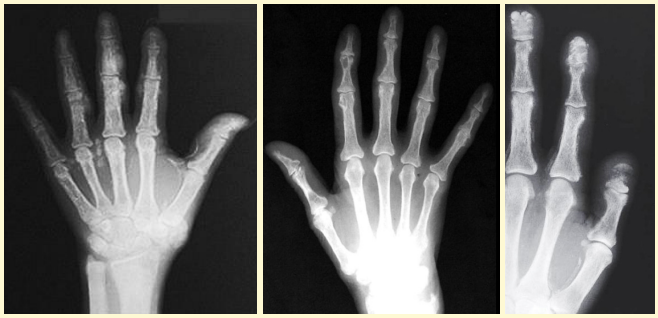
Secondary hyperparathyroidism is induced by a sustained hypocalcemicstate. It may result from chronic renal failure, malabsorption states, and nutritional conditions.

Tertiary hyperparathyroidism is due autonomous parathyroid function and hypercalcemia in patients with chronic renal failure or malabsorption and long-standing secondary hyperparathyroidism.



(a) *(b)*

Fig. 2 (a) - 50, F, with painful fingers - Hyperparathyroidism – Acroosteolysis and subperiosteal bone resorption. 2 (b) – Brown tumor of the 4th metacarpal bone.



(c) *(d)* *(e)*

Fig. 2 (c,d,e) – Secondary Hyperparathyroidism. Subperiosteal bone resorption, soft tissue calcifications and brown tumor.

RENAL OSTEODYSTROPHY

Renal osteodystrophy due to chronic renal insufficiency may produce secondary Hyperparathyroidism and/or Osteomalacia. The radiographic features include subperiosteal bone resorption,Acroosteolysis, subchondral bone resorption, scalloping of the outer aspect of phalangeal cortex, cortical tunneling, periarticular and synovial membrane calcifications, calcification of the articular cartilages, diffuse osteosclerosis,and brown tumors.

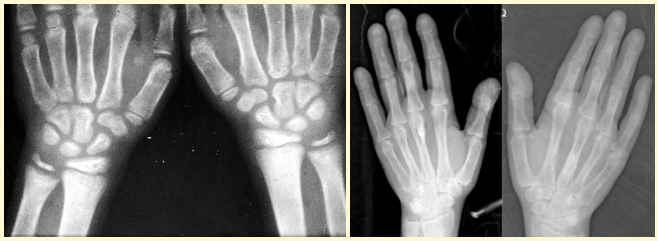


Fig. 3 (a) - Renal Rickets, OsteosclerosisFig. 3 (b) - Renal Osteodystrophy

Hypoparathyroid Syndromes include Idiopathic Hypoparathyroidism, Pseudohypoparathyroidism and Pseudo Pseudohypoparathyroidism.

IDIOPATHIC HYPOPARATHYROIDISM

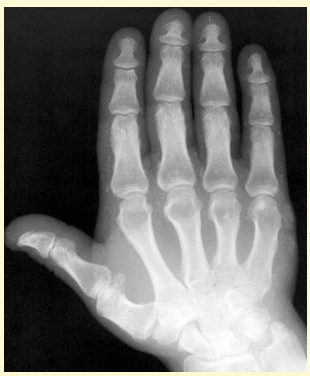


Fig. 4 -
45, M, with muscle spasms - Hypoparathyroidism – short distal phalanges and short metacarpals

Hypoparathyroidism is an endocrinal disorder caused by deficiency of parathyroid hormone which in turn results in **decreased** serum calcium levels and raised serum phosphorus levels. Hypoparathyroidism may also result from autoimmune disease or genetic causes (eg, DiGeorge syndrome). Radiological findings in hands includepremature close of the epiphyses, short metacarpals, and short phalanges.

PSEUDO HYPOPARATHYROIDISM

Pseudo Hypoparathyroidism is a heterogeneous group of disorders caused by target-organ resistance to the action of parathormone. It is a familial disorder of metabolism characterized by hypocalcemia and hyperphosphatemia and increase in parathormone levels. Radiographic findings in the hands include short 4th and 5th metacarpal bones.

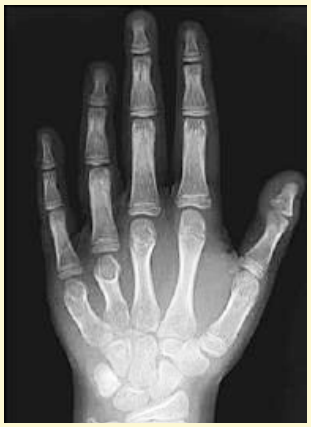
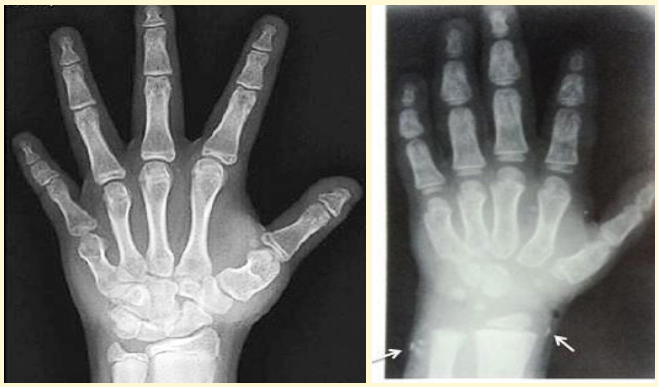


Fig. 5 –
12 Y/O, Pseudohypoparathyroidism – short 4th and 5th metacarpals, short distal phalanx of the thumb

PSEUDO PSEUDOHYPOPARATHYROIDISM

Pseudo-pseudohypoparathyroidism and Pseudo-hypoparathyroidism both involve the same GNAS gene,but pseudo-pseudohypoparathyroidism has normal calcium homeostasis because of the normal maternal allele in the kidney.

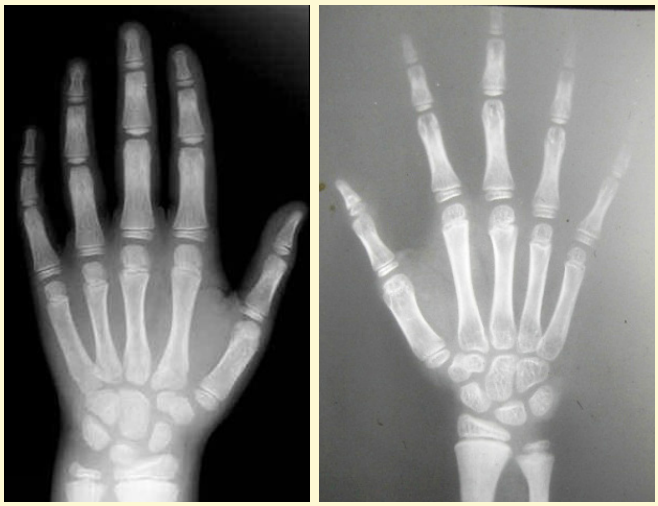


(a) *(b)*

Fig. 6 (a) - 16, F, short stature - Pseudo Pseudohypoparathyroidism – short 1st and 5thmetacarpals, short distal phalanx of the thumb. (b) - Pseudo Pseudohypoparathyroidism - Note the calcifications of the soft tissue of the wrist. The epiphysis of the distal phalanx is absent. All metacarpal bones are short.

HYPERTHYROIDISM

Hyperthyroidism is due to oversecretion of thyroid hormone by the thyroid gland. The most common skeletal manifestation of hyperthyroidism is Osteoporosis. Radiographic findings in the hands include osteoporosis and advances bone age.



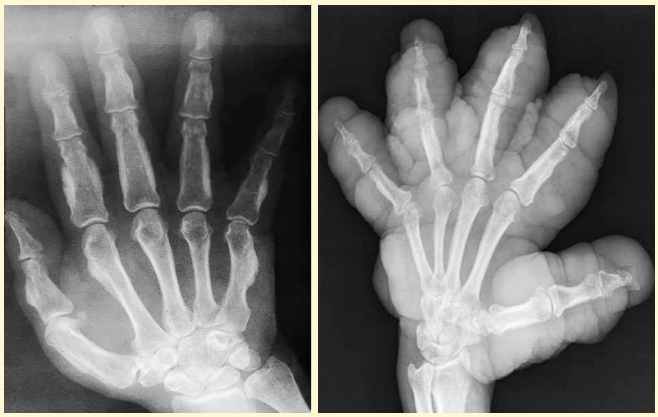
(a) *(b)*

Fig. 7 (a) – Hyperthyroidism– advanced bone age – Chronologicalage – 5 years, Radiological age – 8 years

(b) – Hyperthyroidism and osteoporosis– advanced bone age in a 5 year old

THYROID ACROPACHY

Thyroid acropachy is an unusual presentation of autoimmune thyroid disease, (~1% of patients with Graves' disease). It can occur in hyperthyroid, euthyroid, hypothyroid, or even post-treatment patients. It is almost always associated with thyroid ophthalmopathy. Radiological findings in the hands includeClubbing and swelling of the digits and periosteal reaction usually asymmetric, may present speculated or lacy appearance.

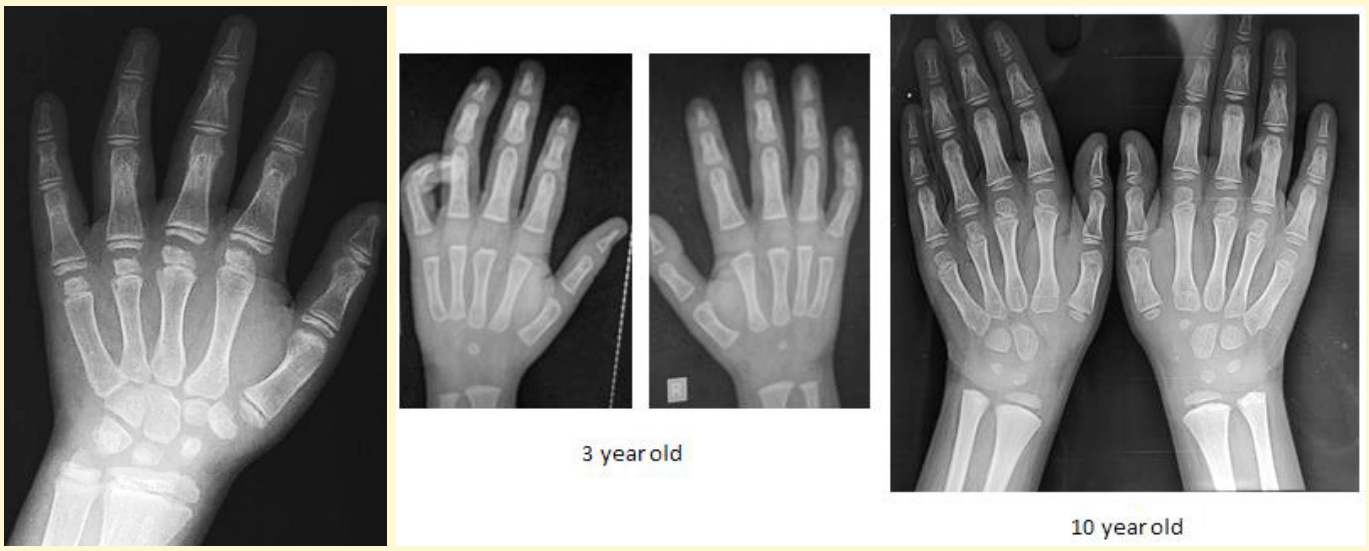


(a) *(b)*

Fig. 8 (a) – Thyroid Acropachy in 40 F, under treatment for hyperthyroidism - note the periosteal reaction especially of 1st and 5th metacarpals, (b) – Thyroid Acropachy – thickened skin.

HYPOTHYROIDISM (CRETINISM)

Hypothyroidism (Cretinism) is due to deficiency of the thyroid harmone. Radiological findings include, Retarded bone age, epiphyseal dysgenesis – due to aberration of ossification pattern –fragmented epiphysis and sclerosis at the metaphysis.



(a) *(b)* *(c)*

Fig. 9 (a)–15 Y, Cretin – growth retardation, irregular epiphyses, (b,c) – Hypothyroidism in 3 & 10 year old

GOUT

Gout is caused by hyperuricemia and deposition of monosodium urate crystals in joints, bones and soft tissues. It may be monoarticular or polyarticular. Tophi are nodular monosodium urate crystal deposits mostly in the periarticular soft tissues but may also be intra articular or intraosseous. Asymmetric

lumpy, bumpy soft tissue swelling near the joints is typical. Classic bone changes include well-defined marginal lytic bone lesions with overhanging edges.

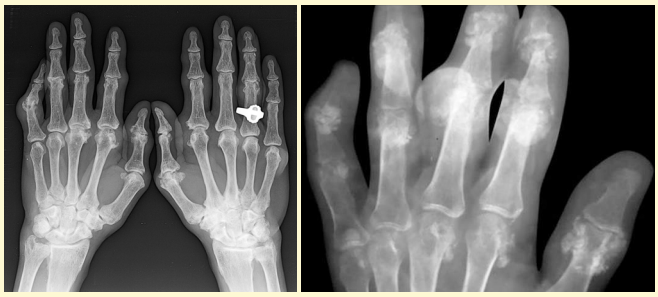
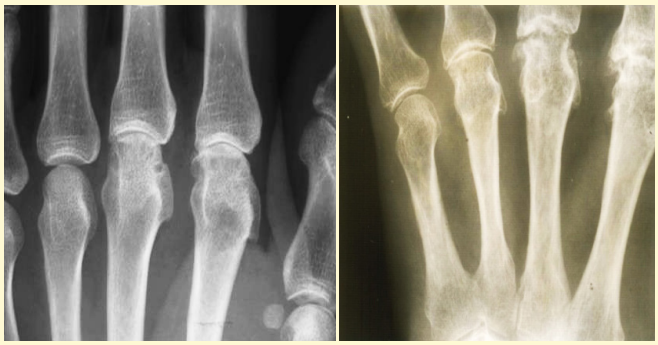


Fig. 10 (a) – Gouty ArthritisFig. 11 (b) – Gout

HEMOCHROMATOSIS

Hemochromatosis is a systemic multi organ iron overload disorder. It may be primary autosomal recessive genetic disorder or less often secondary to other diseases that cause Hemosiderosis. In primary Hemochromatosis the abnormal iron deposition is in non reticuloendothelial (non-res) tissues. Skeletal manifestations of the Hemochromatosis occur in approximately 50% of the cases.

Radiographic features in hands :carpal, MCP and PIP joints are most commonly involved. There is symmetric loss of joint space.Subchondral cysts, characteristic beak (hook) like osteophytes on the radial aspects of the second and third metacarpal heads, chondrocalcinosis and generalized osteoporosis.

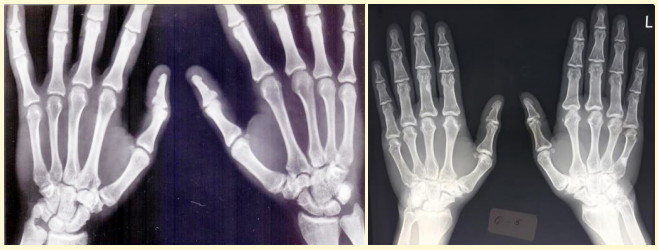


(a) *(b)*

Fig. 11 (a,b) – Hemochromatosis

WILSON'S DISEASE

Wilson's Disease is an autosomal recessive multisystem disorder due to abnormal copper deposition in liver, brain and eyes. It is characterized by Kayser-Fleisher rings of cornea, liver cirrhosis, neurological symptoms and musculoskeletal changes. Reported musculoskeletal radiographic changes include, Osteoporosis, premature osteoarthritis, chondrocalcinosis, subchondral bone fragmentation and pathological fractures.



(a) *(b)*

Fig. 12 (a,b) – Wilson's Disease

ADRENAL HYPERPLASIA

Adrenal Hyperplasia may result in advanced bone age, obesity and osteopenia.

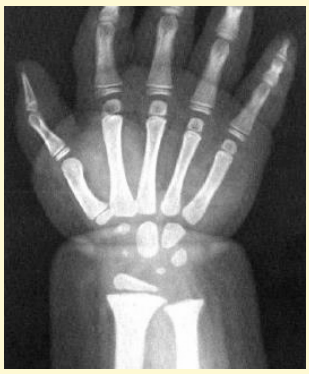


Fig. 13 –

2 Y/O with obesity - Advanced age, adrenal Hyperplasia

OSTEOPOROSIS

Osteoporosis is deficient bone formation.It is the most common metabolic bone disease. Primary osteoporosis is due to advanced age and deficient sex hormones.Secondary osteoporosis is caused by many conditions including congenital, hormonal, gastrointestinal,bone marrow,renal and miscellaneous disorders.Radiological features include altered bone trabeculations,thinning of the cortex and increased radiolucency of the bones.

OSTEOMALACIA

Osteomalacia may be caused by calcium deficiency, Vitamin D deficiency, or Phosphate deficiency. The most common cause of hypophosphatemic Osteomalacia is an X – linked abnormality. Renal tubules fail to reabsorb phosphate. In children it leads to Vitamin D resistant rickets and in adults it produces Osteomalacia.

Other causes of Hypophosphatemic Osteomalacia include Fanconi Syndrome: Renal tubular dysfunction, oncogenic hypophosphatemic Osteomalacia caused by benign or malignant tumors.

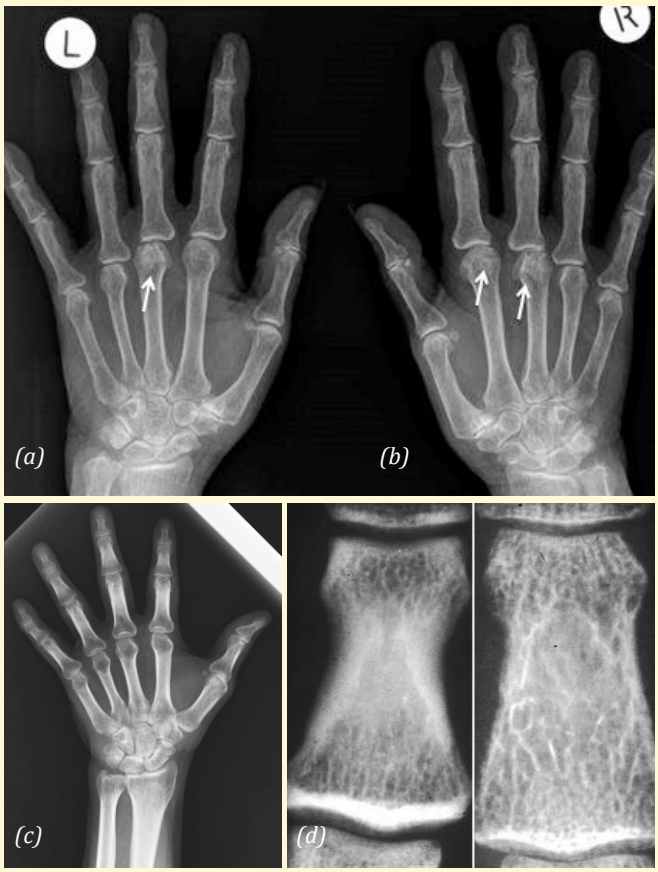


Fig. 14 (a) - 50 M, Patient under Steroid Therapy - Osteonecrosis of the metacarpal heads with Osteoporosis.(b,c,d) – Osteoporosis

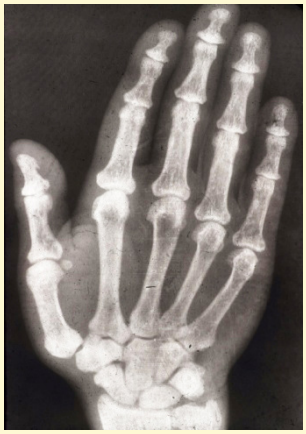
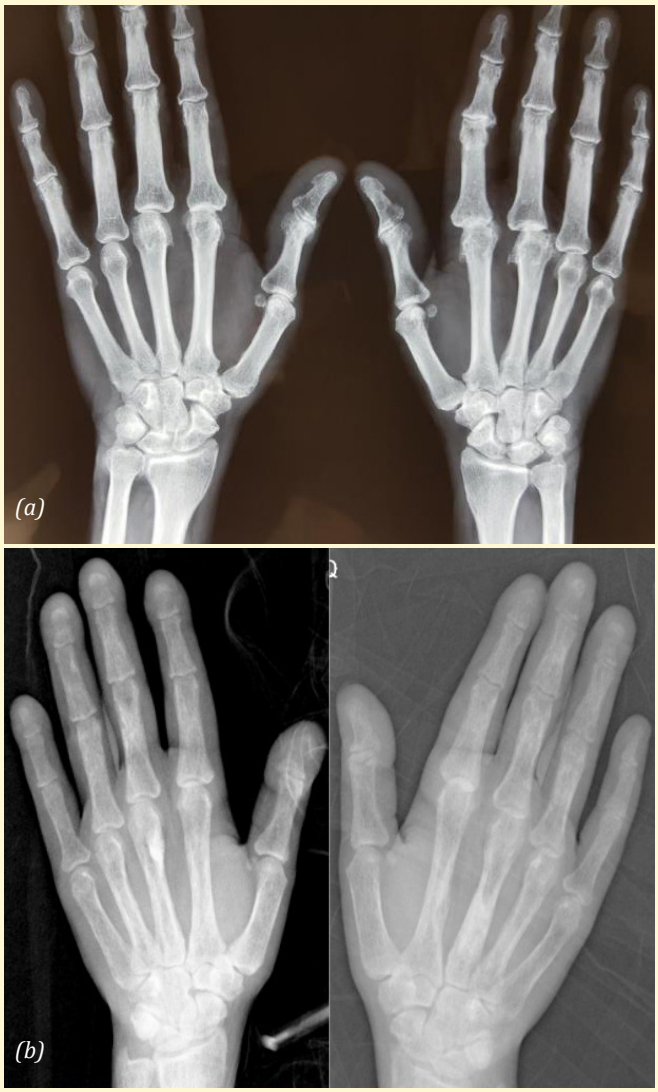


Fig. 15 –
Osteomalacia, ground glass appearance

ALKAPTONURIA

Alkaptonuria is a disorder of tyrosine metabolism affecting the large joints of the extremities and spine. There is 2:1 male predominance and the disease usually manifests between 20 to 40 years of age. It typically produces backache and joint stiffness. Ear, nose, and costal cartilage appear brown. Urine turns black on standing. Renal and prostatic calculi are common.

Pathologically there is accumulation of homogentesic acid in cartilage forming a black pigment. There is weakening of the cartilage leading to premature and advanced Degenerative joint disease, chondrocalcinosis and ligament calcification. In the spine there is increased kyphosis/ lordosis, universal discal calcification, multilevel vacuum phenomena and eventual vertebral fusion.



(a) (b)
Fig. 16 (a,b) - Alkaptonuria

McCUNE-ALBRIGHT SYNDROME

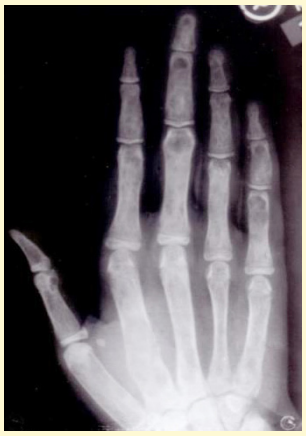


Fig. 17 –
10 Y/O with sexual precocity – McCune Albright Syndrome

Originally, the McCune-Albright syndrome (MAS) was defined by the combination of fibrous dysplasia of bone (FD), café-au-lait skin pigmentation, and precocious puberty (PP). Later, it was recognized that other endocrinopathies, could be found in association with the original triad. Rarely, other organ systems may be involved (liver, cardiac, parathyroid, pancreas).

RICKETS AND OSTEOMALACIA

Lack of (or) severe deficiency of mineralization of the bone matrix results in Rickets in children and osteomalacia in adults. Mineralization of the bone matrix depends on the presence of vitamin D, Phosphorus and calcium.The causes of rickets include nutritional deficiency of vitamin D, liver disease,renal disease and congenital causes.

Radiological features of rickets include metaphyseal cupping and fraying, poor mineralization of epiphyses,increased distance between the shaft and the epiphysis,coarse trabeculation and periosteal reactions.

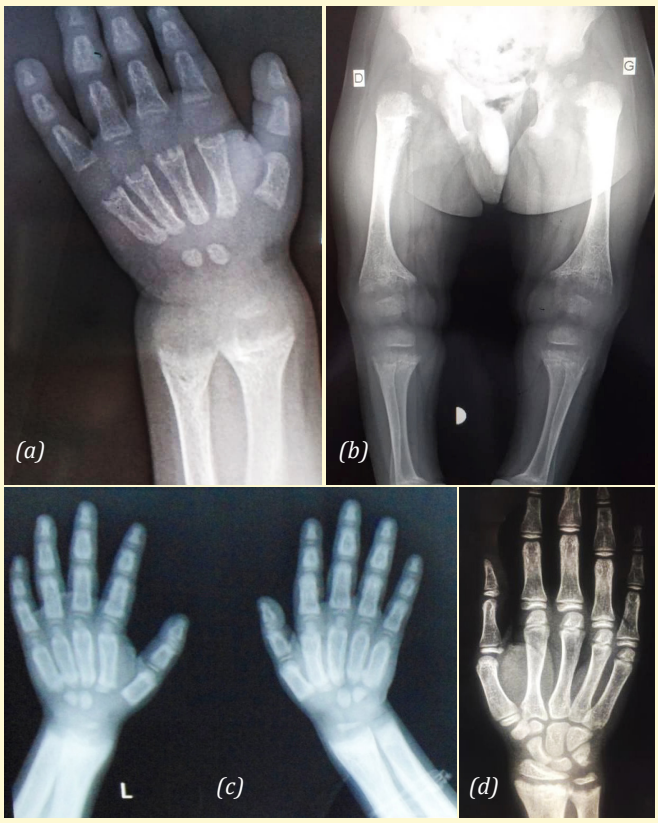


Fig. 18 (a,b) – Rickets, (c) – Renal Rickets, (d) - Renal rickets - high phosphate and high parathormone

SCURVY

Scurvy is a metabolic disease caused by the deficiency of vitamin C in the diet.Its manifestations include bleeding gums, pseudo paralysis and bony changes.There is suppression of osteoblasts resulting in osteoporosis. Imaging features include generalised osteoporosis, positive Wimberger's sign (small epiphyses surrounded by thin sclerotic rim) ,transverse band of lucency beneath the dense zone of provisional calcification (Trummerfeld zone), marginal metaphyseal spur (Pelkan's spur)subphyseal infarctions and subperiosteal hemorrhages.

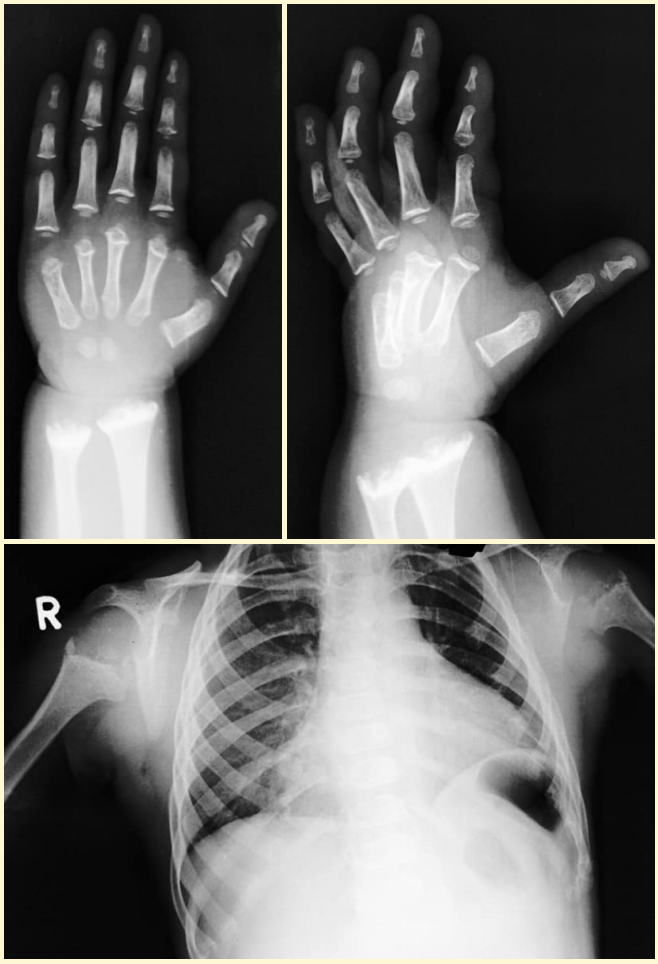


Fig. 19 – 15 F, Scurvy

PRIMARY OXALOSIS

Primary oxaluria is a rare autosomal recessive inborn error of metabolism resulting from endogenous overproduction of oxalate as opposed to secondary hyperoxaluria, which is due to excessive dietary intake or increased intestinal absorption of oxalate. It leads to increased urinary excretion oxalate and glycolate and renal failure.Imaging findings include dense sclerotic as well as lucent metaphyseal bands and fractures.

HYPERVITAMINOSIS D

Hypervitaminosis D is very rare and is usually due to

administration of mega doses of vitamin D over long periods. Radiological findings include osteosclerosis and soft tissue calcifications.

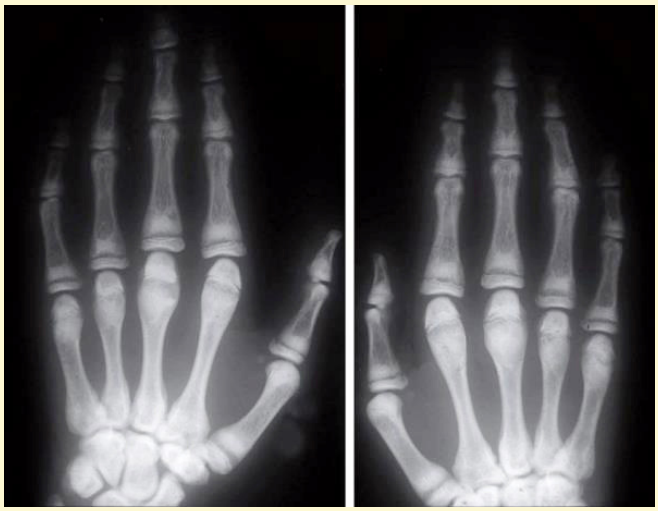


Fig. 20 – Primary Oxalosis – note the sclerotic bands and luncencies in the metaphyses.

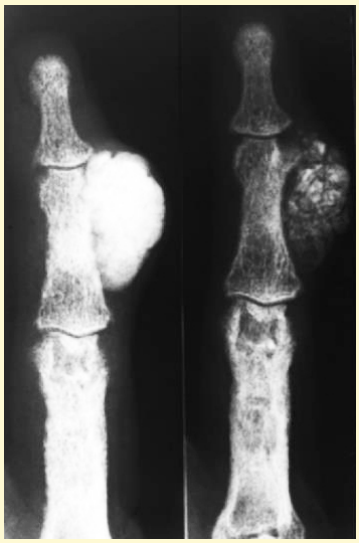


Fig. 21 – Hypervitaminosis D

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LINES AND TUBES IN CHEST X-RAY

INTRODUCTION

Being the most commonly performed radiographic examination in both in and out-patient settings, Chest Xray (CXR) not only helps in evaluating cardiorespiratory diseases and fractures, it is also of great help in evaluating the position and placement of various tubes, lines and other devices, and also in detecting related complications.

American college of Radiology (ACR) recommends CXR immediately following the placement of indwelling tubes, lines, catheter and other devices to check for the correct positioning and detect any procedure associated complications.

The purpose of this article is to provide an overview of radiographic appearance of various common lines and tubes, and examples of malpositioning and its consequences.

NASOGASTRIC (NG) TUBE:

In clinical practice, nasogastric tubes are routinely used for feeding and decompression of the stomach. There are terminal lead balls to help visualise the tip. Ideally, the tip of NG tube should be clearly visible below the diaphragm and should lie 10cm beyond the gastro- esophageal junction. Potential malpositions include coiling within the pharynx or esophagus, passage into the airway, high position within the esophagus above the gastroesophageal junction.

ENDOTRACHEAL (ET) TUBE:

ET tubes are clinically used for assisted ventilation. The parts of the ET tube include an inflatable cuff that will safely secure the trachea to avoid air leak and prevent aspiration. The normal positioning of the ET tube is always referred to as the distance of the ET tube tip from the carina. Preferably, the ET tube is positioned in the mid-thoracic trachea ending ~5 cm from above the carina.

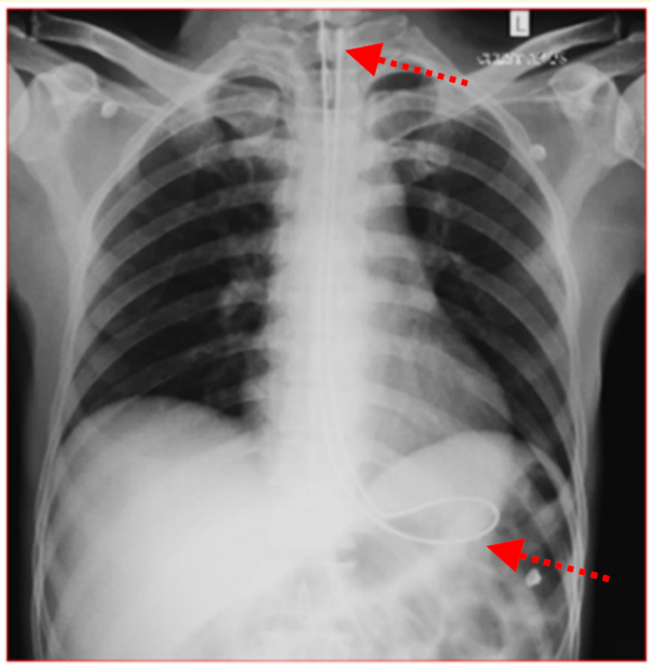

Fig 1. Chest radiograph showing coiling of NG tube in stomach and tip is seen in the neck.

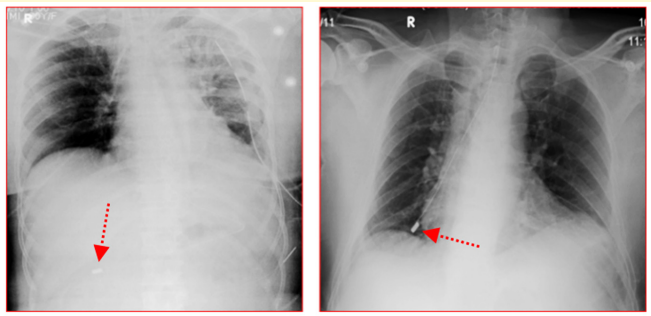

Fig 2. CXR showing the tip in proximal duodenum (A) and right lower lobe bronchus (B).

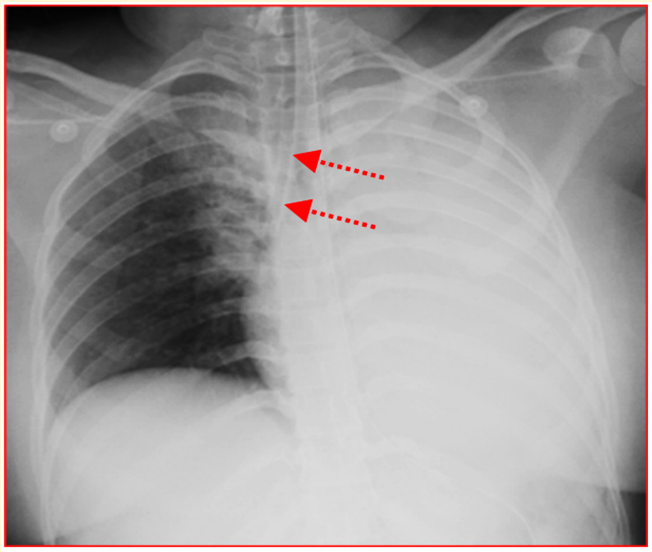

Fig 3. Frontal chest radiographs show ET tube in the right main bronchus and collapse of the left lung.

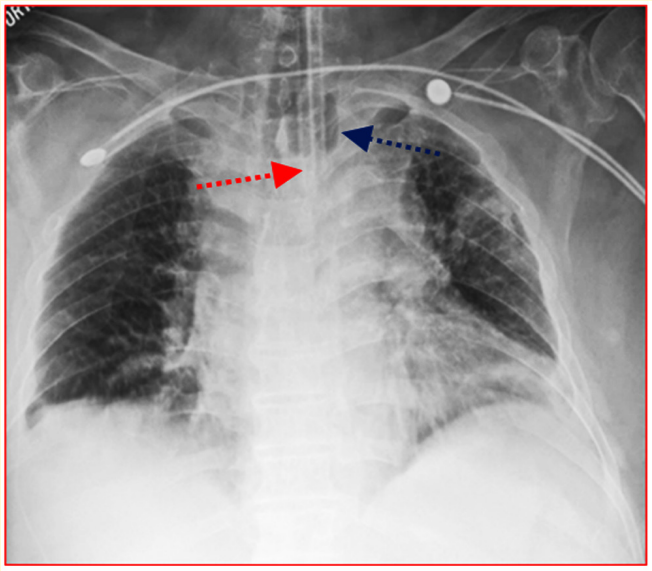

Fig 4. ET Tube tip in Esophagus (Note the shadow of the inflatable cuff).

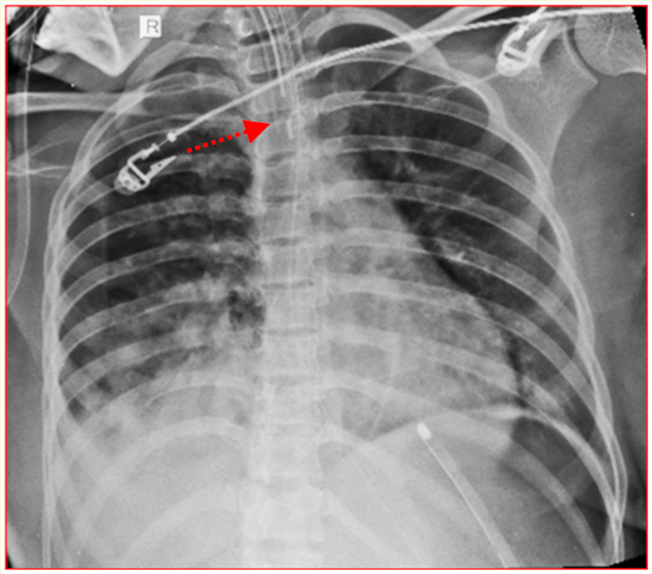

Fig 5 - ET Tube placed high up in Trachea (>5 cms from Carina).

TRACHEOSTOMY TUBE:

Ideal position of Tracheostomy tube is that the tip should be half way between the stoma and the carina within the tracheal lumen. It is relatively rare to malposition a tracheostomy tube because they are fixed in position by sutures.

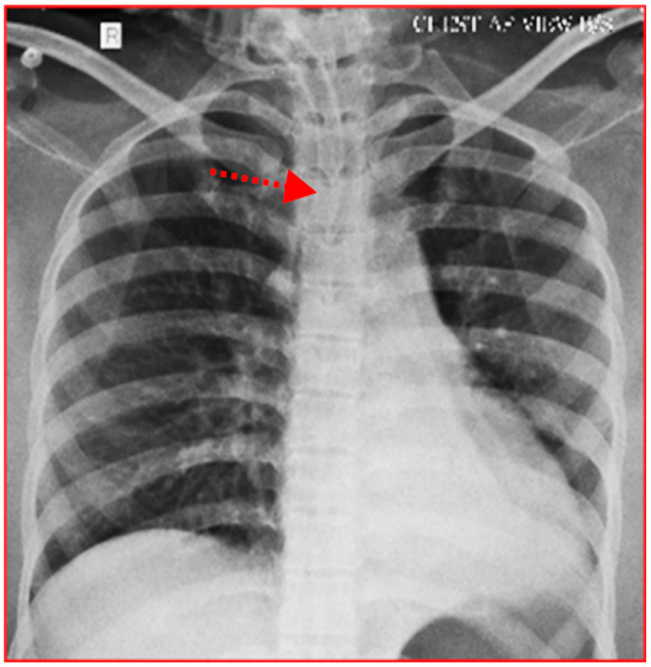

Fig 6. Tracheostomy Tube insitu with Left lower lobe collapse due to mucous plug.

INTERCOSTAL DRAINAGE TUBE (ICDT):

Tube is usually placed anterosuperiorly in the 4th intercostal space to evacuate pneumothorax and posteroinferiorly for fluid collections.

Normally positioned tube lies on the surface of the expanded lung, between the visceral and parietal pleurae.

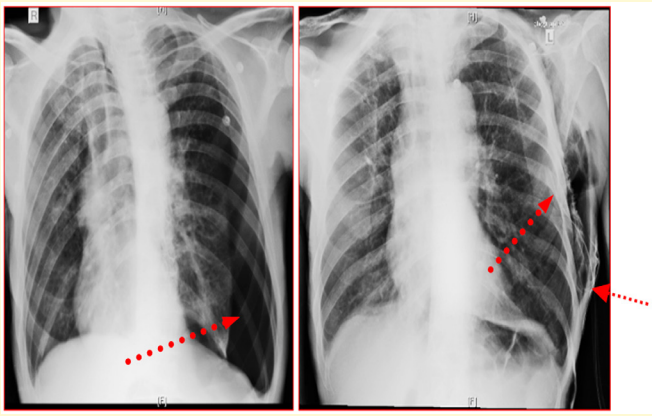

Fig 7. (A)Frontal Chest Radiograph showing left sided spontaneous tension pneumothorax. (B) the side holes of ICDT are in Subcutaneous plane leading to subcutaneous emphysema.

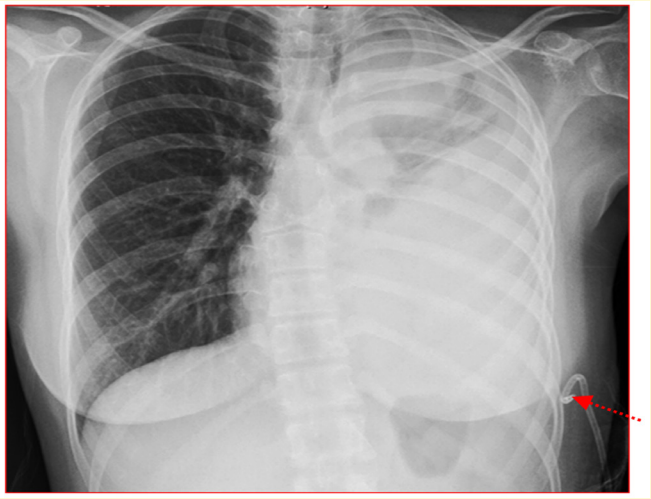

Fig 8. Frontal Chest Radiograph showing Pleural Pigtail Catheter not insitu.

MEDIASTINAL DRAINAGE TUBE (MDT):

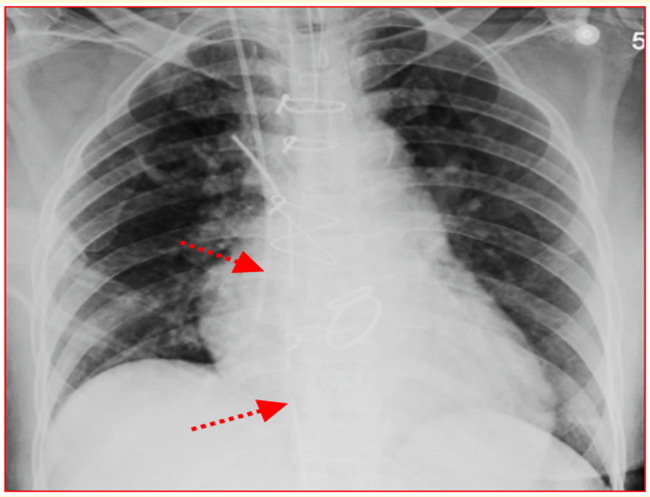

Fig 9. Frontal Chest Radiograph showing MDT insitu.

CENTRAL VENOUS LINES:

A central venous catheter is ideally positioned in the superior vena cava for monitoring pressure or infusion of medication. These are inserted through major veins such as the subclavian, internal jugular, or femoral veins into the superior vena cava.

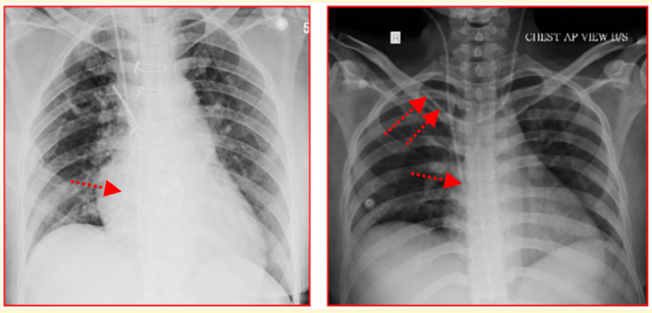

Fig 10. Frontal Chest Radiographs showing Central Line not insitu (A) tip is in Right Atrium, (B) right sided Central line tip is in right atrium and left sided central line tip is in right Subclavian vein.

CHEMOPORT:

Ideally, tip of the Chemoport must be in the SVC.

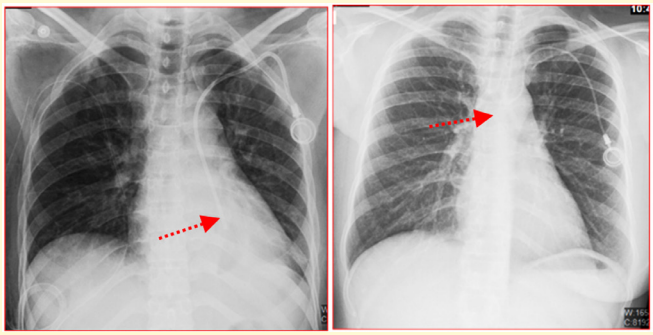

Fig 11. Frontal Chest Radiographs showing Chemoport (A) in mediastinum (not insitu) and (B) repositioned (tip in SVC).

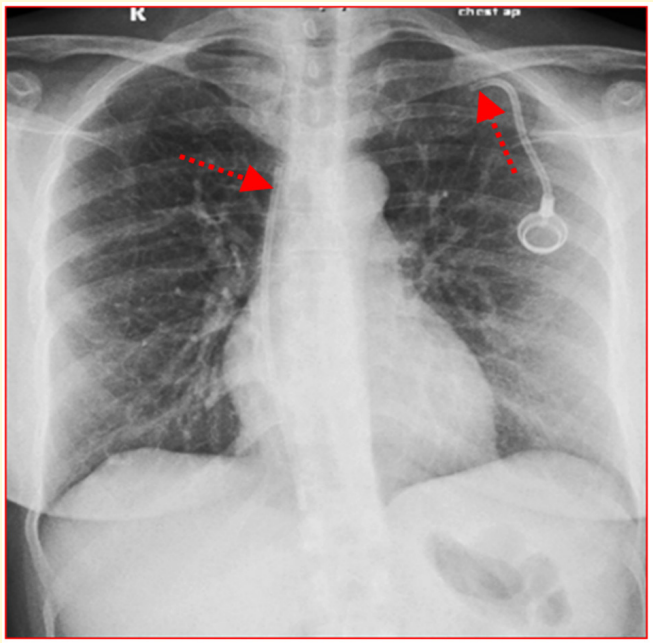

Fig 12. Frontal Chest Radiograph showing Broken Chemoport

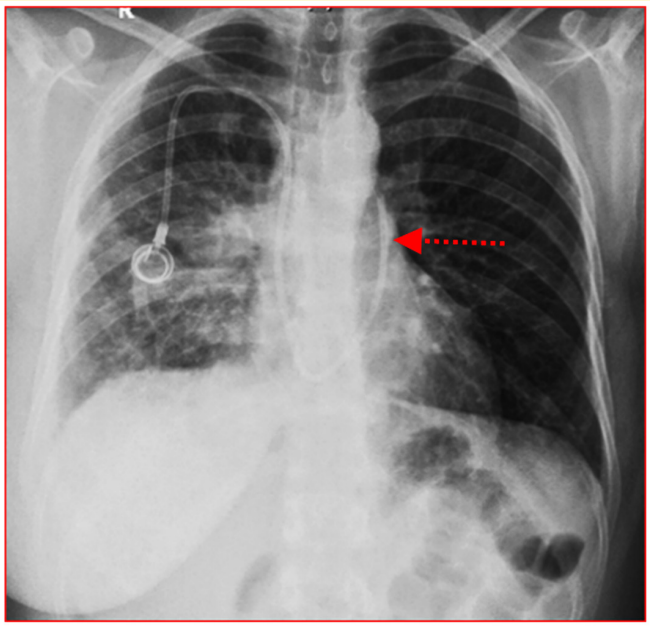

Fig 13. Frontal Chest Radiograph showing Chemoport in Main Pulmonary Artery.

PERIPHERALLY INSERTED CENTRAL CATHETER (PICC):

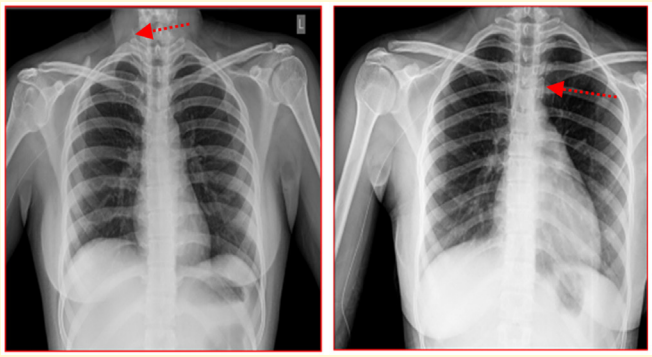

Fig 14. Frontal radiographs showing malpositioned PICC. The tip of the PICC in (A) Right jugular vein, (B) left innominate vein.

INTRA-AORTIC BALLOON PUMP (IABP):

The IABP tip is identified by a radiopaque marker. The tip should be positioned in the proximal descending thoracic aorta, just below (i.e., 2.0 cm) the left subclavian artery take-off.

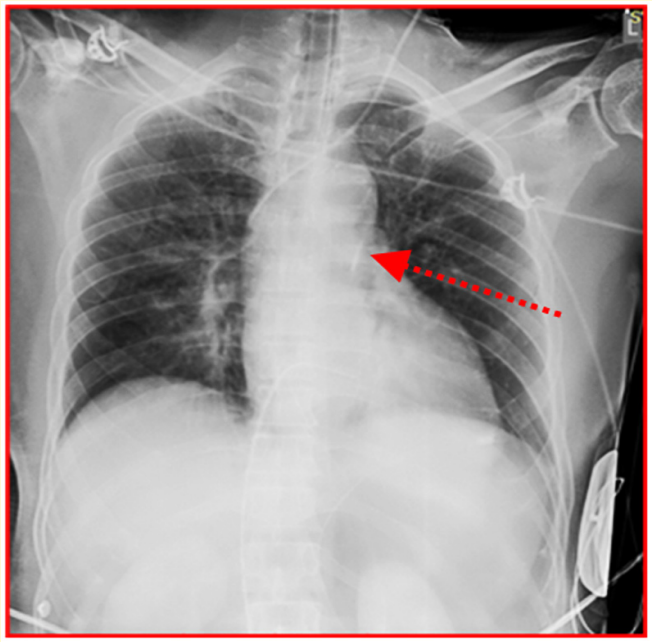

Fig 15. Frontal Chest Radiograph showing IABP insitu

SWAN GANZ CATHETER (SGC)

Flow directed balloon tip catheter. Balloon is inflated within the left or right main pulmonary artery to measure the capillary wedge pressure and pulmonary artery pressure.

PERMANENT PACEMAKER:

Ideal position of the permanent pacemaker is that the tip of the pacemaker must lie in the right ventricle.

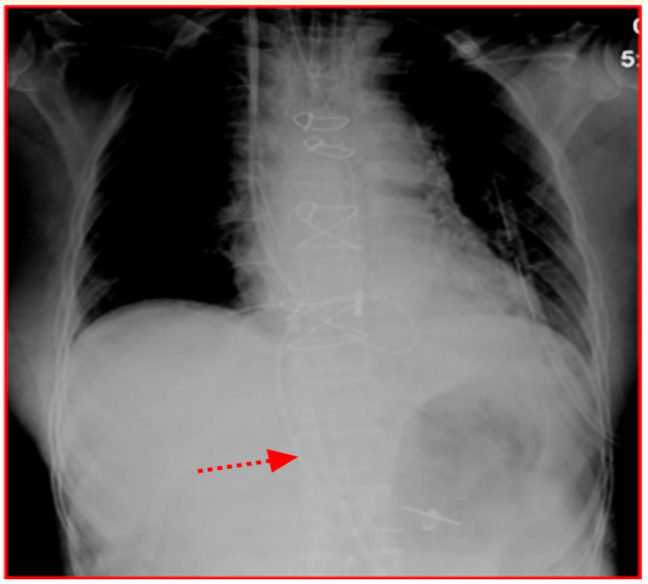

Fig 16. Frontal Chest Radiograph Showing SGC in Inferior Vena Cava (IVC)

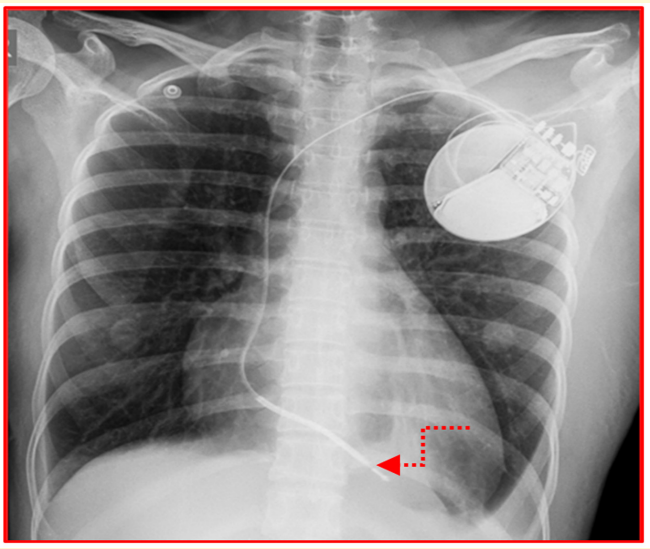

Fig 17. Chest Radiograph showing single-lead Permanent pacemaker with tip of lead in right ventricle (insitu).

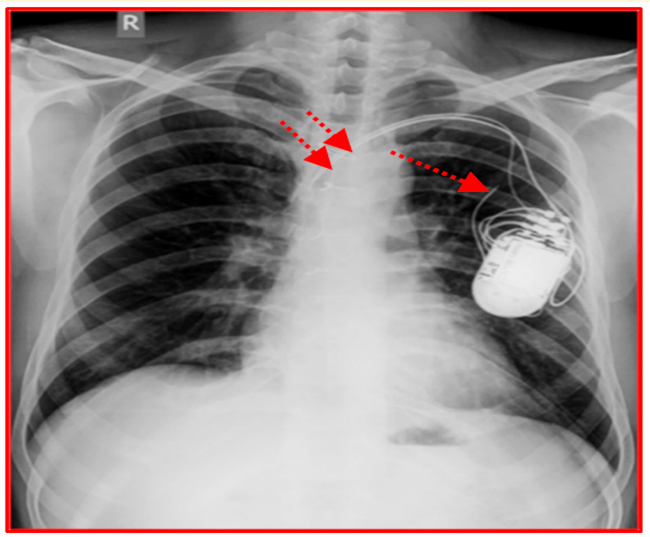

Fig 18. Frontal radiograph showing permanent cardiac pacemaker leads pulled and deactivated.

VENO VENOUS ECMO CANNULATION:

ECMO (extracorporeal membrane oxygenation) is a type of artificial life support that can help patients whose lungs and heart aren't functioning adequately.

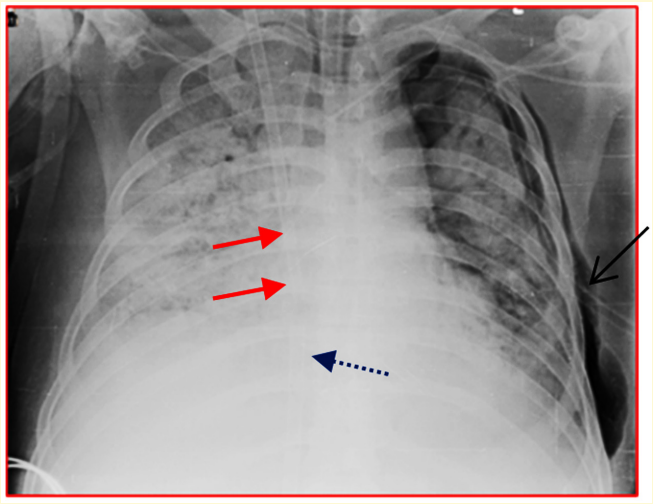

Fig 19. VV ECMO double cannula technique, draining cannula tip in IVC (⇣), returning cannula tip in RA (⇢). Also seen is Left pneumothorax and ICDT (whose side-holes are in subcutaneous plane giving rise to subcutaneous emphysema {⇠}).

CONCLUSION:

The assessment of lines and tubes requires a well-positioned CXR as part of the post procedural plan. Confirming the correct position of lines and tubes prior to their use ensures patient safety and effective treatment is achieved, helping to reduce post procedural complications.

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A CASE REPORT OF NEUROFIBROMATOSIS 2:

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[1]Resident, [2]Associate Professor, [3]Associate Professor, [4]Associate Professor, [5]Professor, [6]Professor and HOD of Dept of Radiodiagnosis, SVS medical college.

Dr. Manasa Pagidipally
SVS Medical College

A 44-year-old male came with chief complaints of giddiness, intermittent headache and vomitings since 2 weeks. Patient also had complaints of bilateral tinnitus and hearing loss since 1 week. He had past history of right sided bell's palsy which is relieved on medication. No history of fever, seizure or trauma.

IMAGING FEATURES:

On MRI:Axial sections of brain show-

A. i) FLAIR ii) SWI

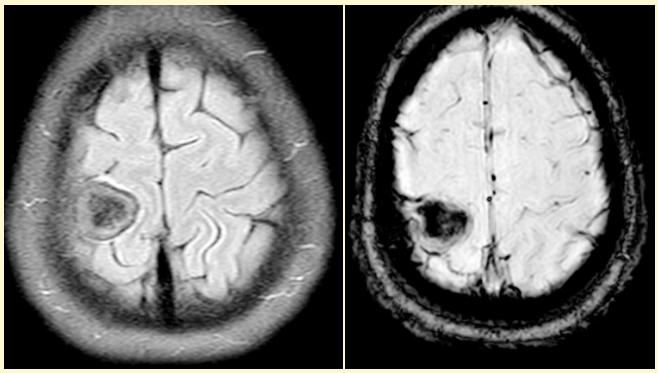


Image A (I &II)- A broad based, well defined lobulated, extraaxial lesion in right frontal region which is heterointense with predominant central hypointense area and peripheral mild hyperintense rim, showing bloomings on SWI.

B. C.

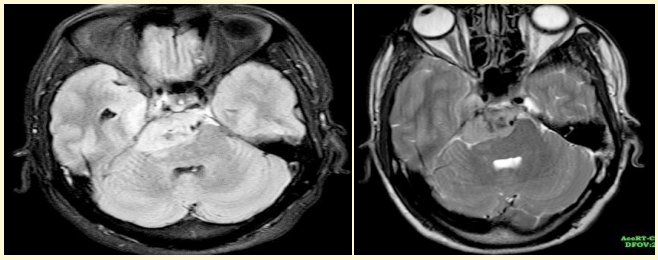


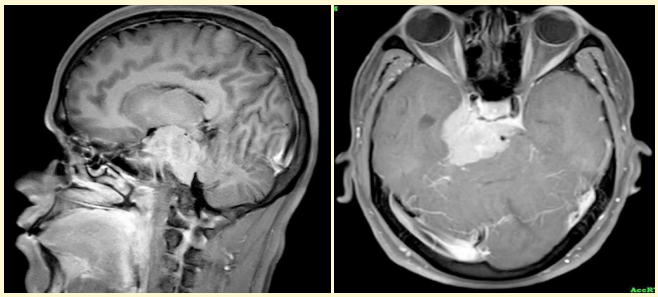
Image B- A well-defined lobulated lesion with broad base towards clivus with epicentre in prepontine cistern, extending into Meckel's cave.

C-Two well defined lesions in bilateral cerebello-pontine angle cisterns extending into internal auditory canals showing intense homogenous contrast enhancement.

ON CEMRI:

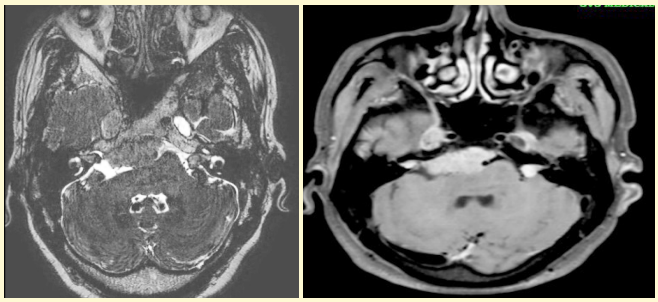
On Post-contrast T1W Images:

D. E.



- Image D&E- Homogenously enhancing extraxial lobulated broad based lesion towards clivus with epicentre in prepontine cistern with dural tail, indicating Right trigeminal schwannoma.

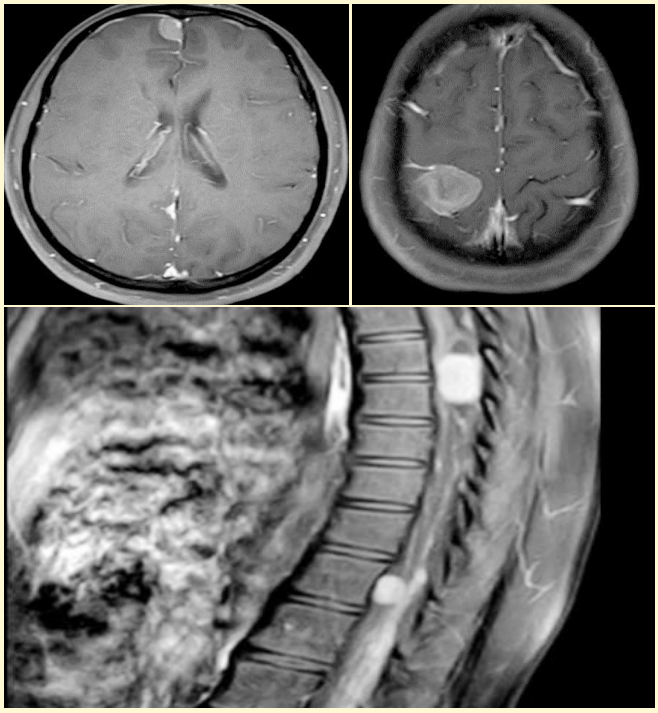
F. G.



- T2W 3D Drive and 3D T1W FS TRA sequences show (Image F&G)- Intense homogenously enhancing, extra-axial lesions in cerebello-

pontine angle cistern bilaterally producing "ice cream on cone appearance" indicating Bilateral Vestibular Schwannoma.

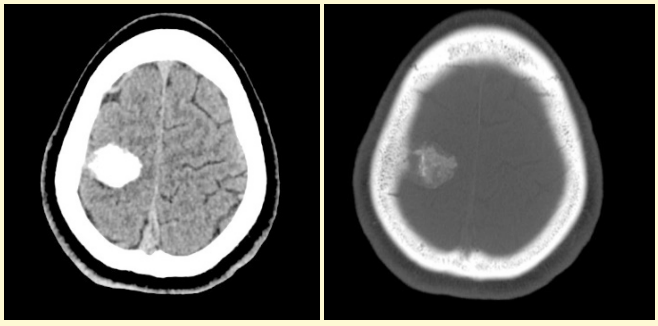
H. I. J.



- Image H&I - Two intense homogenously enhancing extra-axial broad based lesions with CSF cleft sign (one in right para-falcine region of right frontal region and other one in right high frontal region) indicating Non calcified meningioma in right para-falcine region of right frontal lobe and calcified meningioma in right high frontal region.
- Post contrast T1W sagittal section of Dorsal spine show (Image J)- Multiple intensely enhancing, intradural, extramedullary lesions noted in entire spine, showing dural tail sign – Likely Schwannoma.

CT axial sections -

K. i) ii)



ImagesK(I &II)-Single, well defined, hyperdense area in right high frontal region with CT attenuation value of 1000 to 1100 HU indicating calcified lesion (which corresponds to meningioma on MRI-post contrast)

DISCUSSION:

Although our patient had no family history, the image findings of bilateral vestibular schwannoma, meningioma and extra medullary tumour (shwannoma), suggested the diagnosis of NF2.

Neurofibromatosis type 2 (NF2) is a rare autosomal dominant neurocutaneous disorder with presence of bilateral vestibular schwanommas. Patients develop nervous system tumours (schwannomas, meningiomas, ependymomas, astrocytomas, and neurofibromas), peripheral neuropathy, ophthalmological lesions (cataracts, epiretinal membranes, and retinal hamartomas), and cutaneous lesions (skin tumors).

ETIOPATHOGENESIS:

NF2 is rare with an estimated prevalence of 1:50,000 and usually presents in young adults (age 18-24 years) of patients with NF2, 50% have an affected parent (autosomal dominant inheritance) and 50% having a denovo mutation.

It is a dominantly inherited tumour predisposition syndrome caused by mutations in the NF2 gene on chromosome 22. More than 50% of patients represent new mutations and as many as one-third are mosaic for the underlying disease-causing mutation.

DIFFERENTIAL DIAGNOSIS LIST:

Neurofibromatosis type 1
Meningiomatosis

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Dr. Sankeerth Kendyala
NIMS

IgG4-Related Retroperitoneal Fibrosis (RPF) with Secondary Periarteritis and Inflammatory Pseudotumor: A Case Report Emphasizing Imaging Features

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[2]Senior Professor & Head, Unit II, Department of Nephrology,
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Introduction:

IgG4-related disease is a systemic condition encompassing a spectrum of fibro-inflammatory disorders characterized by extensive infiltration of various organs by IgG4-positive plasma cells and T lymphocytes, leading to tissue fibrosis with obstructive phlebitis[1]. The disease typically affects elderly males and is often associated with elevated serum IgG4 levels. Clinically, it primarily affects organs such as the pancreas (manifesting as autoimmune pancreatitis), bile ducts (resulting in IgG4-related sclerosing cholangitis), gallbladder (causing IgG4-related sclerosing cholecystitis), salivary glands (leading to IgG4-related sialadenitis), retroperitoneum (culminating in IgG4-related retroperitoneal fibrosis), kidneys (associated with IgG4-related tubulointerstitial nephritis), lungs (presenting as IgG4-related interstitial pneumonia), and prostate (inducing IgG4-related prostatitis). Inflammatory pseudotumors of the liver, lung, and pituitary gland may also be involved. Treatment with steroids is frequently effective, although differentiation from malignant tumors is critical. Despite extensive research and advancements, the precise pathogenesis and pathophysiology of this condition remain elusive [2].

Retroperitoneal fibrosis (RPF) is a rare manifestation, often causing ureteral obstruction and hydroureteronephrosis. In rare incidences, IgG4-related disease can present as a solitary mass lesion and can pose a diagnostic challenge since these lesions mimic malignancy. Herein, we present a rare case of IgG4-related disease presenting as retroperitoneal fibrosis with secondary periarteritis and inflammatory pseudotumor.

Case Report:

A 23-year-old female, residing in Latur, India, presented with a complex medical history. She is a homemaker with no significant prior medical conditions and reported experiencing intermittent abdominal pain over the past two months, with a recent episode of colicky right hypochondriac pain. She denied any previous urinary complaints weight loss or menstrual irregularities. Physical examination was unremarkable, except for mild tenderness in the right hypochondriac region.

Laboratory investigations revealed an elevated serum creatinine level of 2.8mg/dL (normal range: 0.8–1.3 mg/dL) indicating a significant impairment in kidney function. Given the elevated serum creatinine, further evaluation was initiated. Initial ultrasound examination revealed an ill-defined soft tissue lesion encasing the aortic bifurcation and bilateral common iliac arteries. This encasement extended to involve the distal portions of the ureters, which was suggestive of retroperitoneal fibrosis resulting in bilateral mild to moderate hydroureteronephrosis. Additionally, a hypoechoic intra-abdominal mass lesion was observed in the pelvic region below the umbilicus, suggestive of a benign neoplastic lesion. Mild bilateral perinephric collections were also noted.

Subsequent contrast-enhanced computed tomography (CECT) provided detailed imaging findings. Circumferential soft tissue density mass-like wall thickening of the distal aorta, measuring approximately 9 mm at its thickest point and 4.6 cm above aortic bifurcation, with progressive enhancement across arterial, venous, and delayed phases, was observed. This thickening extended along bilateral iliac arteries, encasing the ureters at the pelvic brim and leading to bilateral hydroureteronephrosis. Similar soft tissue density areas were noted in the right perirenal space,

displaying progressive enhancement. Additionally, CT scan identified an enhancing mesenteric pelvic mass, measuring approximately 2.7 x 2.3 x 3.2 cm, requiring further investigation to determine its nature. The differentials of IgG4 disease, Lymphoma and Erdheim-Chester disease were considered.

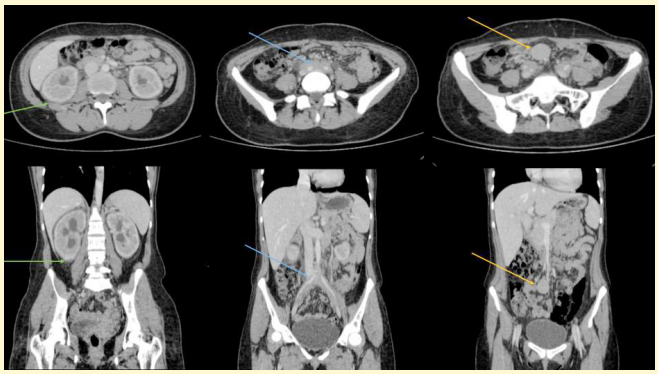

Figure 1: A 23-year-old female with IgG4-related retroperitoneal fibrosis and associated secondary periarteritis with inflammatory pseudotumor, presenting with intermittent abdominal pain. Axial and coronal post-contrast images showing enhancing gross soft tissue density circumferential wall thickening of distal aorta above bifurcation, causing infiltration/ encasement of bilateral ureters and bilateral hydroureteronephrosis(blue arrows). Lesions showing similar attenuation and enhancementwere noted in bilateral perirenal spaces(green arrows) and in pelvis, adjacent to bifurcation(orange arrows).

Positron emission tomography-computed tomography (PET-CT):Increased FDG uptake was noted in the parotid and submandibular glands, a mesenteric pelvic mass measuring 2.3 x 3 cm with SUVmax-10.6, right perirenal soft tissue and retroperitoneal mass-like circumferential wall thickening encasing the distal abdominal aorta and bilateral common iliac vessels. These findings were in favour of IgG4 disease.

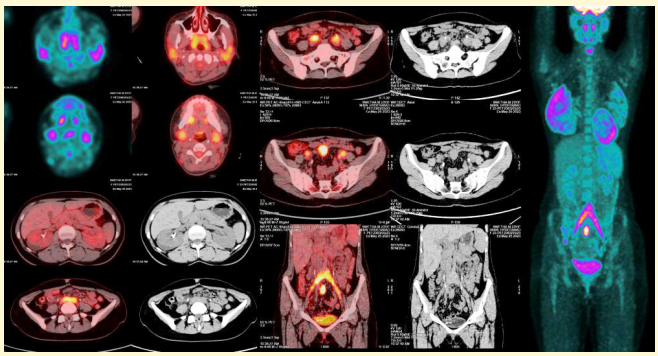

Figure2: A 23-year-old female with IgG4-related retroperitoneal fibrosis and associated secondary periarteritis with inflammatory pseudotumor, presenting with intermittent abdominal pain.. Axial, coronal and superimposed PETCT images showing metabolically active parotid and submandibular glands, mesenteric pelvic mass, right perirenal soft tissue and retroperitoneal mass like circumferential wall thickening encasing the distal abdominal aorta and bilateral common iliac vessels.

Fine-needle aspiration cytology (FNAC) from the mesenteric mass revealed a diffuse population of lymphoid cells, immunoblasts, macrophages, a few endothelial cells, and lymphoglandular bodies with a hemorrhagic background. The absence of granuloma, lymphoma, or malignancy suggests a reactive process rather than a specific infection or cancer, indicating it to be an inflammatory pseudotumor due to reactive hyperplasia.

Additional laboratory results revealed significantly elevated levels of serum IgG, measuring 1658 mg/dL (normal range: 700-1600mg/dL), and IgG4 concentration at 304 mg/dL (normal 2–120mg/dL), indicating an underlying autoimmune process. Furthermore, an elevated serum hs-CRP level of 29.2 mg/dL (normal range: <=5mg/L) was detected, indicating an intensified inflammatory response within the body. These findings underscore the potential presence of systemic inflammation, likely IgG4 disease.

The patient was treated with rituximab (1g times 2 doses) following an insufficient response to steroid therapy and was successfully tapered off prednisone in the following 3 months. For hydronephrosis, bilateral DJ stents were placed and were regularly exchanged. By 5 months, the patient's serum creatinine levels decreased and reached 0.7mg/dL and serum IgG4 concentration had decreased from 304 to 186mg/dL.

She experienced another disease flare at 9 months and entered clinical remission with a normal serum IgG4 level following a second rituximab course. Over the next few days, she was admitted because of hypotension, urosepsisandventricular fibrillation. She ultimately died of cardiac arrest.

Discussion:

IgG4-related RPF is a rare autoimmune disease characterized by the accumulation of abnormal tissue containing IgG4-positive immune cells. In this case, the disease affected the tissue surrounding the aorta and iliac arteries (periarteritis) and caused fibrosis in the retroperitoneal space, leading to significant kidney dysfunction.

IgG4-Related Disease often presents with homogeneously enhancing, mass-like enlargement of salivary or lacrimal glands and may exhibit homo/heterogeneous lymphadenopathy, which can

overlap with imaging findings seen in lymphoma and metastasis. Lymphadenopathy in IgG4-Related Disease may show necrotic changes but lacks specific features. Additionally, enlarged, homogeneously enhancing salivary and lacrimal glands can be observed, further complicating the differentiation from lymphoma and metastasis. In contrast, lymphoma typically manifests as homogeneous bilateral lymphadenopathy, with lymph node sizes often exceeding 10 mm in the short axis. Specific imaging features such as loss of fatty nodal hilum, necrosis with peripheral enhancement, indistinct nodal margins and signs like "sandwich" sign and "floating aorta" sign, etc further aid in distinguishing lymphoma from other conditions. Metastasis, on the other hand, presents with irregular, necrotic masses, irregular or homogeneous nodal enhancement, and irregular morphology, often with a round shape, architectural abnormalities, loss of normal fatty hilum, heterogeneous parenchymaand elevated apparent diffusion coefficient (ADC) values on DWI. Symptoms like fever, night sweats and weight loss, bone involvement, brain parenchymal involvement, and hypercalcemia are rare in IgG4-Related Disease, they are more commonly associated with lymphoma and metastasis.[4]

Erdheim-Chester Disease represents a multisystem rare non-Langerhans histiocytic disorder, characterized by widespread bony involvement with symmetrical sclerotic lesions. It is associated with various extraskeletal manifestations such as yellow periorbital Xanthelasmas, exophthalmos (may occur in a quarter of patients), involvement of the thoracic and abdominal aorta (more prevalent) appearing as circumferential soft tissue rind around thoracoabdominal aorta("coated aorta" appearance), minimally enhancing hypodense homogenous perinephric tissue infiltration leading to 'hairy kidney' appearance and can also infiltrate into mediastinum and retroperitoneum mimicking retroperitoneal fibrosis[5]. In contrast, IgG4-related Disease is a multisystem autoimmune disorder with rare occurrences of bony involvement, primarily restricted to cases of IgG4 angiocentric eosinophilic fibrosis of the head and neck. Skin involvement is infrequent and often presents as a subset of cutaneous pseudo lymphoma affecting various areas such as the scalp, face, neck, and pinna of the ear. Commonly affected sites include major salivary glands (parotid, submandibular), and lacrimal glands, with a preference for involvement of the abdominal aorta, particularly its infrarenal portion. Imaging typically reveals multiple round or wedge-shaped enhancing low-density lesions.[6]

This case report highlights the importance of considering IgG4-related RPF in a young woman presenting with abdominal pain and elevated serum creatinine. The combination of imaging findings suggestive of retroperitoneal fibrosis with ureteral encasement, elevated serum IgG levels, and the suggestive features on FNAC led to the diagnosis of IgG4-related Retroperitoneal Fibrosis (RPF) with secondary periarteritis and inflammatory pseudotumor.

Conclusion:

This case underscores the diagnostic challenges and multidisciplinary approach required for managing rare conditions such as IgG4-related retroperitoneal fibrosis and associated secondary periarteritis with inflammatory pseudotumor. Detailed imaging evaluation and histopathological confirmation are crucial for accurate diagnosis and tailored therapeutic interventions. Ongoing monitoring is essential to ensure treatment response and optimize patient outcomes.

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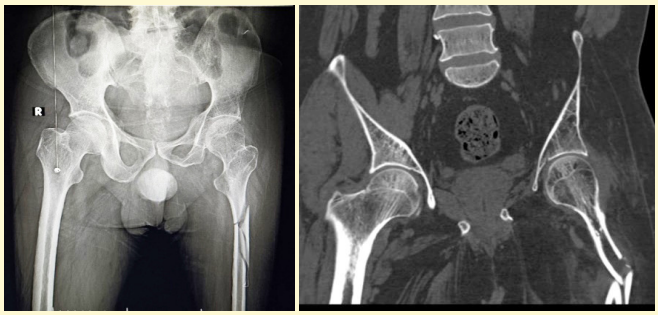
Dr. Kallu Praneeth
SVS Medical College

A CASE REPORT OF POST TRAUMATIC PULMONARY THROMBO EMBOLISM WITH INCIDENTAL COARCTATION OF AORTA:

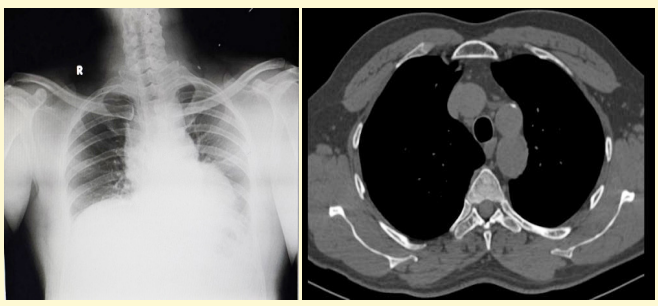
Dr. Kallu Praneeth[1], Dr. Sandeep Madineni[2], Dr. Geethika Mandepudi[3], Dr. Subhash Reddy Doni[4], Dr. K. Venkat Ram Reddy[5], Dr.G.Ramakrishna Reddy[6]

[1]Resident, [2]Associate professor, [3]Associate professor, [4]Associate professor, [5]Professor, [6]Professor and HOD of Dept of Radiodiagnosis, SVS medical college.

A 45-year-old male presented to the emergency department after a RTA. The patient was admitted for management of fracture and over the next few hours developed progressively worsening shortness of breath. Upon arrival he was afebrile, and had an O2 saturation of 90% on room air. Neurologic evaluation revealed a Glasgow Coma Score of 15 and no focal neurologic deficits. Clinically blood pressure recordings in upper limb was 170/110mm Hg while in lower limbs was 110/80mm Hg. History of polio since childhood. On performing HRCT patient wasincidentally diagnosed with coarctation of aorta and on performing CT angiogram there was evidence of thrombus in the pulmonary artery.

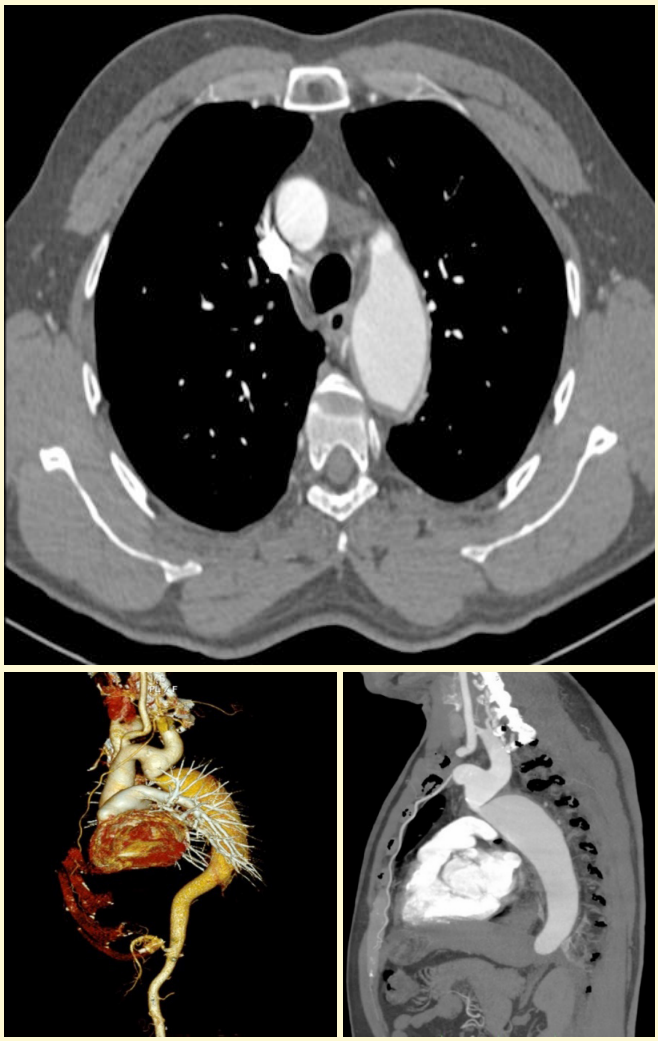


Xray& CT pelvis andthigh:Comminuted fracture of proximal shaft of left femur.



Plain radiograph: Figure of 3 sign -Hyper trans radiant right upper zone with focal attenuation of vascular markings. HRCT chest: Focal stenosis of aorta noted approximately 3.5 cm from the origin of left subclavian artery with post-stenotic dilatation. Left ventricular hypertrophy

CT ANGIOGRAM:

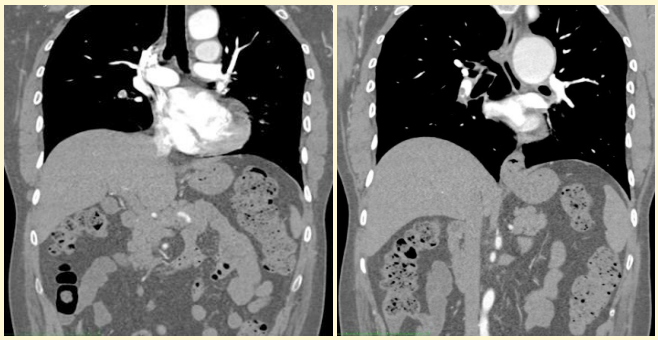


CT angiogram:

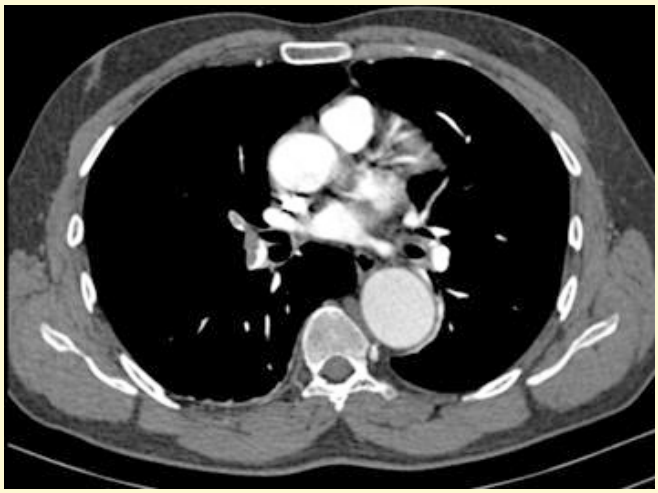
On post contrast study- Post stenotic part of aorta shows lower CT attenuation of

330 HU when compared to pre stenotic part CT attenuation of 430 HU -S/o suboptimal passage of blood through stenotic part.Mild wall thickening in the post stenotic part of aorta.

Filling defect seen at the division of right main pulmonary artery extending into lobar arteries- Suggestive of Saddle thrombus of main pulmonary artery.



DISCUSSION:



The imaging features are suggestive of coarctation of aorta and pulmonary thromboembolism.

Coarctation of the aorta (CoA) is typically a discrete narrowing of the thoracic aorta just distal to the left subclavian artery. Aortic coarctation usually recognized in the adult, because of systemic arterial hypertension and discrepant upper- and lower-extremity pulses.

ETIOPATHOGENESIS:

The most common etiology of coarctation of the aorta is constriction of the aorta in the region of the patent ductus arteriosus or ductal ligamentum. The ductal tissue is thought to cause constriction in the adjacent region of the aorta. This narrows the lumen of the aorta. Coarctation of the aorta causes an increase in the upper extremity blood pressure, resulting in two common presentations. The first is the neonatal presentation that is associated with left ventricular dysfunction and shock from the neonatal myocardium's intolerance of the sudden increase in afterload that occurs with closure of the ductus arteriosus. This presentation often occurs within the first one to two weeks after birth. In patients with neonatal coarctation evolving while the patent ductus arteriosus is closing, the lower extremity saturation can be low as perfusion to the lower body can be maintained by ductal patency. In the era of lower extremity pulse oximetry screening in newborns, a neonate could often pass with an acceptable saturation as it is less common for the ductus to contribute significantly unless other left heart structures are hypoplastic. The second presentation occurs in older children and adults. Coarctation of the aorta in this scenario results in upper extremity hypertension, leading to early coronary artery disease, aortic aneurysm, and cerebrovascular disease.

IMAGING FEATURES:

Xray pelvis and thigh: Comminuted fracture of proximal shaft of left femur.

Plainradiograph: Figure of 3 sign.Hyper transradiant right upper zone with focal attenuation of vascular markings.

HRCT chest:Focal stenosis of aorta noted approximately 3.5 cm from the origin of left subclavian artery with post-stenotic dilatation.

- Diameter of pre stenotic arch of aorta - 3.3 cm.
- Diameter of the stenotic segment - 0.8 cm.
- Diameter of post-stenotic dilated proximal descending aorta 4.5 cm.

Left ventricular hypertrophy.

CT angiogram:

On post contrast study- Post stenotic part of aorta shows lower CT attenuation of 330 HU when compared to pre stenotic part CT attenuation of 430 HU S/o suboptimal passage of blood through stenotic part. Mild wall thickening in the post stenotic part of aorta.

Filling defect seen at the division of right main pulmonary artery to lobar arteries- Suggestive of Saddle thrombus of main pulmonary artery.

DIFFERENTIAL DIAGNOSIS:

- Pseudo coarctation of aorta
- Chronic large vessel arteritis

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ACADEMIC ACTIVITIES OF IRIA TS CHAPTER

Monthly Meeting on 12th April, 2024 at Yashoda Hospital Secunderabad

DR. GYAN P. LAL CME on 11th & 12th May, 2024 at Basavatarakam Indo American Cancer Hospital

Organized by: Indian Radiological & Imaging Association
Conducted by: Indian College of Radiology and Imaging
Hosted by: Telangana State Chapter IRIA

Monthly Meeting on 14th June, 2024 at Apollo Medical College

TELANGANA STATE CHAPTER OF IRIA ACADEMIC SCHEDULE FOR THE YEAR-2024

1 *21st & 28th July, 2024*
23rd Hyderabad Annual Radiologic Physics Course (HARP) - Online

2 *9th August, 2024 - Monthly Meeting*

3 *13th September, 2024*
September, 2024 - Monthly Meeting
Webinar - Online

4 *25th - 27th October 2024*
10th State Annual Conference
(Michigan University Team)

5 *16th & 17th Nov, 2024*
MSK Conference with workshop
Kamineni Hospitals LB Nagar

6 *8th December, 2024*
December,2024 - Outreach program
Webinar Warangal - Online

7 *15th & 22nd Dec, 20248th Radiologic Anatomy Course (RAC) - Online*

8 *8th Kakatiya Academy of Radiology Education Program (KARE) will be decided later depending on the exams of PGS*

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