



Radiologists Eye

*Center of Excellence in Radiology
and Imaging Sciences*

Acknowledgements

I express my gratitude to Dr. P.M. Venkata Sai, Dr. R. Rajeswaran and Dr. Bhavna Dev for giving me the opportunity and encouraging me in preparing the newsletter.

I gratefully acknowledge the hardwork & high spirit of the editorial team of Dr. Nishita Goyal, Dr. Preetha.N, Dr. Ujjwal Gupta, Dr. Risham Mahajan and Dr. Rajeshwar Balaji.

I sincerely thank all the faculties, my colleagues and all the post-graduates and Allied Health Sciences students who have provided us with their unique contributions.

This edition of Newsletter -Radiologist's Eye hopes to reignite the tradition of catching up with the hustle bustle within the department.

With a pinch of extra flavour to cater the curious sides of your mind.

We hope that we have done justice to both your contributors as well as the readers.

*-Dr. Sanjivane Ingole
Chief Editor*



*Hearty Congratulations to Dr. R. Rajeswaran for
stepping up to the post of the head of the department of
radiology*

Pillars of the bulletin



Dr. Venkata Sai P.M.
Professor, MBBS, DNB, PhD

This innovative idea of newsletter was the brainchild of our esteemed professor. The present bulletin would not have been possible without his constant support and guidance



Dr. Bhawna Dev
Professor, MBBS, MD Radiology, DNB

With her wonderfully creative mind, added the much needed stupendousness.



Editorial Team



Chief editor: Dr. Sanjivane Ingole, MBBS, MD Radiology, Fellow in Breast imaging and Intervention (2021 batch)

Editorial team: Dr. Preetha N, Dr Ujjwal Gupta, Dr.Nishita Goyal, Dr. Risham Mahajan, Dr. Rajeshwar Balaji (2020-2023 batch)



Wall of Fame



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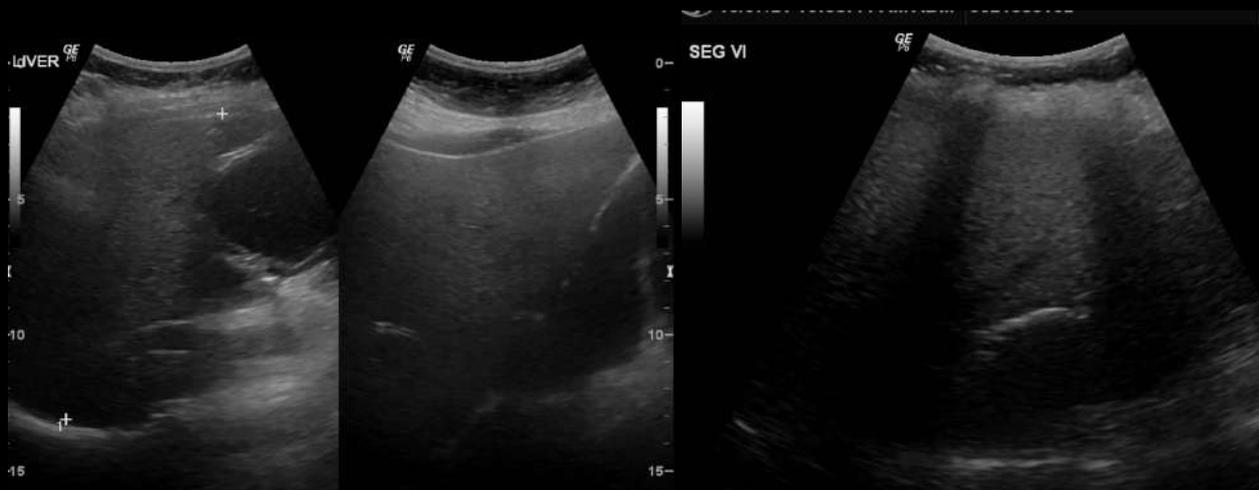


Interesting cases

1. INTRAHEPATIC GALL BLADDER

HISTORY: A thirty-nine-year-old woman presented to the outpatient department with upper abdomen pain for the past 3 days associated with 3 episodes of vomiting. On palpation mild tenderness was noted on the right hypochondriac.

IMAGING:



Ultrasound abdomen : Liver shows non visualization of the gall bladder in the GB fossa (star) and a calcific focus (arrow) in segment V/VI of liver suggesting a possibility of intrahepatic gall bladder with gall stones.



Axial and reformatted CECT abdomen: In venous phase at the level of the liver shows a contracted ectopic gall bladder (curved arrow) in the sub capsular region along the posterior inferior margin of segment VI of right lobe of liver. Multiple coalescent calculi are seen filling the entire lumen of the gall bladder.

DIAGNOSIS: Based on the clinical symptoms and the imaging findings a possibility of ectopic gall bladder with cholelithiasis was suggested. The patient was advised for surgical intervention. Laparoscopic cholecystectomy was done and intra-operative findings showed an ectopic gall bladder which was seen posterior to the hepato-duodenal ligament.

DISCUSSION:

Ectopic gall bladder is a rare congenital anomaly which leads to clinical confusion and imaging misinterpretation especially when the gall bladder is contracted or poorly distended due to improper fasting. It has an incidence of approximately 0.1 – 0.7 per cent in the general population. The clinical symptoms are nonspecific and do not correlate with symptoms seen in acute cholecystitis as the gall bladder is ectopic in location and often delays the diagnosis.

Ectopic gallbladder has been classified into four types, out of which the most common type is seen beneath the left lobe of the liver and to the left of the falciform ligament. Other types of ectopic gall bladder include the retro-placed (i.e., directly behind the liver or in the retroperitoneal space) intra hepatic, transversely positioned gall bladder. Seldom, it has been seen in the lesser omentum, falciform ligament, the retro-duodenal area, within the abdominal wall muscles, and within the thorax .

The gall bladder normally develops from a diverticulum arising from the ventral foregut. This diverticulum further divides into cranial and caudal parts, amidst which the caudal portion forms the gall bladder and the extra hepatic bile ducts. An ectopic gall bladder is due to congenital arrest or an abnormal development which prevents the gallbladder from moving from its intra hepatic position into its normal superficial location between the left and right lobes .

Intra hepatic gall bladder is completely or partially embedded within the hepatic parenchyma, resulting in impaired function and gallstone formation due to incomplete emptying and stasis as seen in our case. US and CT can help in identifying the ectopic location of gall bladder outside its normal anatomical fossa.

A good understanding of the complex anatomy combined with the knowledge of common imaging helps in the accuracy of diagnosing such a rare anomaly, in turn aiding the clinician for appropriate surgical management.

-Rajoo Ramachandran

MBBS MDRD

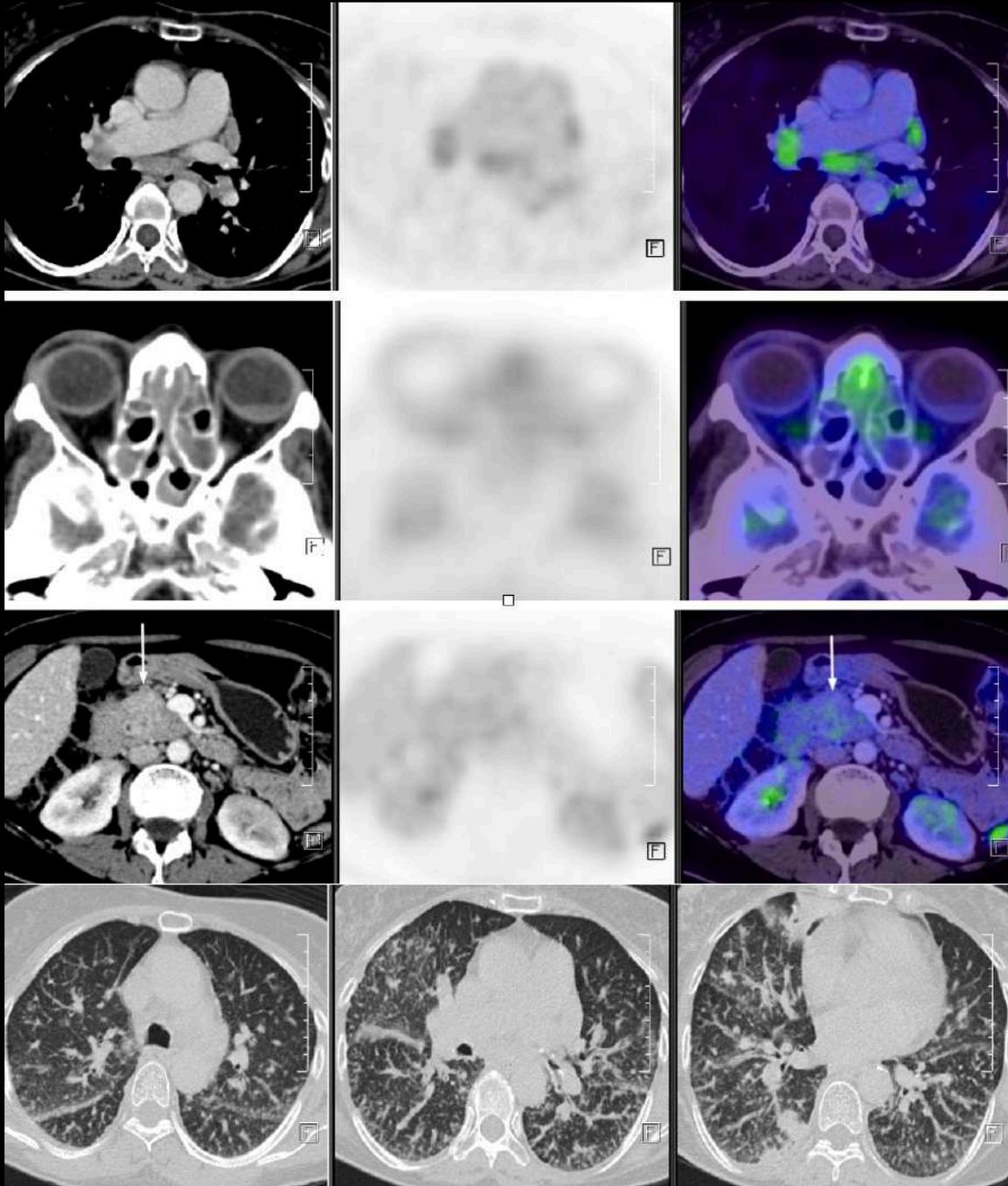
Associate Professor, Department of Radiology SRIHER

2.

IgG-4 DISEASE

HISTORY: 60 year old female C/O cough and shortness of breath since 2 months. CT thorax was suggestive of Tuberculosis or Lymphangitis carcinomatosa in view of reticulonodular densities and patchy consolidation. PET-CT was done for further evaluation.

PET CT IMAGING:



1. Diffuse reticulonodular densities along the fissures, peribronchovascular interstitium

2. Non FDG avid hyperdense lesion seen along the Vitreous chamber of right eye
Correlative MRI shows bilateral Vitreous haemorrhage with mild focal thickening near the left optic disc

3. Patchy consolidation in the medial, lateral segment of right middle lobe

4. Minimal Intra hepatic biliary radicals (IHBR) dilatation

Correlative MRI shows restricted diffusion surrounding the course of the intra-hepatic bile ducts

5. Enlarged mildly FDG avid lymph nodes in supra and infra-diaphragmatic regions

6. Non FDG avid mildly enhancing lesion localised in the head of pancreas with dilated pancreatic duct (4 mm) showing abrupt cutoff in the head region

7. Multiple non enhancing areas in bilateral kidneys

Correlative MRI shows areas of restricted diffusion

Differentials on PET-CT:

Pancreatic malignancy/ Cholangiocarcinoma (with uveal, renal and lung metastases)

Sarcoidosis

Histopathology from axillary node:

Lymphoid tissue with reactive changes. No evidence of carcinoma/ lymphoma. Reactive cells are positive for Vimentin, CD45, CD3, CD20. CK and IgG4 are negative. Possibility of IgG4 disease cannot be ruled out.

Biochemical investigations:

IGG 4 SUBCLASS-42.9 (With Dilution) - elevated

CA 19-9, Calcium and ACE were normal.

Final diagnosis: IgG-4 disease

-Dr. Pallavi Mannan

MBBS MDRD

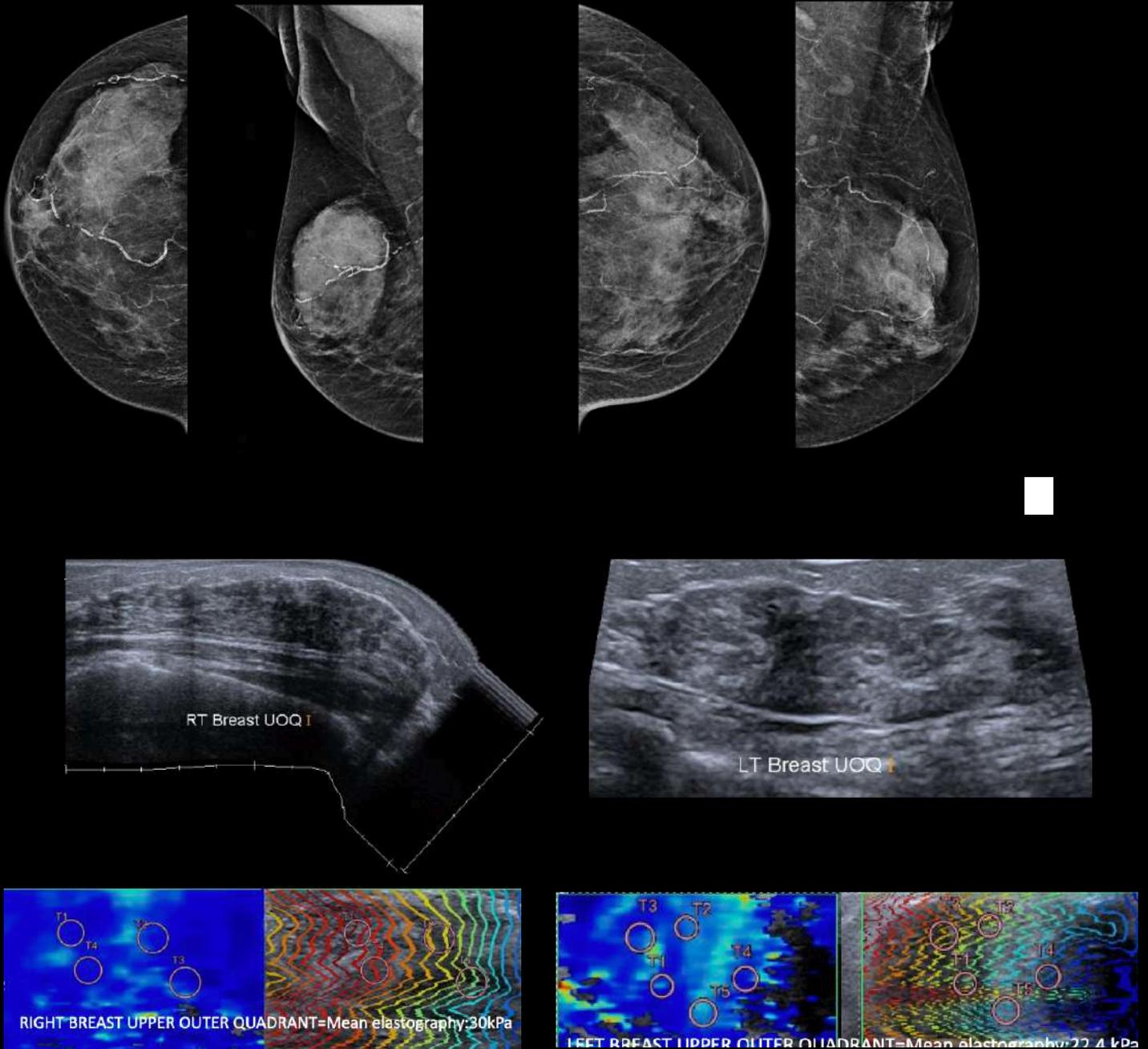
Fellow in PET Imaging (2021 January batch)

3. PSEUDOANGIOMATOUS STROMAL HYPERPLASIA OF BREAST

HISTORY: 61 year old female came with c/o lump in both breasts since 1 year. No family history of breast cancer.

O/E: An irregular, hard, mobile mass noted in bilateral upper outer quadrant. No palpable axillary lymph nodes.

IMAGING:



X-ray Mammogram:An irregular high density lesion with partially obscured margins noted in upper outer quadrant of both breasts Vascular calcification is noted.

Radiologist's Eye

Right breast: An area of heterogenous echogenicity appearing soft on elastography with mean elasticity of 30.9 kPa was noted in the upper outer quadrant of the right breast.

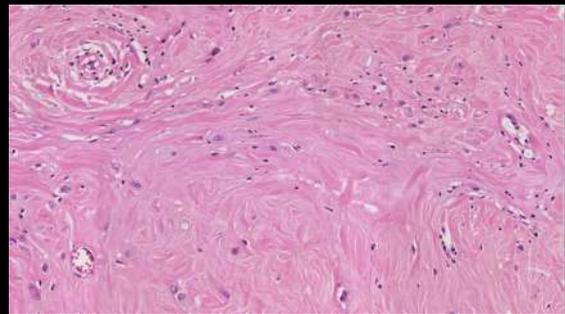
Left breast: Two smaller islands of similar echotexture were noted in the upper outer quadrant of left breast.

Bilateral axilla: Few benign lymph nodes with fatty hilum

DIAGNOSIS: BI-RADS 3 LESIONS in both breasts. Possibility of Pseudoangiomatous hyperplasia was considered and tru-cut biopsy was advised in view of advanced age.

Long history, absence of axillary lymphadenopathy and soft appearance on elastography were the points against malignancy. Final diagnosis is by histopathology.

HISTOPATHOLOGY:



Tru-cut biopsy of right breast: Pseudoangiomatous stromal hyperplasia in a background of diabetic mastopathy. No evidence of malignancy.

Specimen biopsy of right breast:(Excision was done on clinical suspicion)
Pseudoangiomatous stromal hyperplasia in a background of diabetic mastopathy.

-Dr. Sanjivane Ingole

MBBS, MDRD

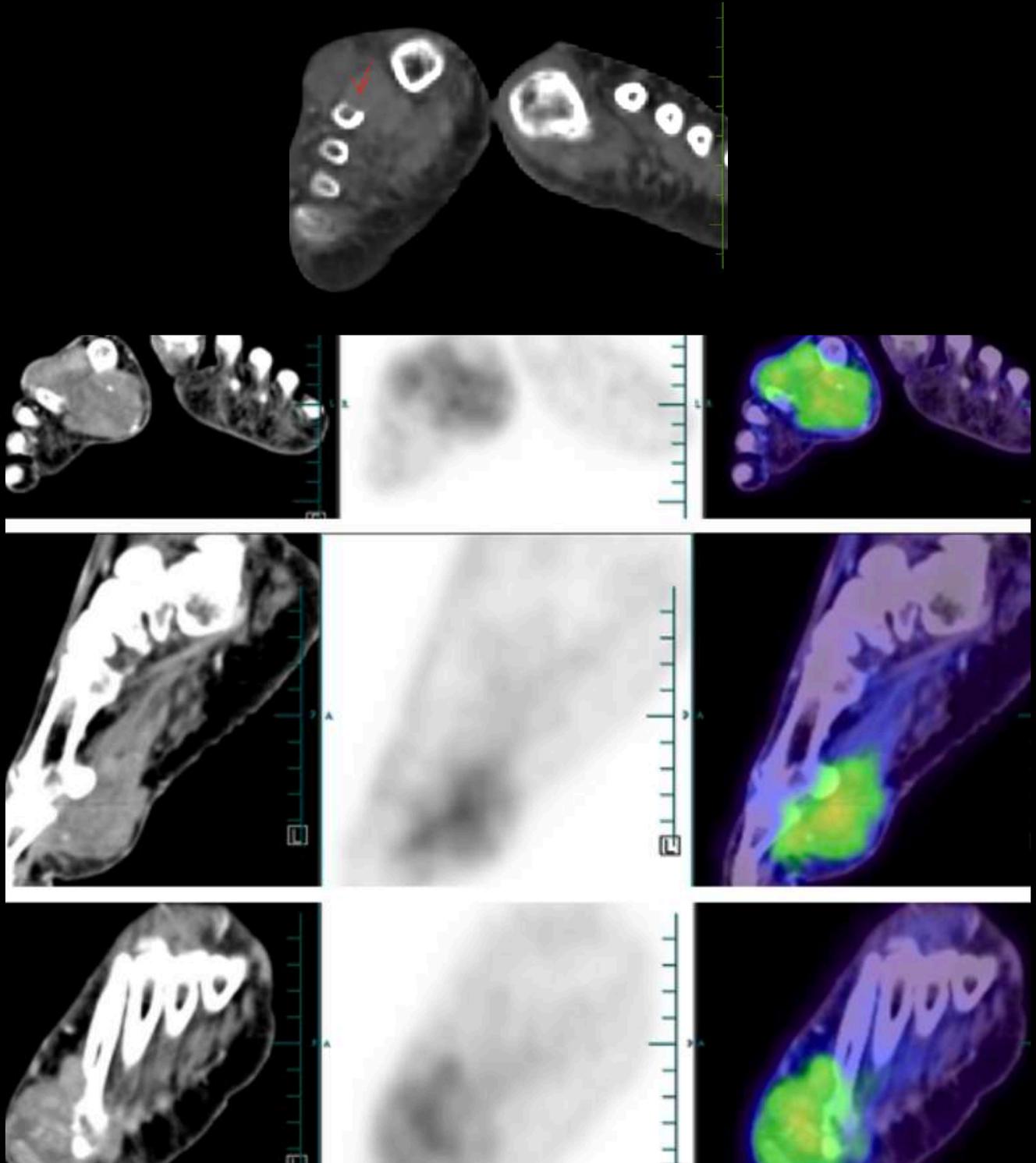
Fellow in Breast Imaging and Intervention (2021 batch)

4.

Synovial Sarcoma

HISTORY: Pain in the right foot x 8 years, swelling in right foot since x 3 months. **PREVIOUS IMAGING:** MRI foot (13.4.2021)- Right foot intermetatarsal neuroma between 1st and 2nd metatarsals.

IMAGING:



FDG avid soft tissue density lesion with irregular margins seen in Intermetatarsal space between 1st and 2nd digits of the right foot. This lesion shows heterogeneous Post contrast enhancement and peripheral curvilinear calcifications,. It is seen to cause widening of Intermetatarsal space and cortical thinning with scalloping of the 1st and 2nd metatarsal bone. The lesion measures 6.6x5.9x5cm.

Superiorly this lesion reaching upto subcutaneous plane of dorsum of foot causing contour abnormality.

Inferiorly reaching upto subcutaneous plane of plantar aspect of foot

Laterally cortical scalloping and thinning of head of 2nd metatarsal

Anteriorly lesion is reaching till proximal phalynx of 1st digit.

Posteriorly reaching upto neck of 2nd metatarsal.

No significant enlarged lymph nodes seen.

DIFFERENTIAL DIAGNOSIS:

Synovial sarcoma

Mortons neuroma form close differentials.

HISTOPATHOLOGY: Proved the above lesion to be synovial sarcoma

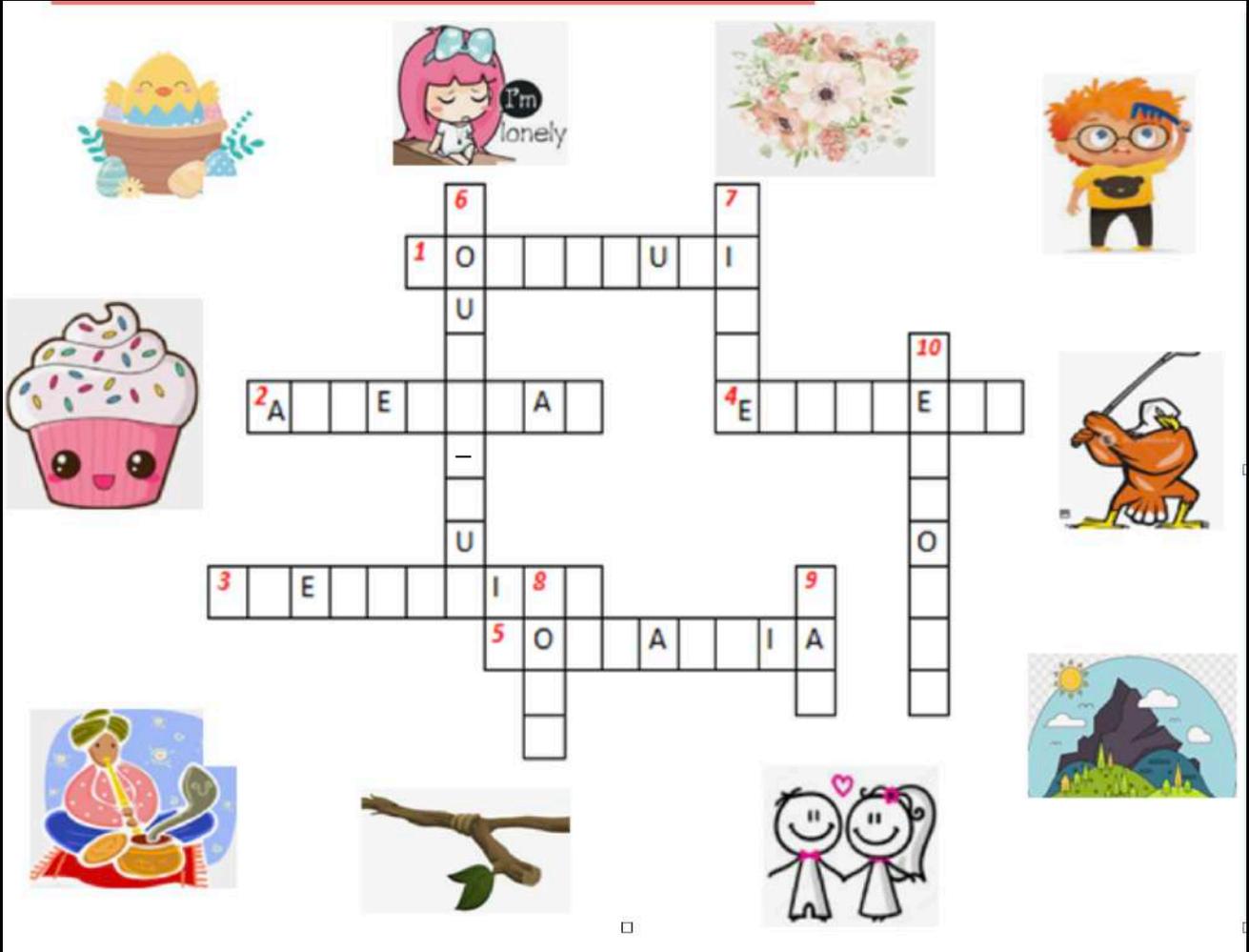
-Dr.Nagabalaji

MBBS,MDRD,

Fellow in cross-sectional imaging (2021 batch)



Radiology crossword



A cross:

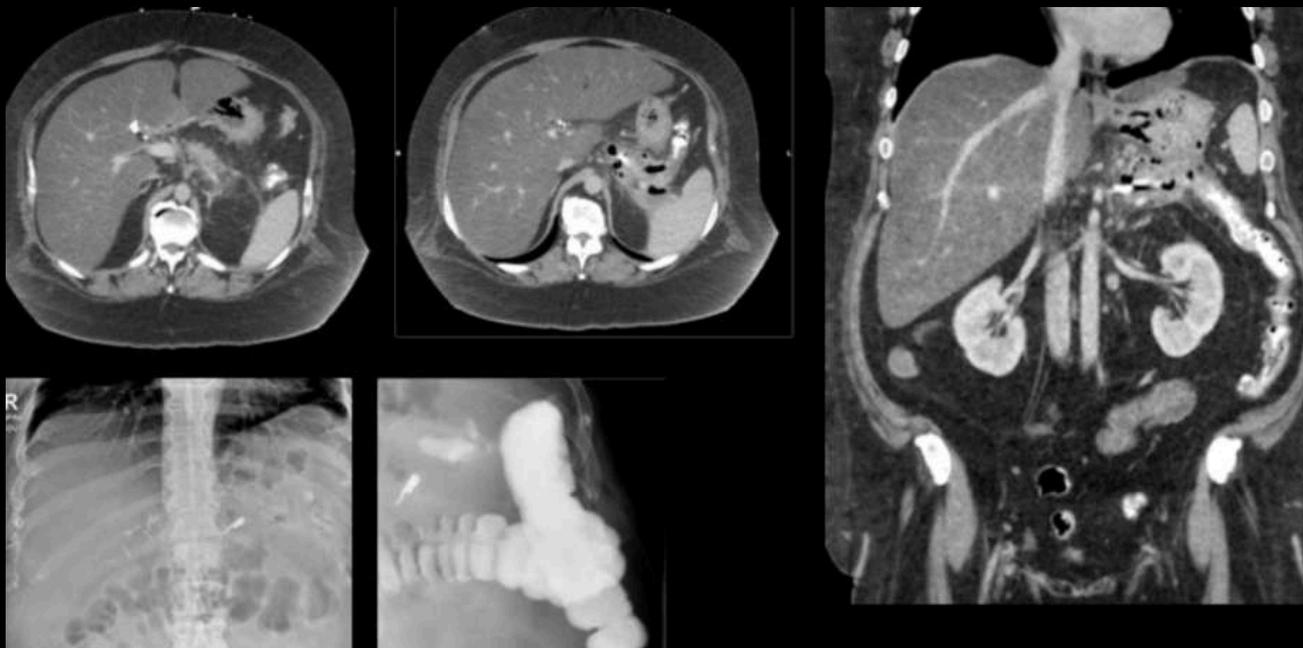
1. Japanese Tourist Destination
2. Reptile In Bladder
3. Breaking Bones Like Twigs
4. How Sarcoidosis Will Help You Make An Omlet
5. Couple Of Bones Together In Sickness And In Health

Down

6. Treat In Abdomen
7. Deadly Tumours Hidden In Lovers Good Bye
8. Styling Hair With Crohn's
9. Greek Letter Stuck In Brain
10. Charcot Made The Triad, Who Made The Pentad

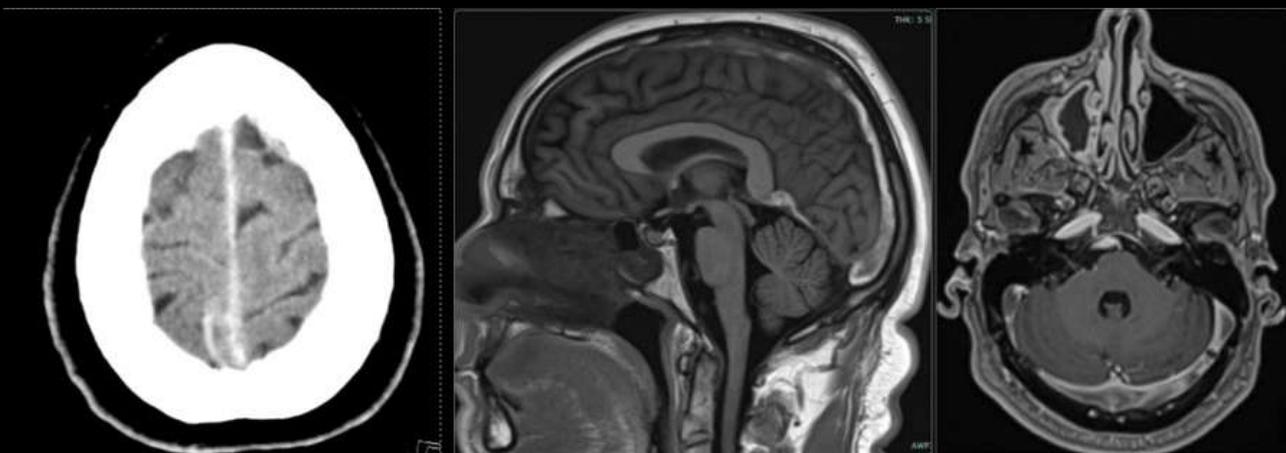
Quiz

1. 39-year-old man presents with acute left upper quadrant abdominal pain.



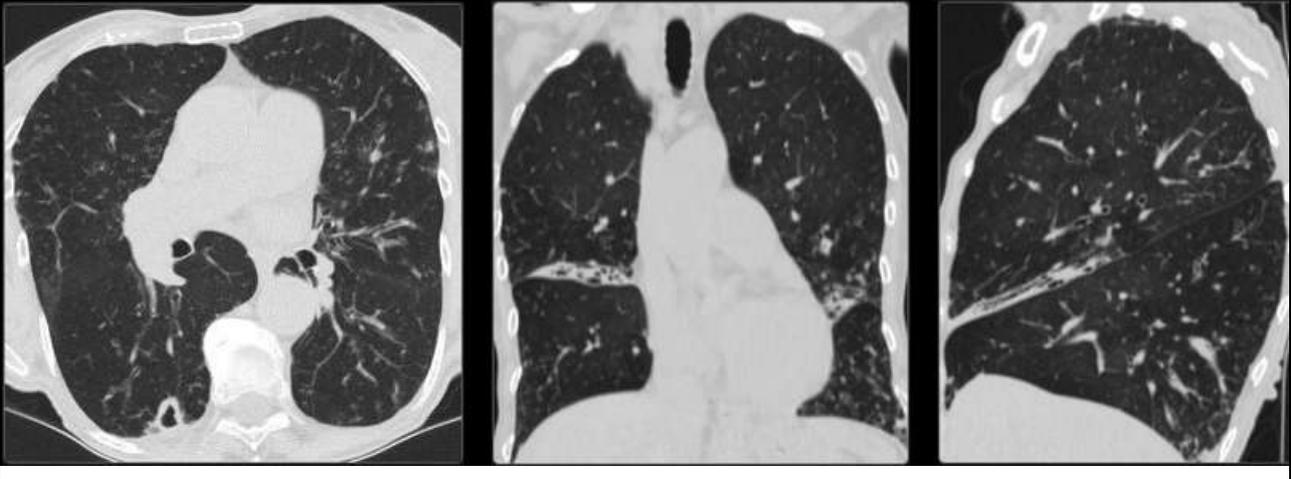
- a) Peripancreatic necrosis
- b) Pancreatic adenocarcinoma
- c) Pancreatic Pseudocyst
- d) Pancreatico-colic fistula

2. 56-year old male who presented after a witnessed episode of seizure.



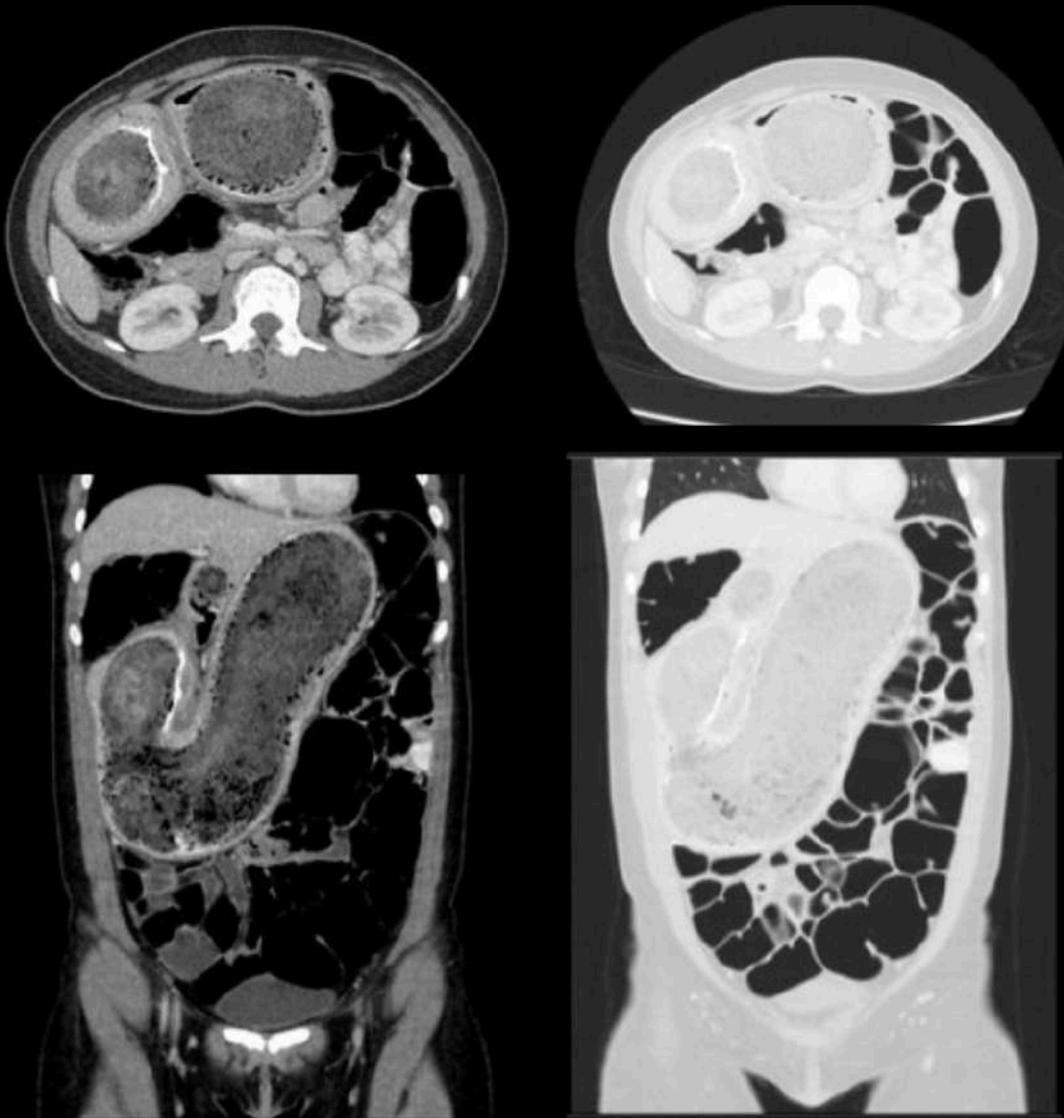
- a) Contrast enhancement of the dural venous sinuses
- b) Acute cerebral venous thrombosis
- c) Physiologic hyperdensity of the dural venous sinuses
- d) Acute subdural hematoma

3. 76-year-old woman presents with a history of a chronic, progressive cough, 15 lb weight loss, and dyspnea with exertion.



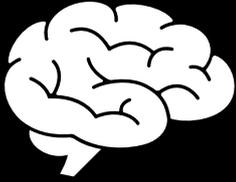
- a) M. tuberculosis
- b) Non-tuberculous mycobacterial infection: Bronchiectatic type
- c) Pseudomonas
- d) Nocardia

4. 19-year-old female presents with three months of right upper quadrant abdominal pain



- a) Gastric trichobezoar
- b) Gastrointestinal stromal tumor (GIST)
- c) Gastric carcinoma
- d) Gastric ischemia and pneumatosis

Crossword Answers: 1. Mount Fuji, 2. Adder head, 3. Green stick, 4. Egg shell, 5. Monteggia, 6. Dough-nut, 7. MISME, 8. Combs 9. Tau 10. Reynolds



Scratch your brains with:

Radiological Signs

R – Racing car sign - widely spaced lateral ventricles due to agenesis of the corpus callosum with intervening Probst bundles.

A- Air crescent sign - Crescent of air surrounding a soft-tissue mass in a pulmonary cavity and can be seen in both plain X-ray and CT scan

D- Deep sulcus sign- Supine chest radiographs of pneumothorax in which air accumulates in the lateral costophrenic angle, which appears lucent and deep when compared to the other costophrenic angle

I-Interstitial line sign - An ultrasound finding in interstitial ectopic pregnancy. It is an echogenic line from the mass to the endometrial echo complex.

O - Onion peel sign - Seen with complicated pulmonary hydatid cyst in which the gas lining between the endocyst and pericyst has the appearance of an onion peel. **It is pathognomonic for a ruptured hydatid cyst.**

L-Lemon sign- Appears to be an indentation of the frontal bone . It is classically seen as a sign of a Chiari II malformation and also seen in the majority of fetuses with spina bifida.

O- Open ring sign - specific sign for demyelination, most commonly seen in multiple sclerosis (MS)

G-Golden S-sign - Typically seen with right upper lobe collapse,

I- Ice cream cone sign - Normal appearance of the middle ear ossicles on axial CT scan. The ball of the ice cream is formed by the head of the malleus and cone is formed by the body of the incus, with the tapering conical point formed by the short process pointing towards the aditus ad antrum.

C- Cervicothoracic sign- Seen on plain X-ray and is used to differentiate between an anterior and posterior mass in the superior mediastinum

A-Ace of spades sign(heart) - The pathognomic configuration of left ventricle as seen in atypical hypertrophic cardiomyopathy.

L- Lambda (λ) sign - Triangular appearance of the chorion insinuating between the layers of the intertwin membrane and strongly suggests a dichorionic twin pregnancy.

S-Signet ring sign- Round area of soft-tissue attenuation abutting a circle of lucent air in HRCT of lungs and, thus, mimicking a ring.

I- Intradecidual sac sign - identifying an early intrauterine pregnancy (IUP) as early as 25 days of gestation

G-Gallbladder ghost triad - Atretic gallbladder, irregular or lobular contour and lack of smooth/complete echogenic mucosal lining with an indistinct wall. The gallbladder is so small and difficult to see in biliary atresia, like a ghost

N-Naclerio's v sign- Pneumomediastinum in which there occurs a lucency in the shape of "V" which is caused by air outlining the medial part of the left hemidiaphragm and lower mediastinal border, and can be seen both on X-ray and CT scan.

Dr.Venkata Sai P M
Professor, MBBS, DNB, PhD

Quiz Answers:

1. **d) Pancreatico-colic fistula** Correct answer

The CT of the abdomen and pelvis showed a gas and fluid collection abutting the pancreatic tail and the colon. On the enema examination, there was contrast extravasation in the left upper quadrant which proved there was a fistula between the colon and the pancreatic tail.

2. **d) Acute cerebral venous thrombosis** Correct answer

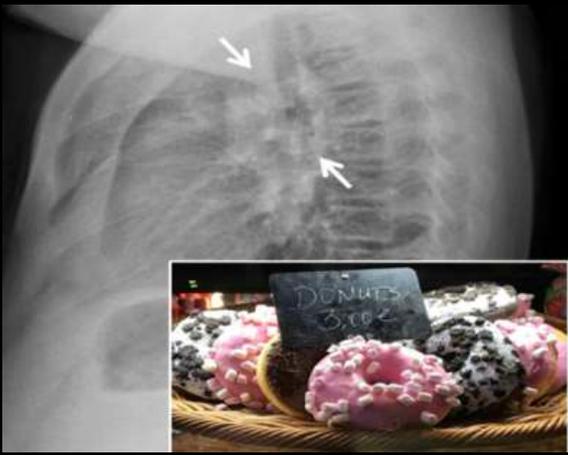
Hyperdensity within the dural venous sinuses and cortical veins on unenhanced CT signal abnormality within these vessels. On multiple MRI sequences, filling defects in these vessels after contrast enhancement confirm the presence of extensive cerebral venous thrombosis (CVT) involving nearly all the dural venous sinuses and multiple cortical veins. Acute left frontal lobe hemorrhage and adjacent parenchymal abnormality represent hemorrhagic venous infarction secondary to venous thrombosis.

3. **b) Nontuberculous mycobacterial infection: Bronchiectatic type** Correct answer

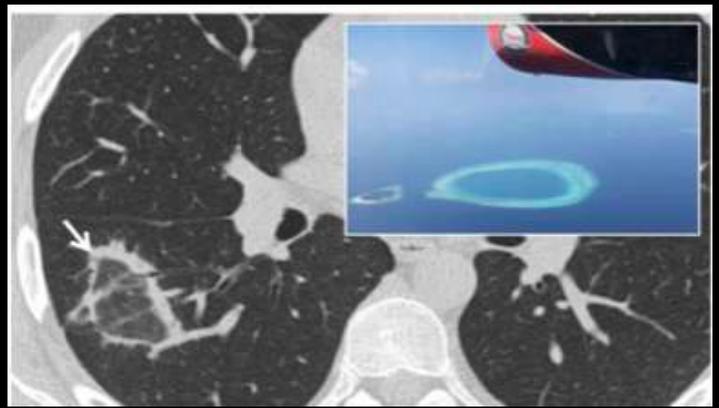
Middle lobe and lingular predominant bronchiectasis in combination with tree-in-bud opacities and cavitary nodules in an elderly woman is most consistent with nontuberculous mycobacterial infection (NTM). and was confirmed via bronchoalveolar lavage.

4. **a) Gastric trichobezoar**

Imaging appearance on CT demonstrating marked gastric distention filled with heterogeneous material with interspersed locules of gas was highly consistent with a gastric bezoar. With the imaging information, the surgical team acquired further history which discovered that the patient had been ingesting her hair for over one year since the death of her father, securing the most likely diagnosis as trichobezoar



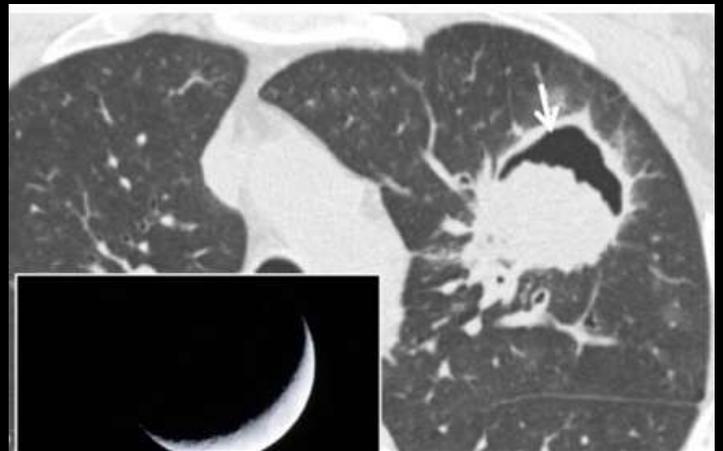
Doughnut sign-TB & Lymphoma



Atoll sign- Bronchiolitis Obliterans, organising Pneumonia

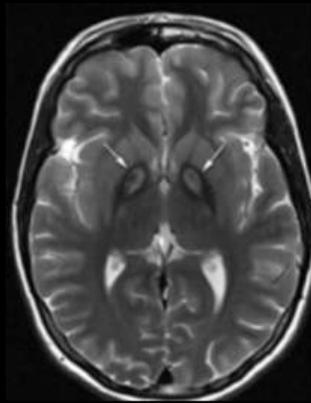


Feeding vessel sign- Pulmonary AVM



Air-Crescent sign-Pulmonary Aspergillosis

*Dr. Madhubala
MBBS, Radiology*



Sushmitha Suresh
M.Sc MIT (2nd year)

Radiologist's Eye



$x = \rho \cos \phi$, $y = \rho \sin \phi$
 $\rho = \sqrt{x^2 + y^2}$

$x = x_0 + vt$
 $y = y_0 + wt$
 $z = z_0 + pt$

$x = x_0 + vt$
 $y = y_0 + wt$
 $z = z_0 + pt$

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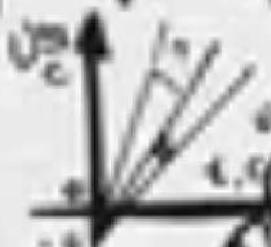
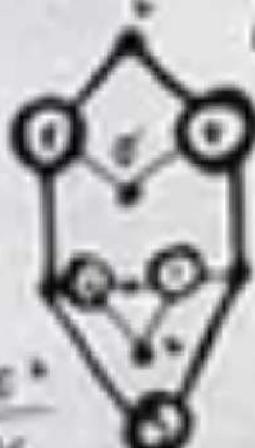
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 $z = z_0 + pt$





*More
than
shades*

Grey



Pioneers of radiology

CHARLES THEODORE DOTTER

A US vascular radiologist who is known for developing intervention radiology and later angioplasty technique and is known as father of intervention radiology. He was born on June 14 1920 and received his bachelors of arts degree in 1941 and went to medical school in Cornell Medical College in New York City, USA.

In 1950 he developed an automatic Xray roll film machine capable of producing images at the rate of two per second.

In 1964 he performed the world's first transluminal percutaneous angioplasty on a 80 year old woman who had refused amputation for a gangrenous foot. Doctor diagnosed superficial femoral artery stenosis on angiography and using a guidewire and coaxial Teflon catheters which he prepared to dilated the vessel. There was a rapid improvement of her leg pain and gangrenous ulcer completely healed the dilated heart. The dilated vessel remained open until her death from pneumonia two and a half years later.

Later, he was appointed Professor of Radiology, at the early age of 32 years, at Oregon University, USA. It is said that he is the youngest individual to ever be appointed a Chair of an academic radiology department in the United States.

He was nominated for the Nobel Prize for Physiology or medicine in 1978.

He served the chairman of School of Medicine department of diagnostic radiology at Oregon Health Sciences university for 33 years, from 1952 until his death in 1985. The Dotter Intervention Institute, recently renamed the Charles T. Dotter Department of Interventional Radiology, at OHSU (Oregon Health Sciences University).

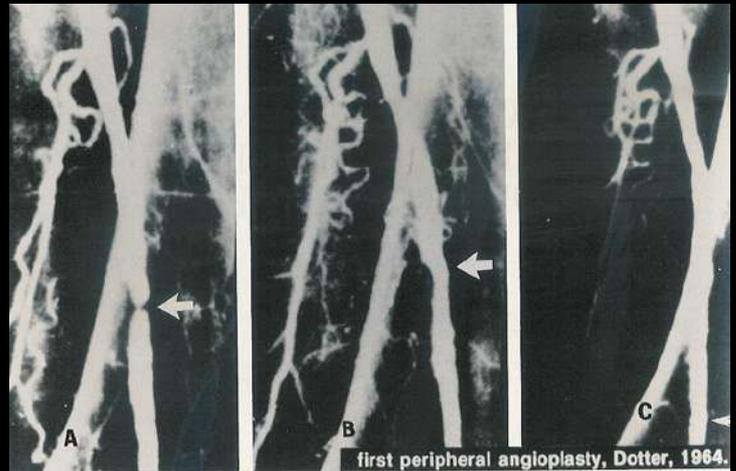
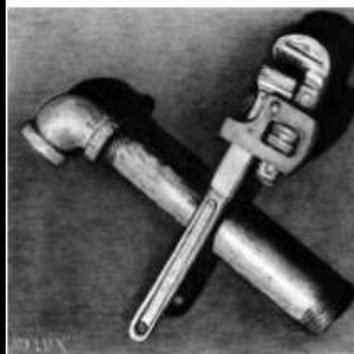


Figure 9-1. First percutaneous transluminal angioplasty in an 82-year-old woman A, before, B, after, and C, 2 years later. Oregon. (Courtesy of Charles Dotter, MD.)

In his own version

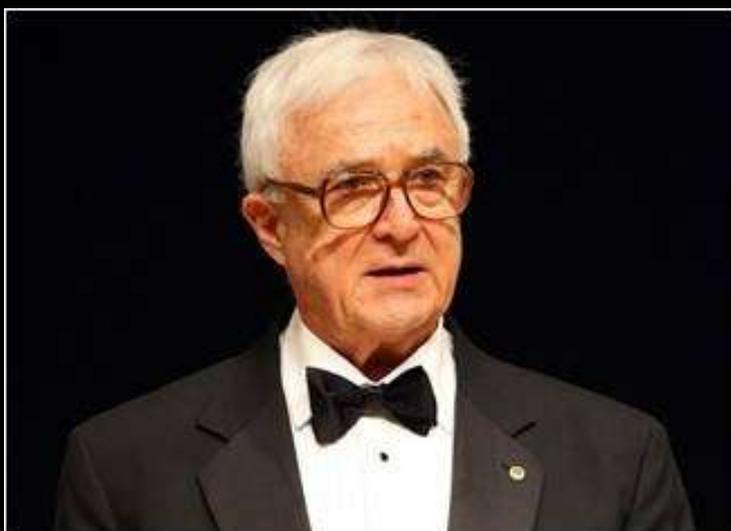


"My favorite conceptual trademark is a sketch that I did years ago of a crossed pipe and wrench. It's a gross oversimplification, of course, but what it means to me is that if a plumber can do it to pipes, we can do it to blood vessels."

DAVID E. KUHL

An American scientist specialising in nuclear medicine and well known for his work in positron emission tomography. He was born on 27th October 1929 and obtained his MD degree from University of Pennsylvania School of Medicine in 1955 and completed his residency and fellowship at hospital of University of Pennsylvania in 1962.

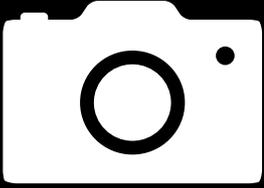
He developed new methods of tomographic imaging and constructed several tomographic instruments, these techniques were further developed in 1970s and now called positron emission tomography or PET.



He was a chief of nuclear medicine at University of Pennsylvania in for 18 years until 1976. Later in 1986 he went on to join University of Michigan medical school faculty and work to develop the use of FDG metabolism scanning in human brains. During his time as chief of division of nuclear medicine and director of centre of positron emission tomography, the University of Michigan became one of the first US institutions to offer clinical diagnostic PET services.

He was a founding member of the Society of Nuclear Medicine, as well as the American Board of Nuclear Medicine.

Kuhl-Lassen Award, highest award of SNMMI's(Society of nuclear medicine and molecular imaging) Brain Imaging Council which is annually awarded to an individual who has made stand out contributions in this field, is named after him.



Say cheese...caught on camera






Senior Consultant
More than Three Decade of service Institution:

Sri Ramakrishna Institute Research (SRI IIR) Sri Ram Chandra:

Publications: More than 70 Original

Guest Lectures: More than 129, with

International (13) National (116)

Workshops (10) Seminars (218)

Attended (10) Conferences (88)

Invited (1) CME (1000)

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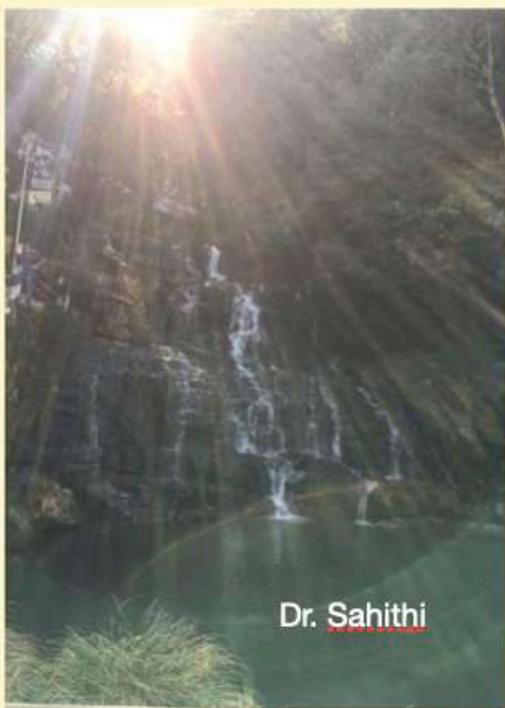

Through the eye of our shutterbugs



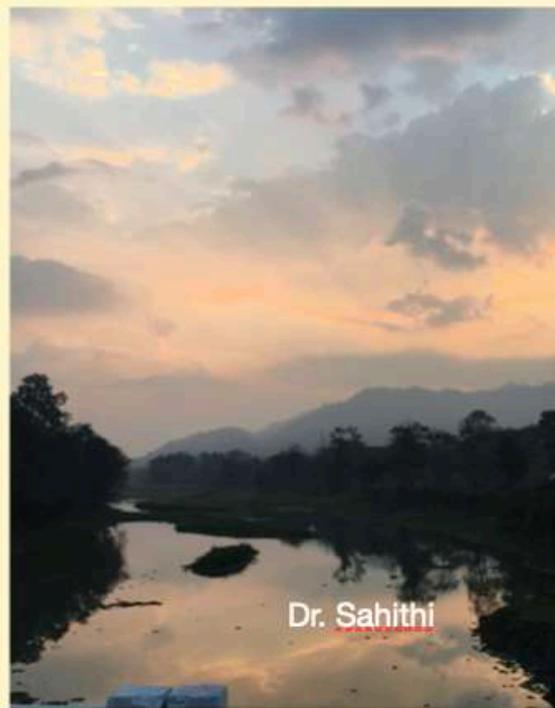
Dr. Sahithi



Dr. Naren Kumaran



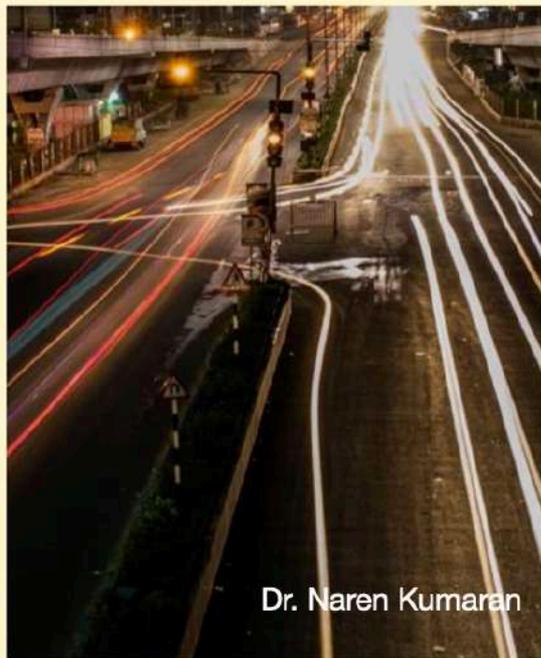
Dr. Sahithi



Dr. Sahithi

In a year of restrictions and lockdowns, here are few clicks that make us nostalgic as we wait for the deadly COVID to loosen its claws.

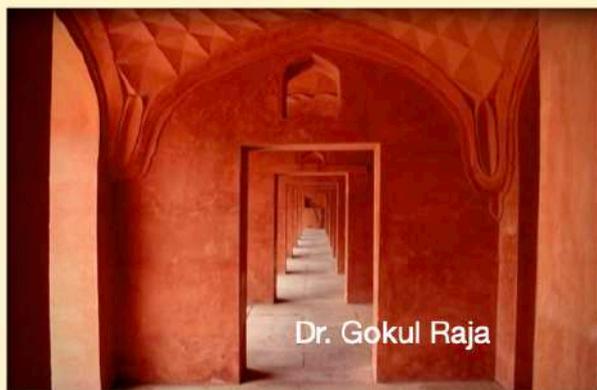
Radiologist's Eye



Dr. Naren Kumaran



Dr.Gokul Raja



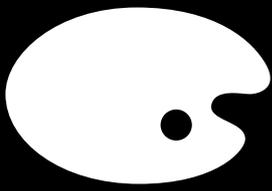
Dr. Gokul Raja



Dr.Gokul Raja



Dr. Naren Kumaran



Journey over the canvas



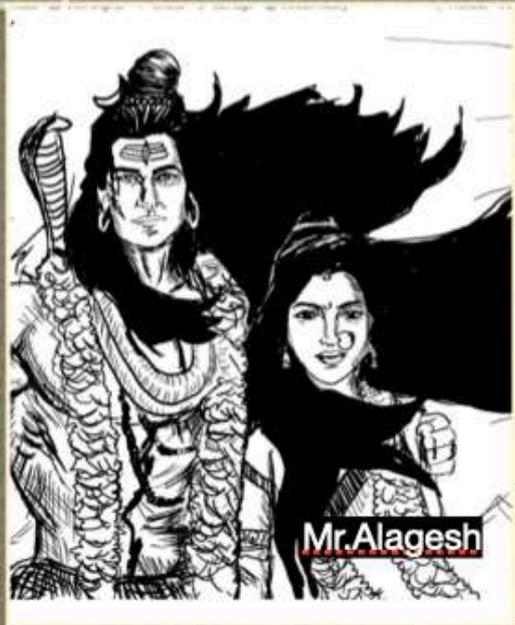
Dr. Preetha. N



Dr. Şahitli



Dr. Şahitli



Mr. Alagesh

Art is not just recreational, It rejuvenates and heals the mind that is lost in the mundane. Paint a few strokes, shade a le or sing your heart out. Life is too short to be serious



Year of Achievements

“ Lifetime Achievement Award” in Tamil Nadu & Pondicherry Chapter of Indian Radiological & Imaging Association at 73 rd Annual Conference of TN&PY IRIA in ITC Grand Chola Chennai on 31 st January 2021 to Dr.P.M.Venkata Sai

“ Lifetime Achievement Award” in Tamil Nadu & Pondicherry Chapter of Indian Radiological & Imaging Association at 73 rd Annual Conference of TN&PY IRIA in ITC Grand Chola Chennai on 31 st January 2021 to Dr.Jai Prakash.

“ Best innovator award” in Tamil Nadu & Pondicherry Chapter of Indian Radiological & Imaging Association at 73 rd Annual Conference of TN&PY IRIA in ITC Grand Chola Chennai on 31 st January 2021 to Dr.P.M.Venkata Sai

“President’s award for contributing towards organizing 73 rd YN & PY Conference” in Tamil Nadu & Pondicherry Chapter of Indian Radiological & Imaging Association at 73 rd Annual Conference of TN&PY IRIA in ITC Grand Chola Chennai on 31 st January 2021 to Dr.Rajeswaran

Prof.R.Natarajan Gold Medal for the prize exam for the best outgoing postgraduate student -RARE, Sri Ramachandra University, 14 th February 2020
Dr.Lakshmi Prasanthi

“Parkinsonism and Parkinsons Index & ” Secured 3 rd place on the occasion of International Day of Radiology, conducted virtually between 8 th November 2020 and 6 th December 2020 by Ms. Sneha R, BSc.,AHS

Dr. V.Vidhyanathan Award from SRMC the Prof. V.Vidhyanathan Certificate for best performing PG student of 2021 for Dr. Bhavya Basetti.

Recognition for outstanding poster presentation European society of gastro intestinal and abdominal Radiology ESGAR (VIENNA) at Vienna Austria on June 15th – 18th 2021 by Dr.R.Rajoo

Fellowship in gastro intestinal and abdominal imaging European society of gastro intestinal and abdominal Radiology ESGAR (VIENNA) at Vienna Austria on June 15th – 18th 2021 by Dr.R.Rajoo

“Diploma in gastro intestinal and abdominal Radiology” European society of gastro intestinal and abdominal Radiology ESGAR (VIENNA) at Vienna Austria on June 15 th – 18 th 2021 by Dr.Aishwarya Jeyakumar

“TOP 20 Oral presentation” European society of gastro intestinal and abdominal Radiology ESGAR (VIENNA) at Vienna Austria on June 15 th – 18 th 2021 by Dr.Aishwarya Jeyakumar

“Rising stars” European society of gastro intestinal and abdominal Radiology ESGAR (VIENNA) at Vienna Austria on 3 rd – 7 th March 2021 by Dr.Vinu

“Imaging Walk through of various pleural lesions identified on computed tomography” atSRT – The society of Radiologists in Training at the 27 th Annual General Meeting held virtually on 13 th – 14 th July 2021 by Dr. Nikita Chowdhary.

Certificate of Appreciation & Honour is hereby awarded to a Great Teacher & Mentor Dr.P.M.VenkataSai by Indian Radiological & Imaging Association on 5 th September 2021.

EUSOBI (European society of Breast Imaging) awarded young physician scientist grant on 23 rd September 2021 by Dr. Sanjivane Ingole.

RSNA (Radiological Society of North America) poster presentation for prize on cardio-mammographic serendipity- Dr. Sanjivane Ingole