Calcutta Academy Of Radiology

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INSIDE THIS ISSUE

New Vs Old - Viral Parekh

Hi Namaskar friends,

Change is constant and to accept newer technology is a way forward. Good or bad, if you are not investing in new technology, you are going to be left behind. But does it mean that all old things are obsolete and should be discarded totally? I think it is not so. There should be judicious mix of accepting new technologies and preserving the old albeit necessary ones. There is a madness in multidetector CT as far as number of slices are concerned. There are many ways of counting the number of slices and we have 128 slice, 256 slice CT scanners and even dual source CT scanner and every multinational company is in a race of upmanship as far as number of slices are concerned. But, has Cardiac CT totally replaced Conventional Coronary angiography? Absolutely NO.

We have completely discarded conventional Venography in favour of Doppler Ultrasound. But Doppler is highly dependent on skills of the person performing the test. Invariably, we find different opinions by different persons and it is not easily reproducible also. So, I personally think that even now Conventional venography has a role to play. It is easy to perform except in highly swollen limbs. It is easily reproducible and it is not operator dependent. It also demonstrates the perforators and reflux very well. Same applies to other Conventional procedures. A simple small bowel through even now gives lot of information. So, it is not prudent to discard all the Conventional procedures blindly.

As rightly said by Judith Martin that "Many people mistakenly think a new technology cancels out an old one.".

HRCT has totally replaced Bronchography and rightly so. HRCT demonstrates the bronchial anatomy very well and it is not invasive. So, in this case there is absolute justification in totally discarding the Bronchography. Conventional or CT myelography has totally been replaced by MRI and it is totally justified to discard conventional myelography.

So one should have an open mind and must welcome new technology, which will help us to diagnose the diseases in a much better way. At the same time, discarding the old procedures should be done judiciously.

This issue would not have been possible without the help of Dr. Bhavin Jankharia, Dr. Rajesh Botchu, Dr. Sharad Kondekar, and Dr. S. C. Roy. I sincerely thank all of them.

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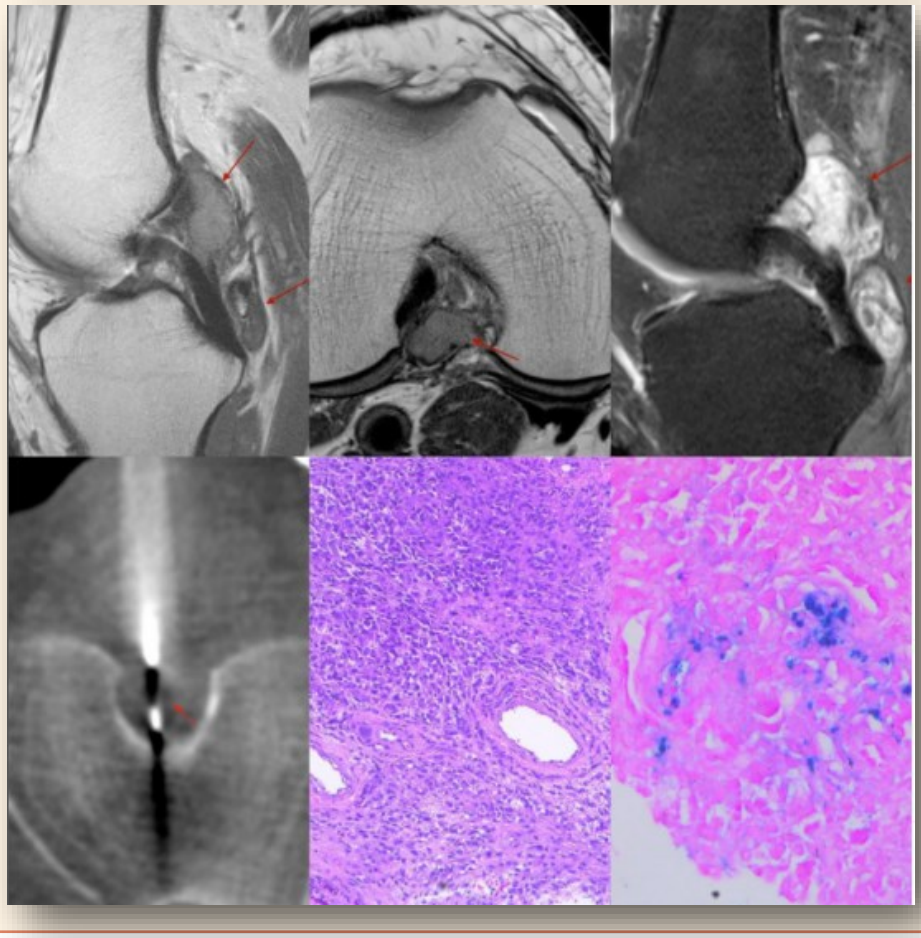
Dr. Bhavin Jankharia needs no introduction to the Radiology fraternity. As you all know he is a renowned Radiologist and academician and has contributed immensely in propagating Radiology education. Presently, he is a Consultant Radiologist at Picture This by Jankharia. He is also a Trustee of Radiology Education Foundation. He has consented to share some of his work with us, which will help all the Residents as well as practicing Radiologists. Here is some information about him in brief.

- **He has written 5 books, 35 chapters, 57 articles (PubMed listed)**
- **Presented 32 posters**
- **More than 1500 invited lectures over 27 years**
- **Editor-in-Chief, Indian Journal of Radiology & Imaging (2007-2012)**
- **Latest Book (2019): Computed Tomography of Interstitial Lung Diseases**
- **Hon. Visiting Consultant – Radiology – Tata Medical Centre, Kolkata**

Case I - Pigmented Nodular Synovitis of the Knee - Typical Appearance - Radiology & Pathology



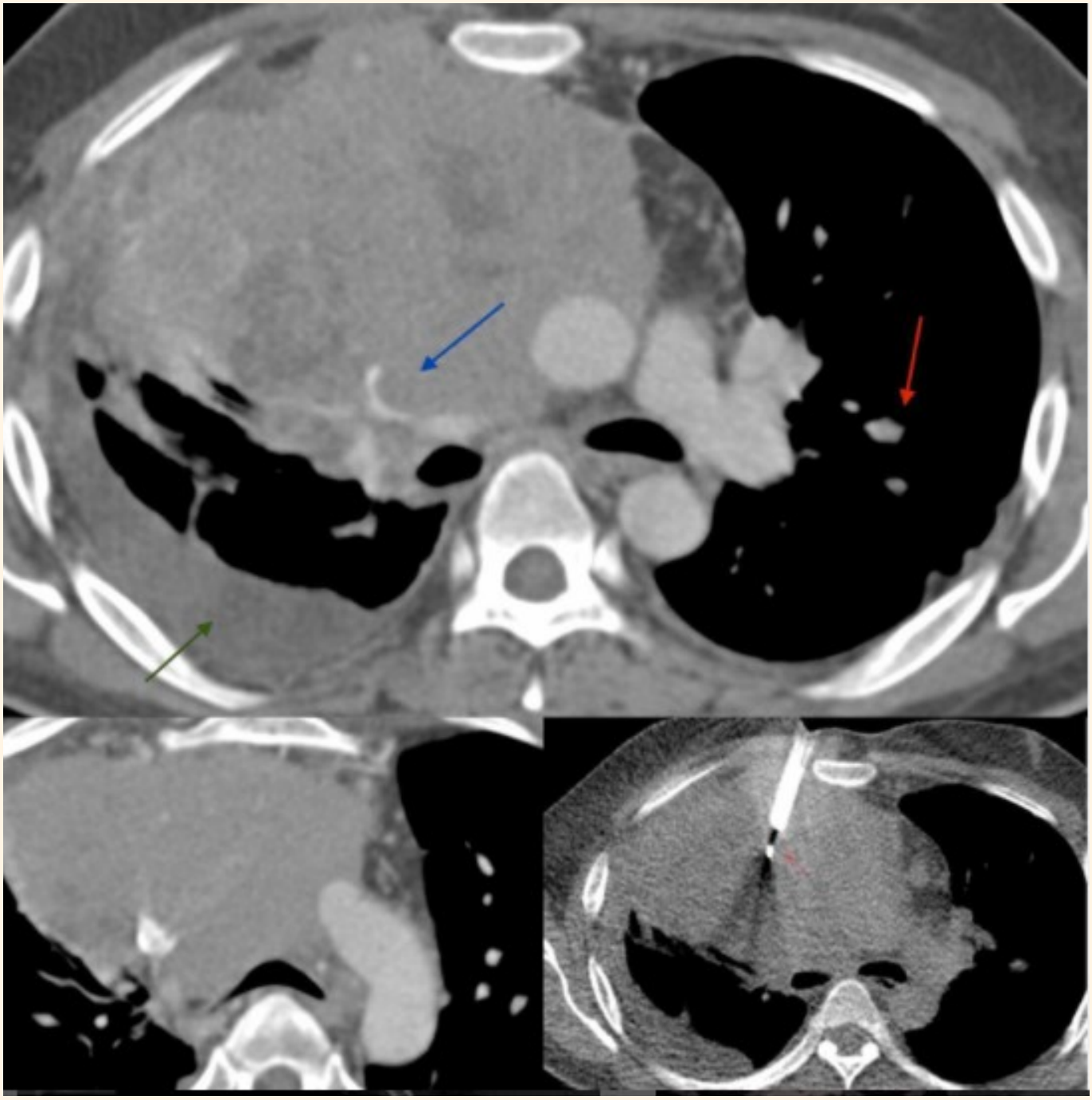
This 53-years old man presented with left knee pain.

His MRI showed a T2 intermediate and dark lesion posterior to the ACL and PCL, with homogeneous enhancement. The findings were suggestive of nodular synovitis, perhaps pigmented.

The surgeon wanted pre-treatment confirmation, so a biopsy was performed from the posterior aspect using an 18G coaxial biopsy gun.

The diagnosis was "tenosynovial giant cell tumor" (localized type), which is basically nodular synovitis (histopath images 10 x). Hemosiderin was seen on the Perls stain HP image (last image), which is the "pigmented" component.

Case II - Anterior Mediastinal Mass - Simple Biopsy - Thymic Carcinoma



This 39-years old man presented with breathlessness and edema and puffiness of the face. The CT scan showed a large anterior mediastinal mass involving the SVC (blue arrow). There was pleural effusion on the right (green arrow) and lung nodules (red arrow) as well. The differential is aggressive thymic neoplasm, lymphoma and malignant germ cell tumor.
The biopsy was simple using a right parasternal approach with an 18G coaxial biopsy gun.
The diagnosis was thymic carcinoma.

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Case III - Prevascular Space Mass - Lymphoma

This 22-years old presented with cough. A chest radiograph showed a mediastinal mass. The CT scan shows the mass well with some areas of necrosis. The differential is aggressive thymic tumor, lymphoma and germ cell tumor. There is no reason to suspect tuberculosis. In any case, a biopsy is a must.

The biopsy is simple and straightforward using a para-sternal approach. The areas of necrosis have to be avoided. This was done using an 18G coaxial biopsy gun.

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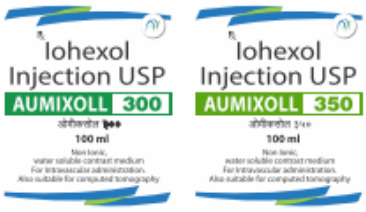

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Intraosseous lipomas revisited.

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Intraosseous lipomas are rare and benign bone lesions but remain the most common lipogenic tumour lesions of the bone.

These can remain clinically asymptomatic, with majority being discovered incidentally, or present with pain or as a bone mass lesion, the latter being from expansile bone remodeling. Intraosseous lipomas are slightly more common in males, typically presenting in the 4th to 5th decade however can have a wide age range of presentation (5-85 years). They are mostly found in the lower limb (71%).

As the name suggests they are composed of fat cells, which are located almost exclusively within the medullary cavity of long bones. The lesions can be made of solid fat, cystic with fat necrosis or comprise of calcified fat and sclerotic bone.

Live adipocytes give a radiolucent appearance and plain radiographs can demonstrate resorption of preexisting bone as well as expansion. Fat necrosis and resultant reactive bone formation and calcification gives the radiodensity on radiographic imaging.

On CT scan the lesion demonstrates fat attenuation with or without mineralization.

On MRI the lesion follows the fat signal.

Three stages of intraosseous lipomas have been described according to clinical patterns.

1. No secondary necrosis: Homogenous T1 and T2 fat hyperintensity which may contain thin incompletely resorbed cancellous bone trabeculae, with full suppression on fat saturated/ STIR sequences.
2. Partial secondary necrosis: Hypointense areas on T1 with corresponding hyperintensity on T2 fat suppressed images from necrosis or hypo intensity from mineralization.
3. Complete or near complete necrosis: Total absence of intralesional trabeculae with complete resorption of original bone. Myxomatous change and infarction can give size to cystic appearances on fluid sensitive sequences.

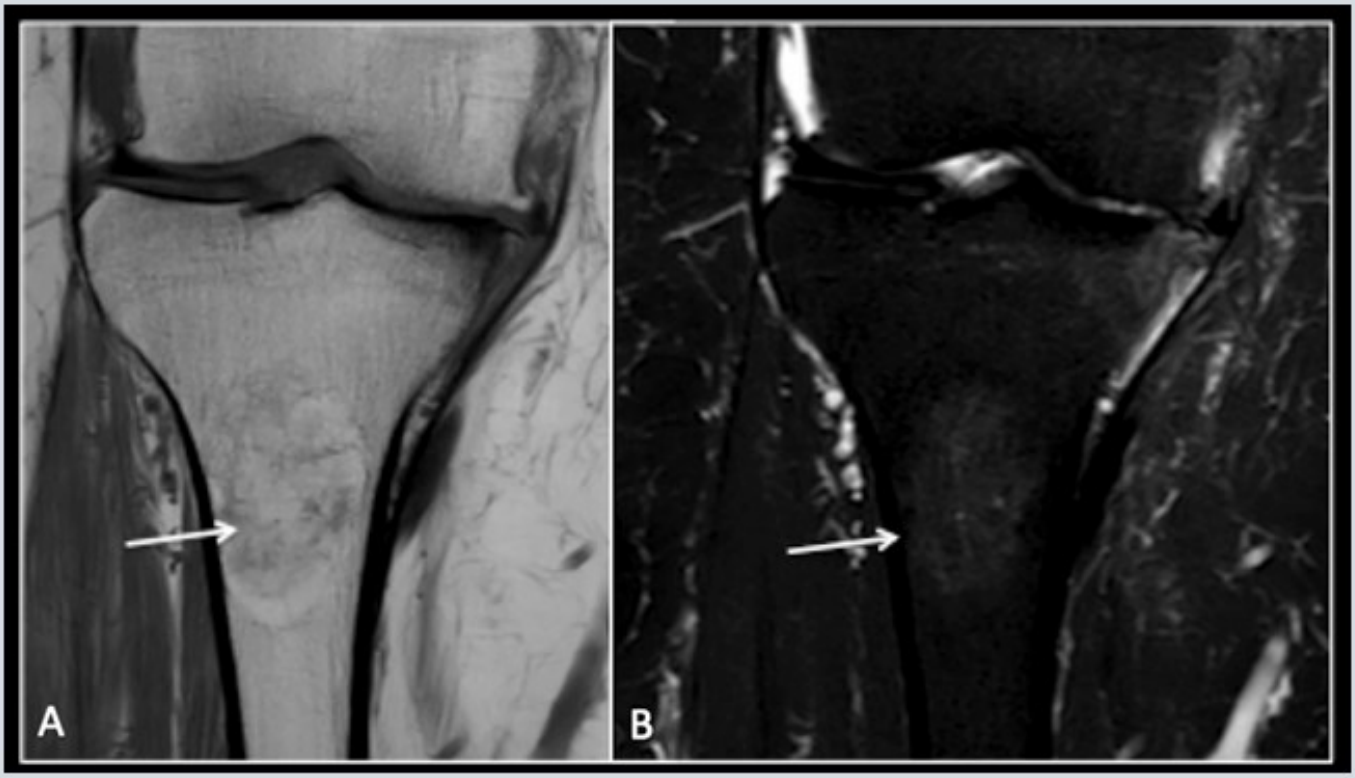

Figure 1
Coronal T1(A) and T2FS(B) showing intraosseous lipoma in proximal tibia (arrow)

Figure 2
Coronal T1(A) and T2FS(B) showing intraosseous lipoma in proximal tibia (arrow)

Intraosseous lipomas share similar features with the following entities in differential Diagnosis

- Bone infarcts: Bone infarcts do not cause cortical expansion or resorption of preexisting bone. Additionally in bone infarcts there is central fat with T2 hyperintense peripheral granulation tissues. In intraosseous lipomas there can be central granulation tissue/ necrosis with peripheral fat. The mineralization in a lipoma has a more random distribution compared to a peripheral pattern in a medullary bone infarct.
- Enchondroma: Shares some similar characteristics including location and bone expansion (particularly with BACTIP Type 3). However, these are low to intermediate on T1 and high on T2.
- Simple bone cyst: Will follow fluid signal on MRI rather than fat.

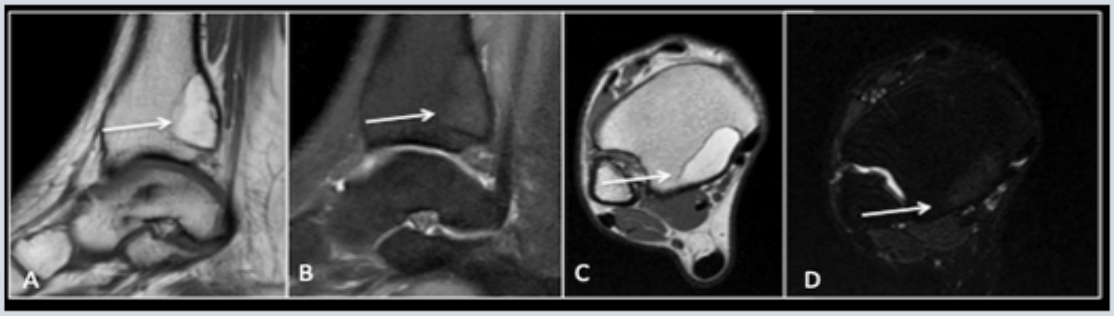

Figure 3
Sagittal T1(A), T2FS(B), axial T1(C) and T2FS(D) showing intraosseous lipoma in distal tibia (arrow)

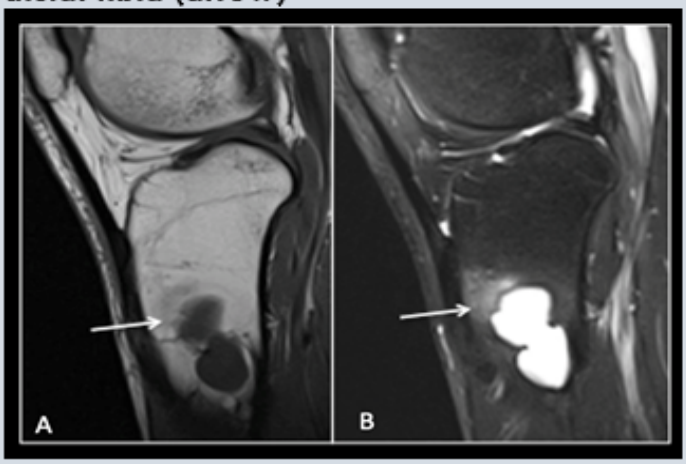

Figure 4: Sagittal T1(A) and T2FS(B) showing intraosseous lipoma in proximal tibia with cystic change (arrow)

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3. Patel A, Davies AM, Botchu R, James S. A pragmatic approach to the imaging and follow-up of solitary central cartilage tumours of the proximal humerus and knee. Clin Radiol. 2019 Jul;74(7):517-526.

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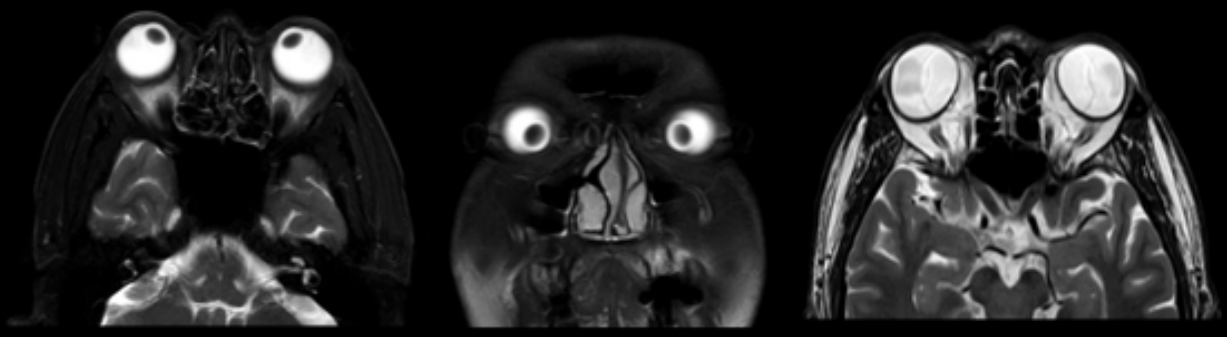
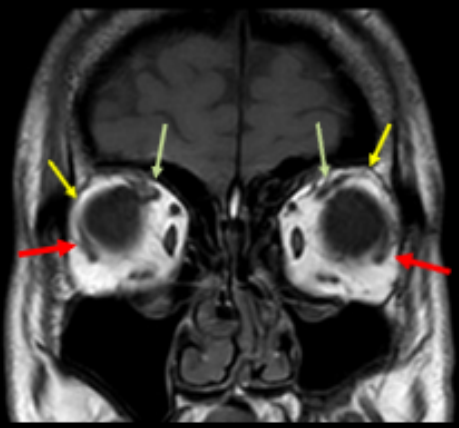
- Formerly worked at Apollo Hospital Hyderabad, Dhoot Hospital Aurangabad
- Fellowship in MSK and neck Imaging at Prince of Wales Hospital, CUHK Hong Kong
- Areas of interest - cross sectional imaging- Musculoskeletal Radiology, HNF radiology, Chest radiology
- Faculty at many national and international programs, many international publications, many teaching programs for residents across the India.

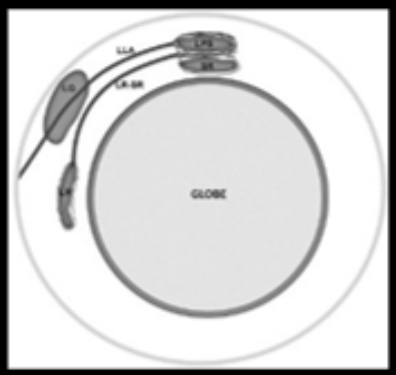
Case-1

40 years high myopic female presented with gradually increasing diplopia and was referred for MRI brain and MRI orbits



Esotropia, hypotropia and increased axial length of the eyeballs





AJNR September 01, 2014; Volume 35

COR T1 WI :- Red arrows show inferior displacement of LR .
Green arrows show medial displacement of SR
Yellow arrows show thinned out LR -SR band on left side and imperceptible LR-SR band on right side

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Findings:

- MRI of the brain was within normal limits.
- MRI of the orbits revealed increased axial length and there was esotropia and hypotropia.
- The superotemporal angulation of the posteriorly elongated eyeball getting herniated into the superotemporal conal musculature causing widening of the distance between the superior and lateral rectus.
- The increased distance between the superior rectus and lateral rectus is measured by calculating the dislocation angle, which is increased in this case. It is 138 on right and 142 on left side.

The final diagnosis is myopic strabismus fixus

Discussion:

Myopic strabismus fixus was also called as heavy eye syndrome (considering the eyeball droops anteriorly due the heaviness)

- MSF is seen in heavily myopic individuals, where due to the increased axial length the posterior ends of the eyeballs get invaginated in the muscular cone, between the lateral rectus and superior rectus.
- The LR-SR band which is a band connecting the superior and lateral rectus and keeping these two muscles tied with each other is thinned out and may get torn resulting in increased distance between LR and SR
- MRI is the modality of choice in this condition which shows-
    - The increased axial length.
    - Esotropia and hypotropia.
    - Invagination of the posterior eyeball in superolateral muscular cone
    - Thinning out of LR-SR band and sometimes non-visualization of this band and resultant increased distance between superior rectus and lateral rectus is seen on eyeball method and quantitatively assessed by dislocation angle which is normally 90 degrees, and this angle is increased in MSF, it is done by calculating angle between two lines which pass from centroid of the eyeball to the centroid of SR and LR. The increased angle is

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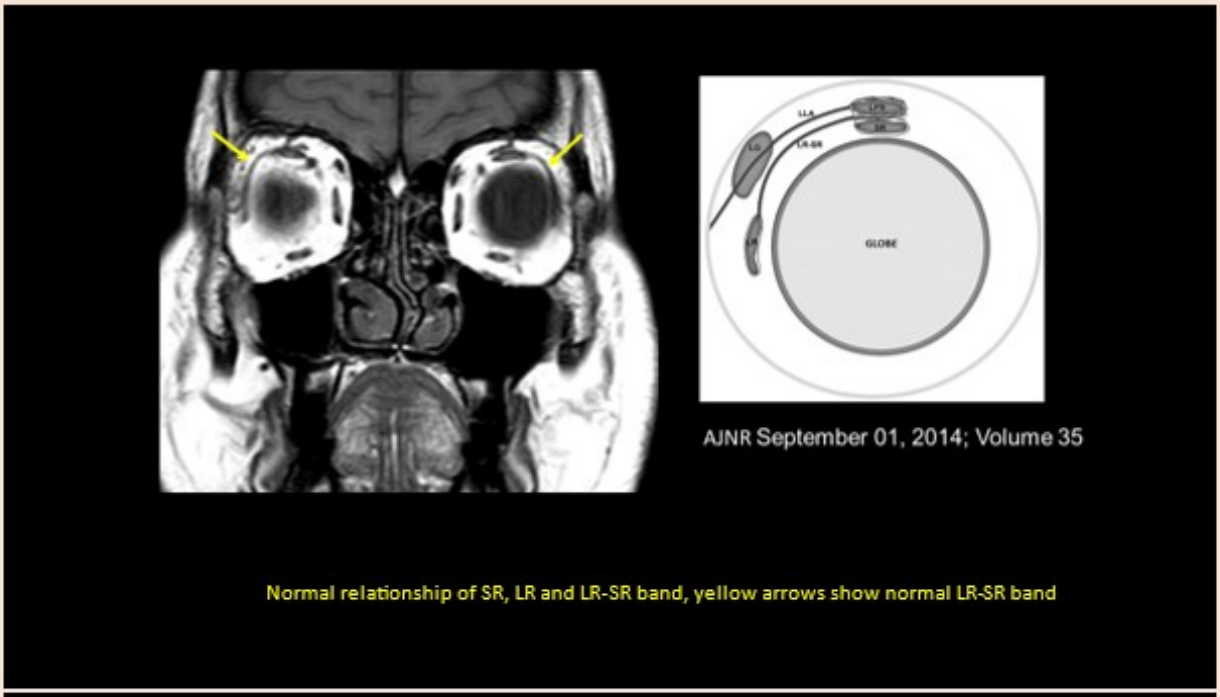
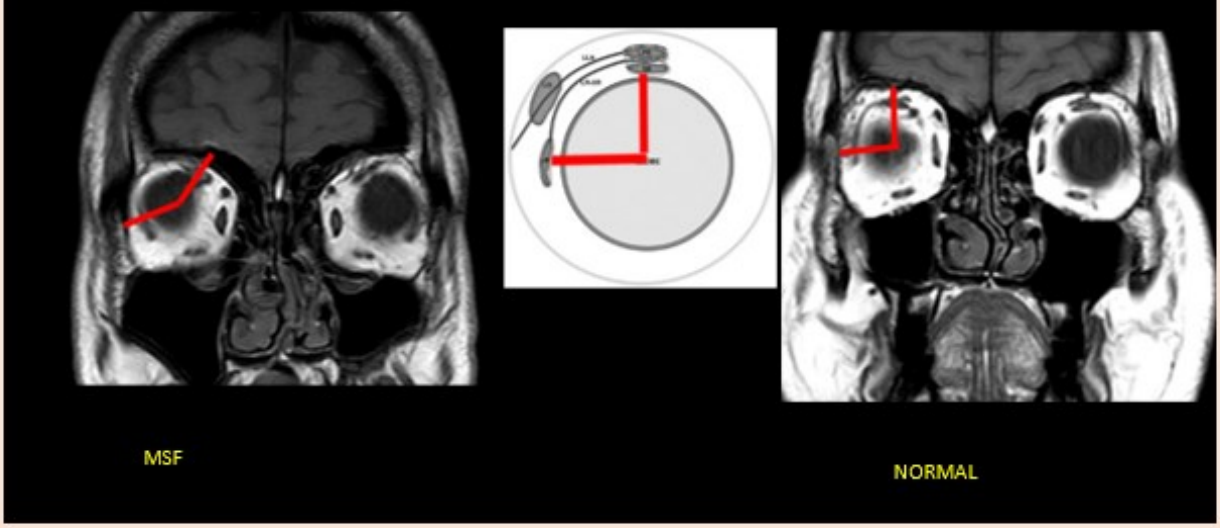
suggestive of inferior displacement of lateral rectus and medial displacement of SR.

- This should be differentiated from sagging eye syndrome, which is seen in elderly patients, where the LR-SR band is degenerated due to aging



Normal relationship of SR, LR and LR-SR band, yellow arrows show normal LR-SR band

- Measurement of dislocation angle by the method of Yokoyama *et al*



MSF

NORMAL

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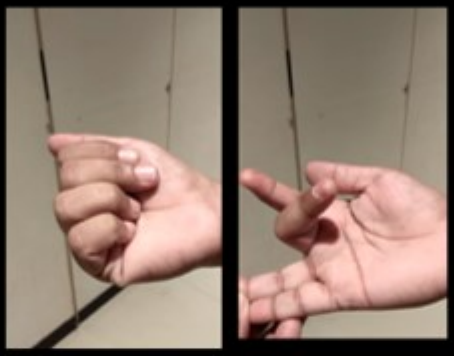
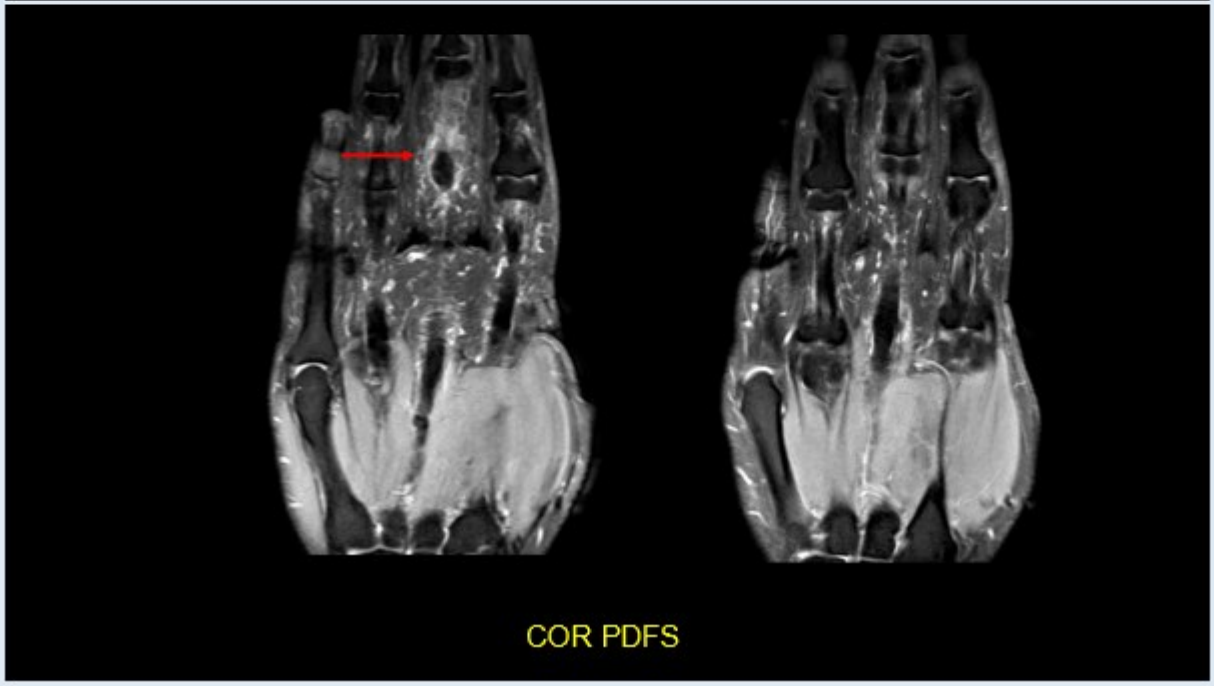
- Fellowship in MSK and neck Imaging at Prince of Wales Hospital, CUHK Hong Kong
- Areas of interest - cross sectional imaging- Musculoskeletal Radiology, HNF radiology, Chest radiology
- Faculty at many national and international programs, many international publications, many teaching programs for residents across the India.

CASE-2

A 30-year female having history of injury one month back, now unable to flex the middle finger



Flexion possible at PIP joint and not possible at DIP joint



COR PDFS

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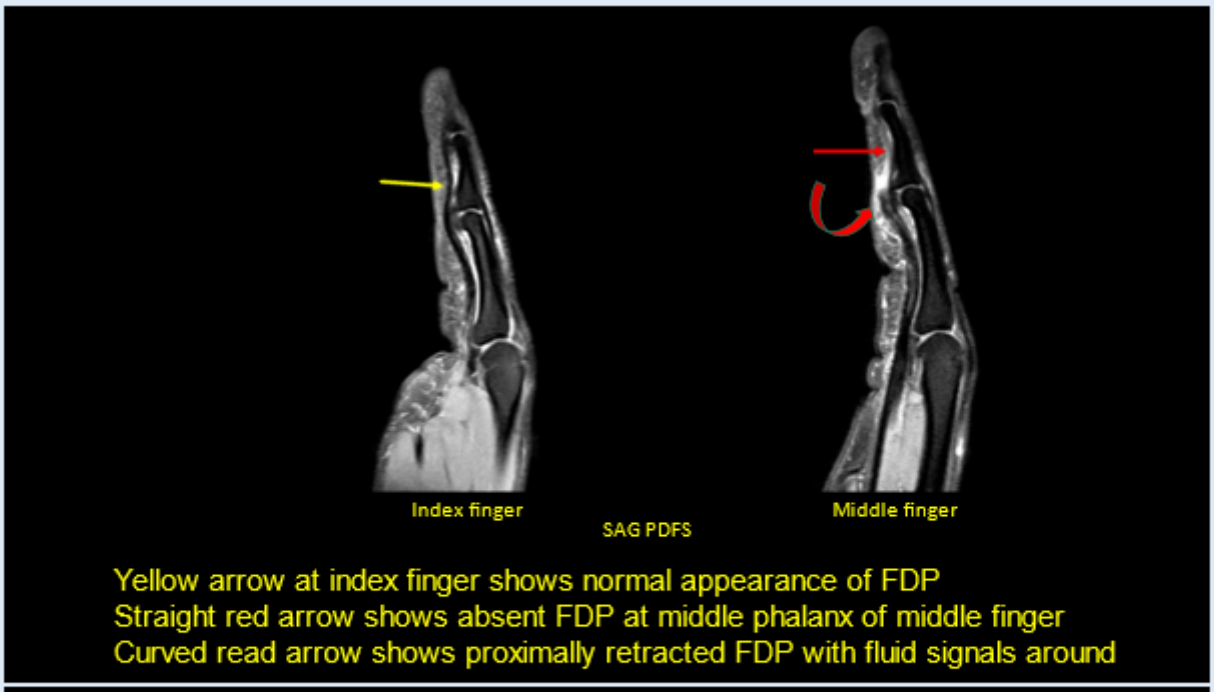

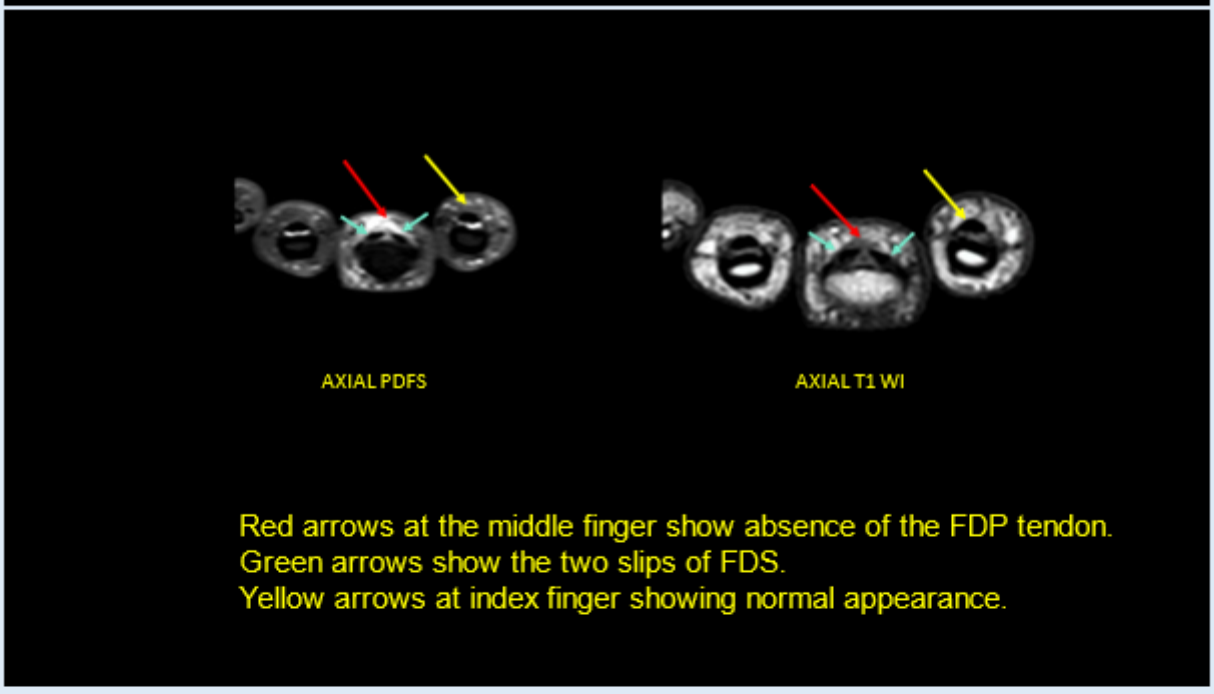

MRI findings

The sagittal PDFS images-

- **At middle finger show the torn proximally retracted flexor digitorum profundus tendon with adjacent PDFS hyperintensity at the level of the head of the proximal phalanx**
- **At index finger shows normal appearance (for comparison)**

The axial T1 WI and PDFS images at the level of the proximal portion of middle phalanx show two inserting slips of the FDS with non-visualization of FDP tendon

The final diagnosis-Type 2 injury of FDP tendon of middle finger (Zone 1).

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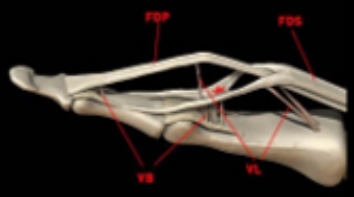
Discussion

- Flexor tendon injuries can occur at forearm, wrist, hand, or finger.
- Proximally the flexor digitorum profundus (FDP) is deeper to the flexor digitorum superficialis (FDS), as the name suggests. At proximal one-third of the proximal phalanx the FDS divides into medial and lateral slips and insert over the either side of the middle phalanx. The FDS passes through this hiatus at mid-level of proximal phalanx, becomes superficial and continues distally to insert over the base of distal phalanx on volar aspect. Due to this arrangement The FDS flexes PIP joint and FDP flexes DIP joint.
- On MRI, normal tendons are hypointense on all pulse sequences and any altered signals or discontinuity and level of retraction can be precisely demonstrated using excellent quality images. Sagittal and axial images are the most helpful in evaluating the flexor tendons of the fingers and hand.
- FDP tendon stump is always seen due to relative hypovascular tendinous zone which is seen approximately 1cm proximal to tendon insertion. Vincular system through synovial sheaths provides the blood supply to the flexor tendon and is likely injured when there is more retraction.
- Primary repair of the tendon is the treatment of choice in most cases though it is dependent on degree of retraction, associated bony avulsion and duration of the injury.
- Trans-ossoeus reinsertion of the tendon can be done even with the larger gaps where MR imaging plays the pivotal role showing the length of retraction.



Arrangement of normal FDS and FDP tendons
MRI Web Clinic — February 2012
Radsource

Zones of flexor tendon injury
MRI Web Clinic — February 2012
Radsource

Leddy and packeroriginal classification

Type 1– FDP tendon retraction into the palm, leads to disruption of the vascular supply
Type 2– FDP tendon retraction to the PIP joint level
Type 3 – Bone fragment avulsion with the FDP

Further additional types were later mentioned depending upon the types of avulsion

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Professor Suprakash Chandra Roy is currently the Editor-in-Chief of one of the venerable journals 'Science and Culture' and editor of an Elsevier journal "Applied Radiation and Isotopes". Professor Roy is a physicist and was Professor and Chairman of the Department of Physics at Bose Institute, Calcutta, India. He obtained his doctorate degree from Calcutta University and did his postdoctoral studies at Yale University and University of Pittsburgh in the USA. He has held different visiting positions at the University of Pittsburgh, Purdue University and University of Calgary, Canada. He was awarded the JSPS fellowship (senior) to visit Japan and has also visited Argentina as the TWAS-UNESCO Visiting Associate at the Centre of Excellence in the South awarded by the Third World Academy of Sciences.

EARLY YEARS OF X-RAY RESEARCH IN INDIA

Prof. S.C. ROY Ph D

X-ray was discovered in 1895 by Wilhelm C Roentgen using Crooke's tube. While investigating Xray research work in India immediately after the discovery of X-rays under the project "History of X-ray Research in India" under the sponsorship of the Indian National Science Academy (INSA), we have uncovered some new information in connection with the X-ray apparatus built by Acharya Jagadish Chandra Bose (1858-1937) and the research he had done, which, to the best knowledge of the author, has not been presented before. X-ray research in India has a history from the time of the discovery of X-rays. It is known that Jagadish Chandra Bose (JCB) had built an X-ray apparatus in 1897 while he was in Presidency College, Calcutta with the help of his assistant in Presidency College. We found out that his X-ray machine was used for clinical diagnostics in patients with broken bones by a physician no less than Sir Nilratan Sircar. However, because of unavailability of his apparatus in Bose Institute or in any museum or any authentic document, it raised some doubts in a section of people about the photographs he had taken using his machine. We have been able to find a press report published in the Calcutta based English daily The Amrita Bazar Patrika in its 5th May edition of 1898 which gives us some idea about his apparatus and the experiment he performed. Using the description available in this document we have tried to come up with a schematic diagram of the apparatus he had used. This report also contradicts the comments made by some authors that JCB had not taken X-ray photograph using Barium Platinocyanide before 1901.

ARTICLE

Father Lafont (1837-1908) of St. Xavier's College, Calcutta brought from Europe a Crooke's tube at a time (1878-79) when vigorous research was in progress in Europe using Crooke's tube. Father Lafont delivered a lecture in 1880 titled "Crookes on Radiant Energy' in the Science Association. Lord Lytton, the then Viceroy of India invited Dr. Mahendralal Sircar to demonstrate the actions of Crookes tube. A contemporary report described: "It is not possible for any individual to forget the evening Dr. Sircar had such a wonderful proficiency over the subject that he very easily explained the amazing behavior of one millionth of atmosphere to the entire satisfaction to His Excellency. Two ancient European professors of science were present there and they directed their arguments in a sophisticated way against Dr. Sircar. They had no belief in the bombardment of ions. But the wheels of mica placed at forty-five degrees revolved like a well-conducted machine. That was the triumph of science." That was the beginning of interest in research in discharge of gases and which finally led to X-ray research in India. Is J. C. Bose the Father of X-ray Photography? That Jagadis Chandra Bose (1858-1937) discovered microwaves and the story that he demonstrated the use of microwaves by firing a gun located at some distance away is well known. But what is less known is that Jagadis Chandra was the first person who produced X-rays using an apparatus built by himself long before X-ray machine was available

commercially. Siddhartha Ghosh in his book 'Kaler Sahar Kolkata' reported that in the evening of 17th August 1888 in the ninth annual meeting of Bangamahila Samity (Society of Bengali women) in the house of Mohini Mohan Bose (father of Debendra Mohan Bose) Jagadish Chandra demonstrated some exciting experiments in front of a gathering of relatives and other people numbering more than hundred. The September 1888 issue of Bamabodhini magazine reported "A house was lit up by electric lights, Professor Jagadis Chandra Bose demonstrated electricity operated sewing machine along with some other experiments. Among them one was fascinating. When a hand is put before a machine, hand becomes transparent like air and all substances on the other side are clearly visible." Arun K Biswas also reported the demonstration of "electric light, sewing machine driven by electric motor and X-ray passing through the hand" in the Appendix XXXV of his book. The first photograph using X-rays was also taken by Jagadis Chandra Bose. D.M. Bose, the nephew of Jagadis Chandra Bose, in his address before the Indian Radiological Congress on 25th December 1948 said that "He (Jagadis Chandra Bose) was, I believe, is the first person in India to reproduce Roentgen's discovery in 1895, of the generation of X-rays in a cathode ray tube". Although exact date and year when Jagadis Chandra built the X-ray apparatus was not known, but according to Arun K Biswas "we have reports of Jagadis setting up his own X-ray apparatus in 1887, quite a few years before such a machine was imported to India". He further mentioned "Several years later, commercial apparatus was made by the firm Ducretet of Europe." If this is true, then Jagadis Chandra demonstrated application of X-rays before the discovery announced by Roentgen! Incidentally, first X-ray machine was imported in India by Dr. Mahendralal Sircar from Ducretet company on 11th June 1896 and he performed first experiment using this machine on 20th June 1896. According to this document, Jagadis Chandra used an X-ray apparatus long before the import of first X-ray machine in Calcutta, if not in India, which was built in his laboratory by his assistant Shri Jagadindu Ray. Jogendra Kumar Chattopadhaya reported in the magazine Prabasi, that "Shri Jagadindu Ray who lived in Serampore was an assistant of Jagadish Chandra Bose. One day Jagdindubabu told 'an X-ray machine, a machine which produced invisible light rays, has been built in our college (Presidency College). Satyendranath Thakur will come today to see the machine at 3 pm'. I went to Presidency College with one of my friends at 3 o' clock and learnt from Shri Jagadindubabu that Satyendrababu is in the next room with one of his I.M.S. friends Captain Chatterjee. When I entered the next room with my friend, Professor Bose, Doctor Chatterjee and Satyendrababu looked at bones of my broken hand with great interest. Satyendrababu told to his friend in English that this is probably the first picture of broken hand taken using X-rays in Calcutta. There was no X-ray machine available then in Calcutta. The machine was built at Presidency college by Jagadindubabu under the guidance of Jagadis Chandra Bose." Although there exists ample evidence to show that Jagadis Chandra Bose built an X-ray apparatus before any X-ray machine was imported to Calcutta, unfortunately there is hardly any document from which we can understand how his X-ray machine looked, whether it was different from the apparatus used by Roentgen, what was his idea about

the photographic screen etc. The only information available about all these is from the Press report titled "Professor Bose and the New Light" published in the 5th f May 1898 edition of the daily English Newspaper the Amrita Bazar Patrika8. Impression of Jagadis Chandra's X-ray Machine Revealed for the First Time The news report8 described the improvement Jagadis Chandra made in his apparatus. Roentgen used Ruhmkorff's coil as a source of transient high voltage in discharging the gas in the Crooke's tube. Ruhmkorff's coil produces high voltage pulse in the secondary coil by electromagnetic induction when a dc supply in the primary is interrupted by a mechanical contact. Every time there is an interruption there is a high voltage pules in the secondary coil. This secondary coil is connected with the X-ray tube . By coupling a Tesla coil with the secondary of Ruhmkorff's coil (which then acts as the primary of the tesla transformer) Jagadis Chandra had been able to produce a higher voltage many times more than that can be produced using a single Ruhmkorff's coil. The news report8 mentioned "he has managed to get for better results by connecting the induction coil with a Tesla Transformer and then allowing the sparks to pass through the vacuum tube. The simple function of the piece of apparatus known as the Tesla Transformer when connected with a Ruhmkorff's coil is to increase its power enormously and hence it is evident the new arrangement cannot but yield excellent results." Based on this information, we have presented a schematic diagram close to the apparatus he had probably used. The paper reported that Jagadis Chandra intended to procure another huge Tesla Transformer from Europe, which will be thousand times more powerful than the one in his possession. The paper reported "He would join it with the Dynamo Electric Machine in the Presidency College and with this splendid apparatus, (which would be at least 5,000 times more powerful than the present arrangement) in the hands of so skilful an experimenter, we anticipate brilliant achievements in a hitherto dark and unexplained region of science. Even with the poor means in his hands he has got excellent results, results which would be creditable to the experimental skill of any scientist." That the X-ray apparatus which he built in the Presidency College had been used for radiological purposes to look at fractured or broken bones in the body is evident for the letter he had written to Rabindranath Tagore. In one of his letters to Rabindranath Tagore he mentioned that he must be present in the Presidency College at eight in the morning to investigate a patient who has broken his back using Roentgen machine. It also mentioned that Dr. Nilratan Sircar, the famous physician, will be present there. The date of this letter is not mentioned, but according to the author Shri Dibakar Sen, it was written sometimes in February 1898. That Jagadis Chandra had been able to take photograph of hands and other objects at least around 1898 (if not before) is evident from the press report published in May 1898. It reported that "We were shown a photograph of human palm taken by the Professor with the new light, and the ghastly sight will long be vividly imprinted in our memory, for there, in the photograph, instead of the ordinary fleshy palm is seen depicted a long range of bones presenting a skeleton like appearance." In order to take Xray photograph he also used barium platinocyanide screen prepared in his laboratory. D.M. Bose reported4 "Reading a newspaper account of Roentgen's discovery, Bose, then Professor of Physics in

Presidency College, Calcutta, set a young research assistant Nagendranath Nag, who later became the Assistant Director of Bose Institute, to prepare Barium Platinocyanide screens with which he took X-ray photographs of different objects, like a human hand, coins placed in a purse etc.". Therefore, based on the above documents, the conjecture that the authors made in their book that 'possibly he (Jagadis Chandra) did not take any X-ray photograph using a screen coated with barium platinocyanide until June 1901" may not be correct. It is proper here to mention that Pradyot Kumar Tagore, son of Sir Jatindramohan Tagore, who was trained in England on photography, specially X-ray photography, teamed up with Father Lafont to take an excellent photograph1 of the right hand of Earl of Elgin, the then Viceroy of India wearing rings. The picture was published in the Journal of Photographic Society of India in 1897.

The Amrita Bazar Patrika did not give detailed mechanism of the photographic process used by Jagadish Chandra Bose, but it was mentioned that the photographic process is a tedious one and reported that "Professor is completing an arrangement by which an image may be projected on a screen and thus viewed directly by a number of curious spectators." Jagadish Chandra, being a scientist of excellent calibre, did not stop there by taking photographs of different objects but started investigating the action of X-rays on various bodies. On the suggestion of Professor Bhaduri of the Chemical Laboratory, he has succeeded in finding another substance, Potassium Platinocyanide, "which is far more easily obtained than the corresponding Barium compound, is equally effective and hence may be substituted for Barium Platinocyanide in this research." The report ended with "The research, however, are not yet completed and we await the result with interest." Unfortunately, we did not know more about his X-ray research, more investigations needed to be conducted. Whether Jagadis Chandra preceded Roentgen in discovering X-rays is a subject which needs further investigation by historians of science, but it is true that Jagadis Chandra was well acquainted with the contemporary X-ray research that was being pursued in Europe in late nineteenth century and he made significant contributions in the areas of X-ray research.

Hyperlinks of academic material published on YouTube by Calcutta Academy of Radiology	
1	Imaging of acute Pancreatitis—Dr. Anirudh Kohli
2	USG of rotator cuff - Dr. P. K. Srivastava
3	PET CT Physics - Dr. Sikandar Sk.
4	PET CT in Neurology - Dr. Sikandar Sk.
5	CAR - Case of the week - Case 1 - Megalencephalic leukoencephalopathy with subcortical cysts. - Dr. Viral Parekh
6	CAR - Case of the week - Case 2 - Adenocarcinoma of terminal ileum - Dr. Viral Parekh
7	CAR - Case of the week - Case 3 - Stener lesion - Dr. Nivedita Chakraborty
8	CAR - Case of the week - Case 4 - Anterior shoulder dislocation - Dr. Nivedita Chakraborty
9	CAR - Case of the week - Case 5 - Secondary intracranial hypotension. - Dr. Viral Parekh
10	CAR - Case of the week - Case 6 - Intramyocardial Dissection - Dr. Ritu Agarwal
11	CAR - Case of the week - Case 7 - Radiation Necrosis and BT - RADS - Dr. Nivedita Chakraborty
12	CAR - Case of the week - Case 8 - Undisplaced right ulnar styloid base fracture - Dr. Nivedita Chakraborty
13	CAR - Case of the week - Case 9 - Hypoglycaemic encephalopathy. - Dr. Viral Parekh
14	CAR - Case of the week - Case 10 - Myocardial annular dysjunction - Dr. Ritu Agarwal
15	CAR - Tribute to Wilhelm Conrad Roentgen - Immortal Roentgen.
16	CAR - Case of the week - Case 11 - Dacryocystocele with anatomy of Nasolacrimal apparatus. - Dr. Viral Parekh
17	CAR - Case of the week - Case 12 - Tubercular osteomyelitis - Dr. Nivedita Chakraborty
18	CAR - Case of the week - Case 13 - Marchiafava Bignami disease - Dr. Viral Parekh
19	CAR - Case of the week - Case 14 - Parosteoal Sarcoma - Dr. Nivedita Chakraborty
20	CAR - Case of the week—Case 15 - Adrenal haemangioma - Dr. Viral Parekh

Hyperlinks of academic material published on YouTube by Calcutta Academy of Radiology	
21	CAR - Case of the week - Case 16 Patellar GCT - Dr. Nivedita Chakrabarty
22	CAR - Case of the week - Case 17 - MEN Syndrome - Dr. Sayan Sarkar
23	CAR - Case of the week - Case 18 - Langerhans cell histiocytosis - Dr. Sayan Sarkar
24	CAR - Case of the week—Case 19 - Hepatic angiomyolipoma - Dr. Viral Parekh.
25	CAR– Case of the week - Case 20 - Cirsoid aneurysm - Dr. Viral Parekh

We have a new blog , where we publish cases, quizzes and various other education materials. Please follow the blog.

Link is here

We are on YouTube

You can send your good case to us. We will publish it in our channel.

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A Platform For Radiology Education & Interaction

Calcutta Academy of Radiology was formed on international day of Radiology in 2019, that is on 8th. November, 2019 to promote Radiology education, keeping in mind Residents as well practicing Radiologists.

Since then we are on WhatsApp and Telegram, where thousands of cases have been discussed by members from all over the world and in the process we are sharing our experiences and helping each other. These social media platforms have turned out to be great learning tools.

We had organized a half day CME also on GI Radiology in February, 2020. We have plans to organize more such CME programmes in future when world recovers from this ongoing pandemic.

We are on YouTube also where we regularly post teaching videos and in the process try to propagate Radiology as much as possible.

We are on WhatsApp and Telegram

Next issue will be published in April, 2022

We will be bringing out such Newsletters with a frequency of one issue every two months. So, next issue will be published in March, 2021.

We are hereby inviting good interesting cases and original work from our fellow Radiologists, which will be published on merit basis.

So, I request all of you to contribute to this Newsletter. Please send your material in Word format with good quality images. Please send your photograph and details of your place of work with email address also.

Your material should reach us by 15th. Of March, 2022. You can send the word file to our abovementioned email address or you can WhatsApp it to above-mentioned three phone numbers.

On our YouTube channel, we are presenting a new case every week and there is good response to such teaching videos. I hereby request all Radiologists to share their teaching videos with us and if they contain good teaching material, we will surely publish it on our channel. So friends, during this trying time , stay away from depression by engaging yourself in academic activities.

Our Telegram group is lagging behind in academic activities as compared to two WhatsApp groups, so I request all of you to join our Telegram group. Since, WhatsApp restricts the number of members to 256 only, whatever activity going on there is not helping the whole Radiology community.

Telegram can add up to whopping 200,000 members. So, if we post our study material there; it will reach to and benefit huge number of members.

So friends, take care and be safe.

So, see you all in next issue of CAR newsletter.

So long,

Anup Sadhu, Bijon Kundu and Viral Parekh.

We are thankful to all the contributors for sharing their experiences and literature with us and in the process helping the Radiological fraternity.