



**INSIDE THIS
ISSUE:**

Dr. Bhavin Jankharia's cases	2-4
Interesting cases - Dr. Amar Udare	5-6
Discoid Meniscus. Dr. M. Venkatesh	7-8
Food signs in Radiology	9
MRI of Shoulder Dr. A. J. Shah	10-13
About CAR	25



Radiologist's Enigma - Teleradiology and Artificial Intelligence

Hi! Namaste,

This is Dr. Viral Parekh from Kolkata, India. It is a peasant experience to bring out this fourth newsletter of Calcutta Academy Of Radiology.

During this pandemic everyone has realised that Teleradiology is going to stay forever and is going to play a huge role in Diagnostic Radiology. So, there is a huge debate going about it amongst the Radiologists.

Radiologists are aggrieved that they are being paid measly amount for the work they do and they are subservient to different Teleradiology service providers. Who is to be blamed for this scenario? None other than Radiologists themselves.

In the process of competing with each other, we have devalued ourselves and have brought down the prices of Teleradiology reporting very low. We have not been enterprising enough to set up our own Teleradiology services. So, it is now the time to unite and put all the differences aside and put all the pieces together and fight this menace unitedly.

During the forthcoming IRIA elections, a few candidates are making promises to look into these problems afflicting teleradiology. I hope they are not making hollow promises just to grab votes but will look into these problems sincerely.

Artificial intelligence is making a great strides into Radiology and being customized to match radiologist requirements. It is slowly getting incorporated into the daily workflow of a Radiology department. Radiologist should embrace it with positive mindset and should not consider it the one who is going to take away their jobs or one who is going to reduce their professional worth. AI should be considered as an extra team member who is there to help you out and reduce your work related stress. AI can potentially reduce diagnostic errors and is going to be a big boon in Diagnostic Radiology in near future.

Huge work is going on in the field of AI in Radiology like Vertebral fracture grading, Diffusion weighted imaging in Prostate, Cardiac MRI and so on. In fact efforts are on to integrate AI into every field of Radiology. I hope that day comes fast and I am able to see the usefulness of Artificial Intelligence.

We are grateful to Dr. Bhavin Jankharia, Dr. Amar Udare, Dr. Ankur Shah and Dr. Venkatesh for contributing to this newsletter and in the process making it rich in its scientific content.



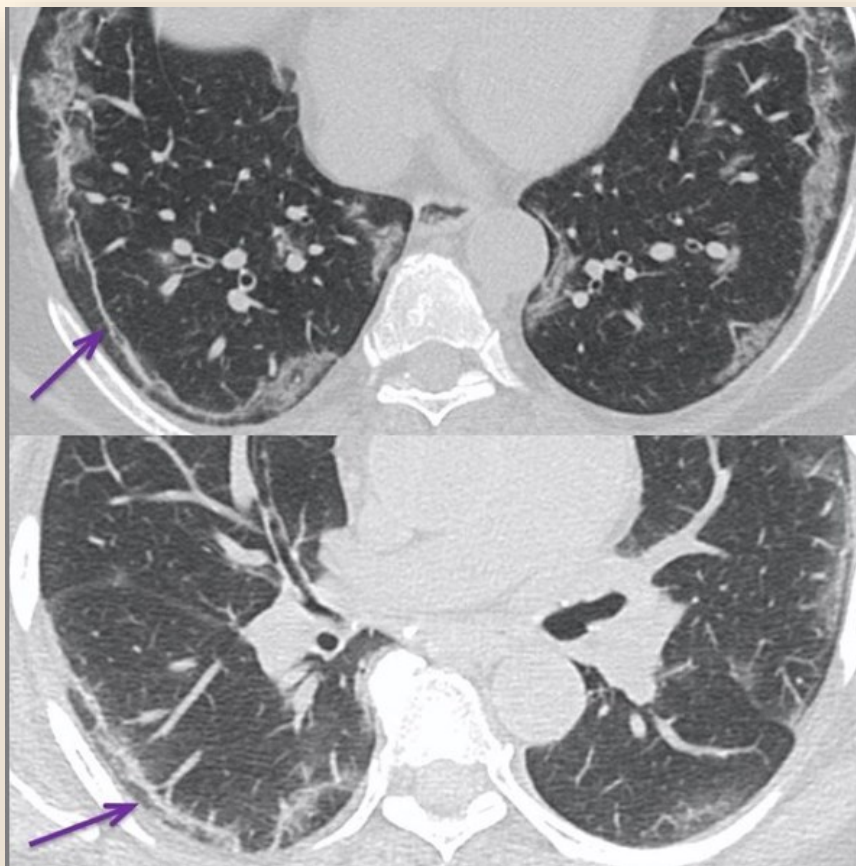
Dr. Bhavin Jankharia,
MBBS, DMRD, MD
Consultant Radiologist.

E mail: bhavin@jankharia.com
www.picture-this.in
www.refindia.net
 Insta: [bjankharia](https://www.instagram.com/bjankharia)
 Twitter: [@bhavinj](https://twitter.com/bhavinj)

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

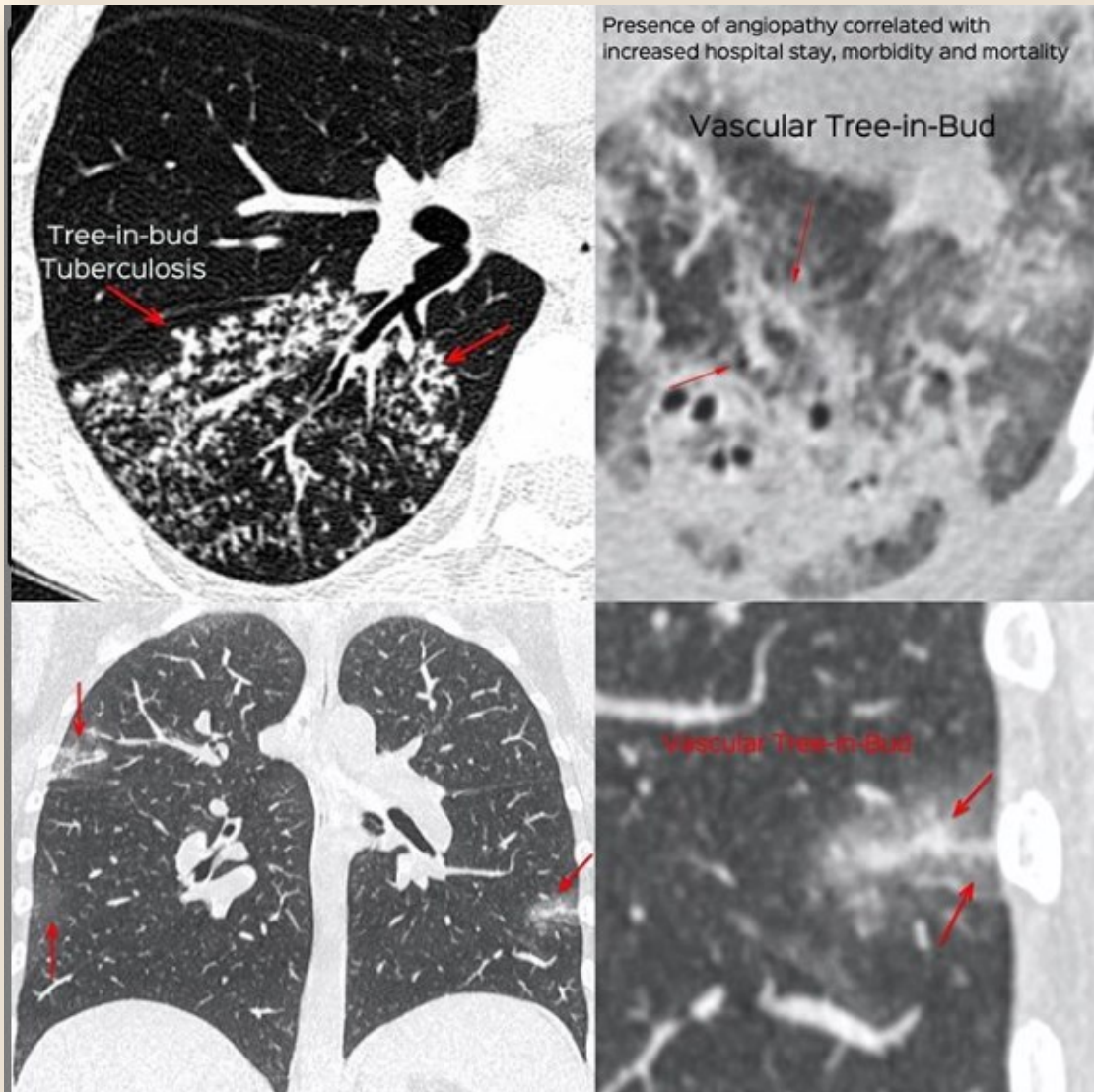


Covid-19 CT Chest Patterns - Bands

Many patients show thin or thick curvilinear bands (purple arrows) usually in the lower lobes in the posterior and lateral basal segments. It is not clear what they represent. Some say that they are due to resolving pneumonia, but we have seen these bands at first presentation as well. Others believe they are due to sub-segmental atelectasis, because of their location and yet some others believe they represent fibrosis, though we have seen these bands resolve as well.

Perhaps they are a combination of multiple things - partly resolving pneumonia with an element of sub-segmental atelectasis and perhaps an element of fibrosis in some patients.

Case II

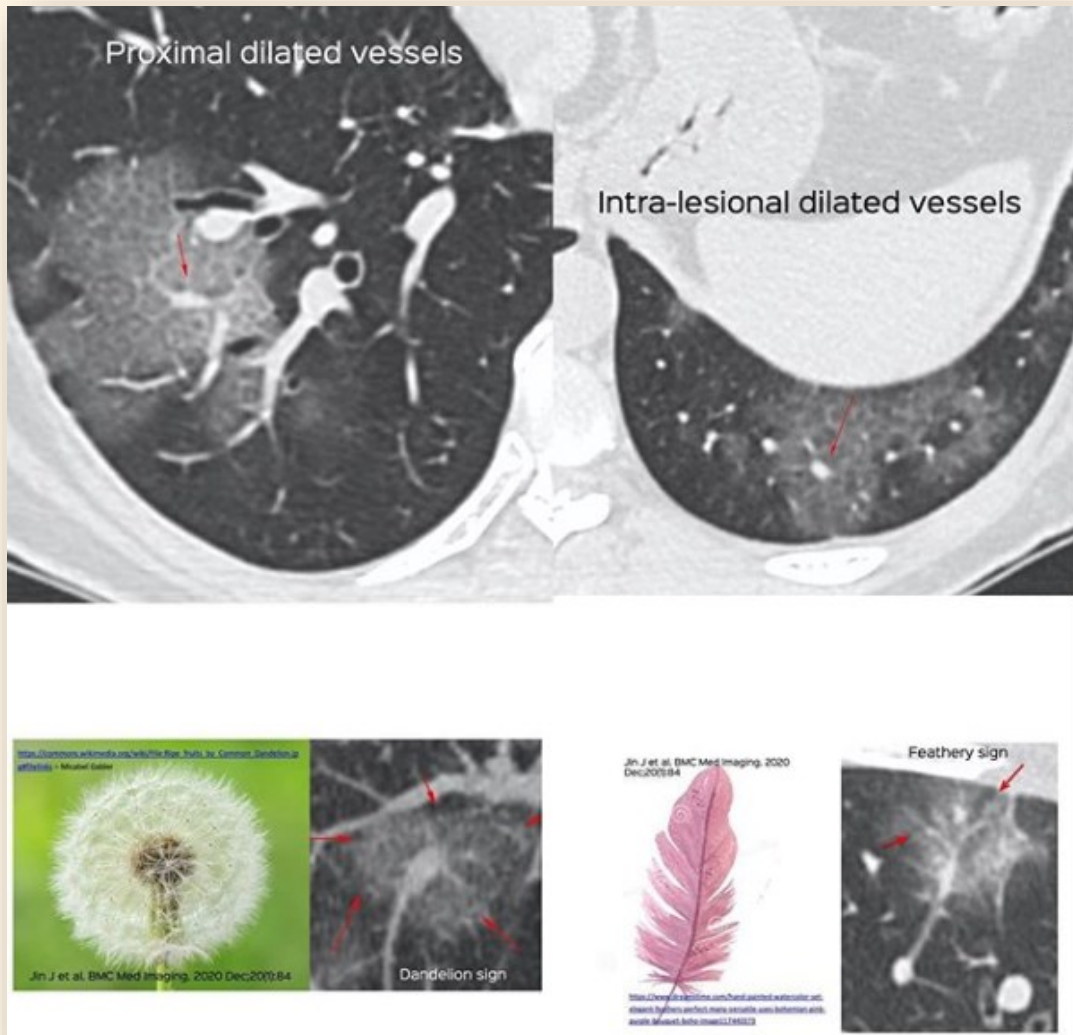


Covid-19 CT Chest Patterns Vasculopathy - Vascular "Tree-in-Bud"

The vascular "tree-in-bud" appearance has been recently described by Brijesh Patel from the Royal Brompton in London and his colleagues. This refers to the presence of branching peripheral vessels, in a way, similar to the bronchial "tree-in-bud" (top left) we see with infectious bronchiolitis / tuberculosis. This vascular "tree-in-bud" (top right) is supposedly a marker of a thrombotic vasculopathy with angiogenesis and micro-thromboses. The presence of this sign in admitted patients resulted in poorer prognosis in their study (AJRCCM. 2020 Jul 15;rccm.202004-1412OC).

India is unique among many countries that non-admitted, less symptomatic or sometimes pre and asymptomatic individuals get CT scans done. Here is one such patient who had a few foci of Covid-19 pneumonia (bottom left), one of which showed a vascular "tree-in-bud" (bottom right). She recovered without any complications.

Case III



Covid-19 CT Chest Patterns - Vasculopathy

One major difference between Covid-19 and other inflammatory / infective diseases of the lungs is the presence of a vasculopathy / angiopathy. While there is still debate about the exact pathophysiology behind the vascular involvement, there are radiology signs that allow us to identify the presence of a vasculopathy.

Many patients show prominent / dilated proximal or intra-lesional vessels. This is perhaps the simplest sign of a vasculopathy, rarely seen outside of a Covid-19 situation.

Jin J and his colleagues have tried to describe some signs associated with the dilatation of intra-lesions vessels; the “dandelion” sign and the “feathery” sign, both of which are quite self-explanatory.



Dr. Amar Udare

MD, DNB

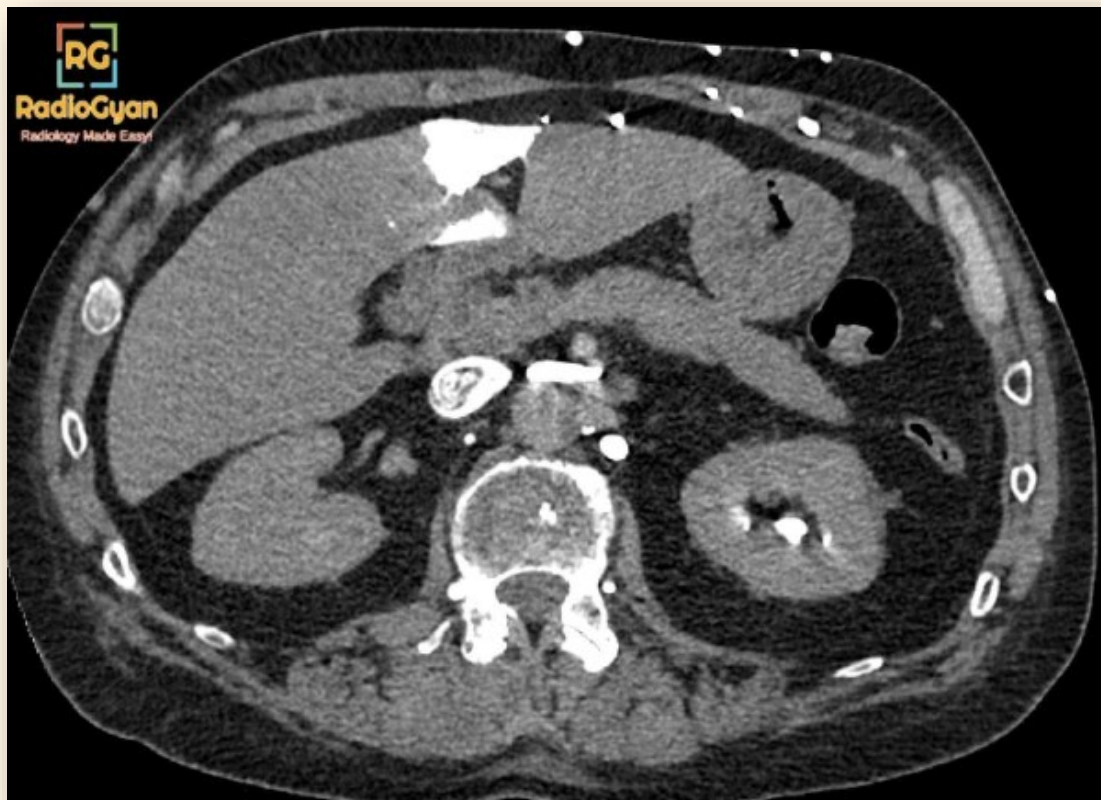
Fellow in Cross-Sectional
Imaging,

McMaster University,

Hamilton, Canada.

Dr. Amar Udare is a young and dynamic Radiologist. He is now doing his fellowship in Cross sectional imaging at Hamilton, Canada. He has developed a website - radiogyan.com - A free radiology website for radiology residents and professionals. He runs a Telegram group also, where thousands of Radiologists and Residents are members. Thanks a lot for helping the fraternity and spreading the knowledge. We are proud of you. Here is one of his cases.

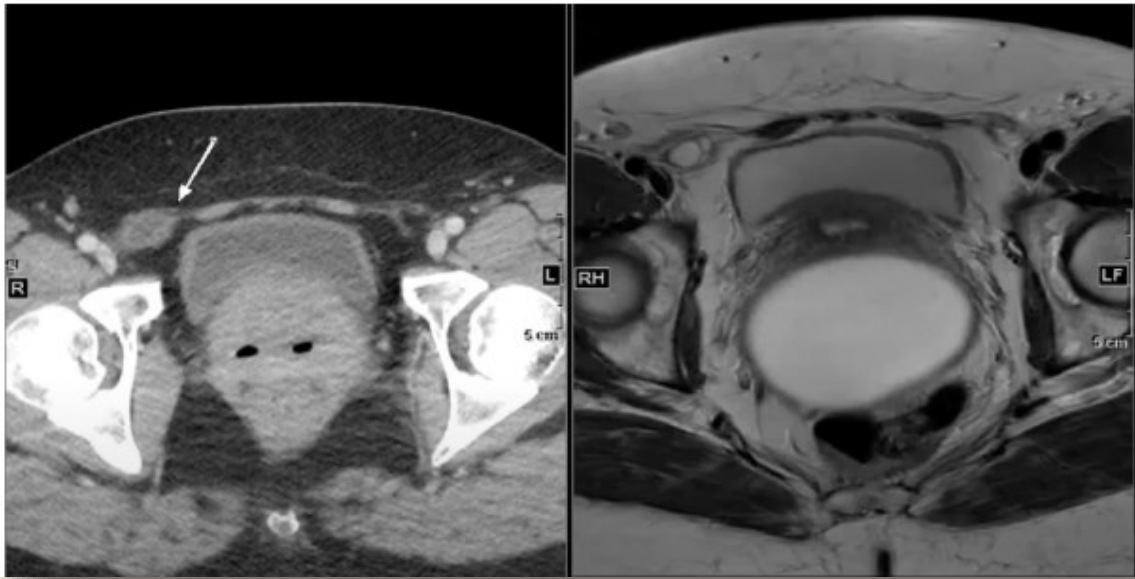
Hot quadrate lobe sign



Hot quadrate lobe sign focal hepatic hot spot in SVC obstruction on CT

- Also known as focal hepatic hot spot sign due to its appearance on technetium 99m sulphur colloid scans.
- Pathophysiology : SVC obstruction -> if partial -> drainage by collateral vessels -> internal thoracic, superficial thoraco-abdominal veins and paraumbilical veins -> left portal vein-> Early arterial enhancement in the QUADRATE lobe of liver -> Hot Quadrate lobe sign on early arterial CT study.
- This region is normally drained by the superior vein of SAPPY
- Only seen on ARTERIAL phase.
- Clinical significance:
- Suggests long standing SVC obstruction.
- Cause of hepatic pseudo-lesion.

CANAL OF NUCK CYST



Pathophysiology of the Canal of Nuck

- Extension of the parietal peritoneum follows the round ligament as it passes to the inguinal canal.
- Usually gets obliterated.
- This evagination of the parietal peritoneum = the canal of Nuck = female counterpart of processus vaginalis in men.
- If it is:
 - Completely patent: Avenue for an indirect inguinal hernia and hydrocele (Canal of Nuck hernia).
 - Obliterated at the level of both the superficial and deep inguinal rings: Fluid may be trapped in between both ends of the canal, creating a Canal of Nuck cyst.
- Obliterated at lower end – Infantile hydrocele / encysted hydrocele.
- Hydrocele vs cyst canal of Nuck : The terms hydrocele and cyst of Canal of Nuck are used interchangeably but these are separate pathologies.

Symptoms

It usually presents as a painless swelling in the inguinal region. Infection can cause pain.

Imaging appearances:

- Canal of Nuck cyst is an inguinal cyst in females.
- US : Cystic lesion in the inguinal canal with posterior acoustic attenuation.
- CT : Hypodense lesion with or without internal septations.
- MRI: T1 isointense, T2 hyperintense, typical appearance of a cystic lesion.
- Can show peripheral enhancement.

Differentials for Canal of Nuck cyst

- Inguinal hernia containing fluid in patients with ascites.
- Soft tissue tumor.
- Endometriosis cyst
- Cyst
- Abscess
- Lymphadenopathy

Management:

Surgical excision or conservative management depending on patient presentation.

**Dr Venkatesh Manchikanti**

MD (Radiodiagnosis), DNB(Radiodiagnosis), EDiR(European Diploma in Radiology)

Assistant professor, Narayana medical college, Nellore, Andhra Pradesh, India.

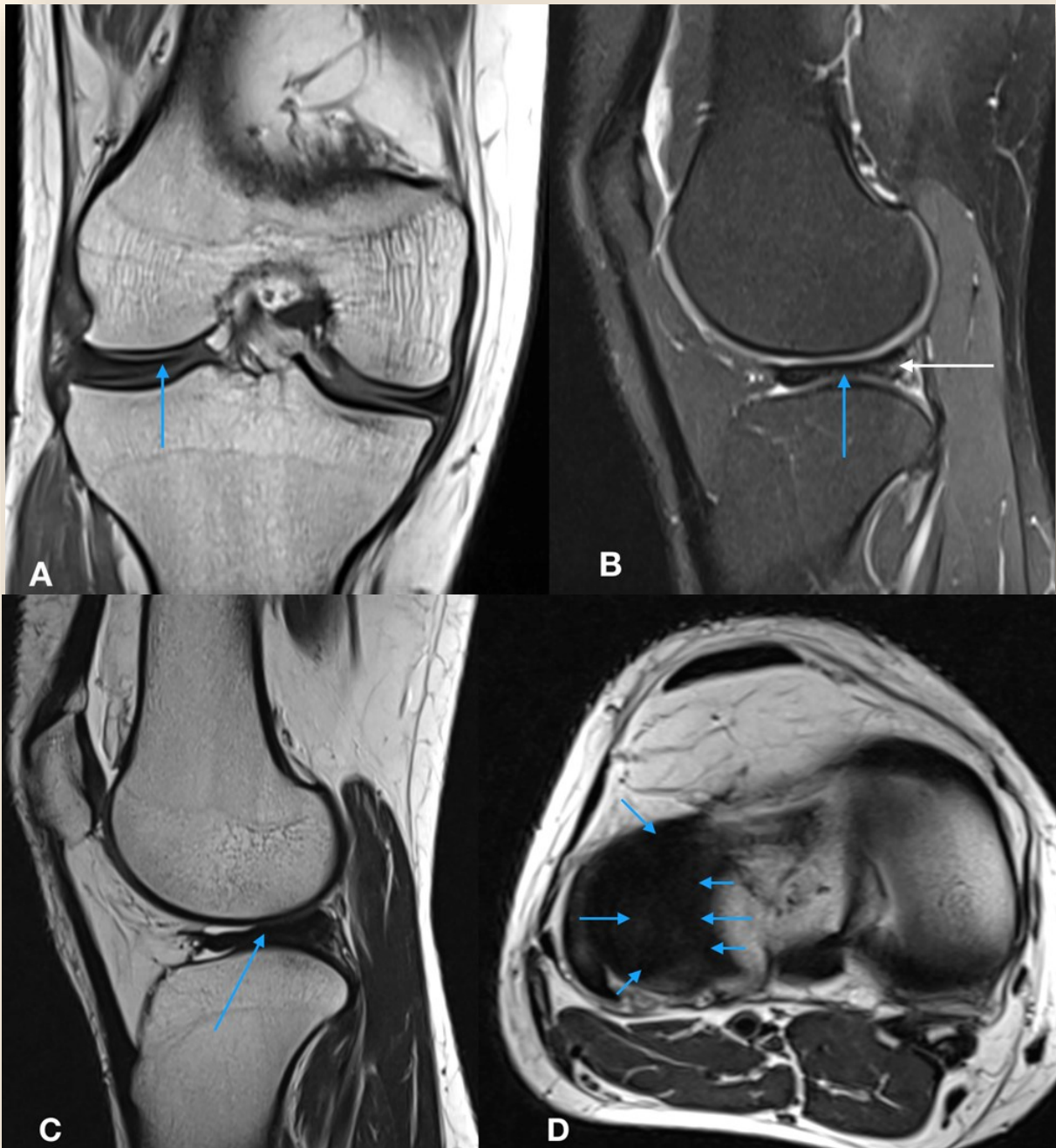
Ex Senior Resident, JIPMER

Contributions-

- 30 national and international publications
- 150 articles in Radiopedia
- Dedicated YouTube channel- Shades of Radiology
- Delivered guest lectures at state conference of IRIA
- Mentorship for postgraduates

DISCOID MENISCUS

MRI knee joint of 20 year old male presented with chronic right knee joint pain with no significant history of trauma .





Coronal T1(A) and Sagittal T2(C) images of knee joint showing thick band of lateral meniscus (blue arrow) extending medially in the region of body of meniscus with Absent bow tie sign.

Sagittal PDFS (B) shows thickened body of lateral meniscus with linear hyperintense signal (white arrow) extending to periphery suggestive of grade 2 tear.

Axial T2 (D) showing the thick band of lateral meniscus in the body region of meniscus extending medially covering more than 80% of tibial plateau suggestive of Complete type of Discoid Lateral meniscus

Clinical features -

- Instability or tear can lead to knee pain
- Can be asymptomatic
- Insidious popping or snapping might be present
- Limited range of motion
- Positive Mc Murray test
- Wrisberg type - can present with snapping knee syndrome

Salient features-

- Discoid menisci are congenital
- Discoid morphology may be due to resorption failure of central part of meniscus during foetal development
- Characterised by decreased collagen fibres with loss of normal orientation.
- More often bilateral.
- More commonly seen with lateral meniscus

Types of Discoid meniscus -

- Incomplete - covers less than 80% tibial plateau
- Complete - covers complete tibial plateau
- Wrisberg type - Normal shape with lack of posterior meniscal attachments

Radiograph -

- Can suggest diagnosis with widened lateral joint space
- Can be normal
- Cupping of tibial plateau might be present

MRI -

- Increased width of meniscal body(>15mm on coronal plane)
- Absent bow tie sign(sagittal images)
- Continuity of body of meniscus for 3 or more 5mm thick slices on sagittal plane
- Minimal degeneration or tears might be present in symptomatic patients.

Treatment -

- Most of them are asymptomatic and do not require treatment
- Symptomatic patients may need partial or total meniscectomy

FOOD SIGNS IN RADIOLOGY - Dr. Viral Parekh, DMRD, DNB.

RICE GRAIN CALCIFICATION

- Refers to ovoid flecks of calcification resembling grains of rice in the soft tissues.
- Characteristic of Cysticercosis.
- Calcifications are parallel to the long axis of muscle.

RICE GRAIN CALCIFICATION



MILIARY SHADOWING

- The term miliary comes from millet seed.
- Areas of increased opacity are said to resemble millet seeds in size and shape.
- Indicates presence of profuse, tiny, well-defined nodules between 1-4 mm. in size.
- Miliary tuberculosis, fungal infections, Sarcoidosis, Inhalational diseases and Metastases.

MILIARY SHADOWING



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



We are on
YouTube and
Facebook



Dr. Ankur J. Shah

MBBS and DMRE from Civil Hospital, Ahmedabad

Consultant Radiologist and Head, Sadbhav Imaging Centre, a division of Gujarat Imaging Centre, Ahmedabad since 2005

Working in MRI and CT scan with focus on musculoskeletal imaging

Secretary of Musculoskeletal Society of India

Joint editor of Indian Journal of Radiology and Imaging

Obtained advanced musculoskeletal radiology training at Cincinnati, USA in 2010

Completed Fellowship in Cartilage MRI on Ultrahigh field 7.0 T MRI at Vienna in 2015

Has delivered lectures in national and international conferences

Has presented scientific papers and exhibits in various national and international conferences

MRI of Shoulder - SLAP lesions³

Labral tears

- Degenerative lesions – fraying of labrum
- Flap tears – acute or sub acute – common at postero-superior labrum in athletes
- Vertical split tears – least common
- Bucket Handle tears – complete vertical split
- SLAP lesions – Superior labrum from anterior to posterior – described by Synder et al in 1990

SLAP tears

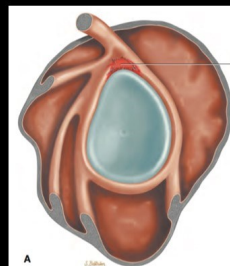
- Superior labral anterior posterior (SLAP) tear is a tear of the superior labrum centered around the long head of biceps tendon (LHBT) origin and it can extend to the anterior or posterior labrum
- The tear can occur due to sudden forceful stretching of the LHBT as in catching a heavy object. It can also occur due to fall on outstretched arm or due to repetitive overhead movements

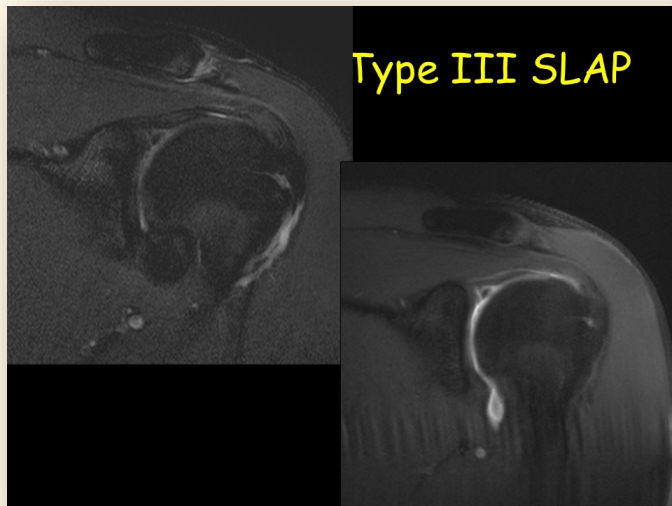
SLAP tears

- Initially only four subtypes of SLAP tears were described – and this remains the most commonly used classification
- Later, multiple other types and subtypes were also described and currently 10 different types of the SLAP lesions are described in the literature

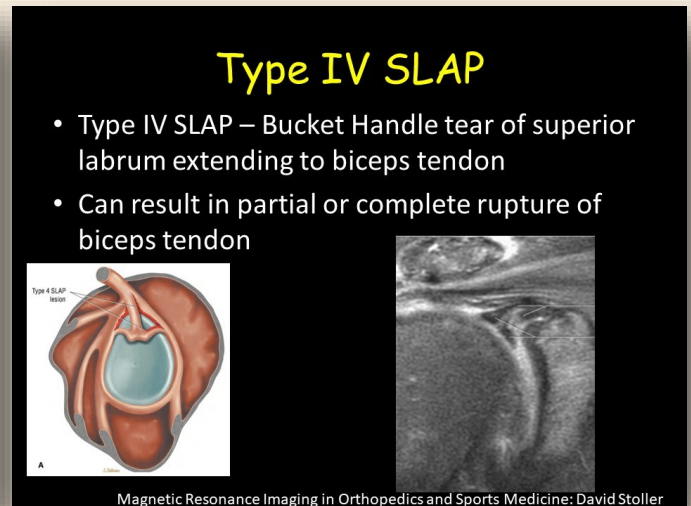
Type I SLAP

- Type I SLAP – frayed and degenerative superior labrum without evident tear and normal biceps tendon anchor



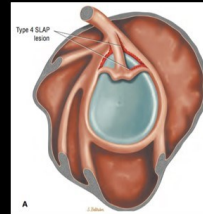


Type III SLAP



Type IV SLAP

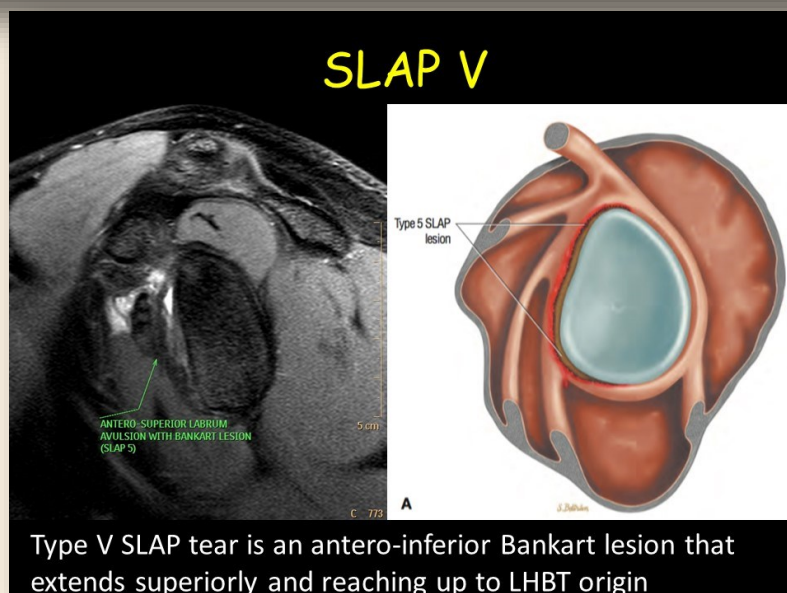
- Type IV SLAP – Bucket Handle tear of superior labrum extending to biceps tendon
- Can result in partial or complete rupture of biceps tendon



Magnetic Resonance Imaging in Orthopedics and Sports Medicine: David Stoller

Extended SLAP lesions

- **Type V SLAP** – SLAP 2 or 3 plus superior extension of Bankart lesion. Can have associated Hill-Sachs lesion
- **Type VI SLAP** – Flap tears of superior labrum
- **Type VII SLAP** – SLAP 2 or 3 with extension into middle glenohumeral ligament
- **Type VIII SLAP** – SLAP 2 or 3 plus a posterior labral tear
- **Type IX SLAP** – Circumferential labral tear with anterior and posterior extension
- **Type X SLAP** – SLAP 2 or 3 lesions with extension into rotator interval through superior glenohumeral ligament



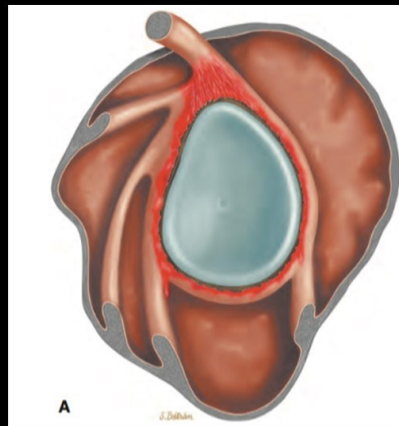
SLAP V

Type V SLAP tear is an antero-inferior Bankart lesion that extends superiorly and reaching up to LHBT origin



SLAP IX

- A tear of superior labrum with extensive anterior and posterior extension resulting in near complete concentric detachment of labrum around the entire glenoid rim



Limitations of SLAP classification

- There are a lot of interobserver & intraobserver variability amongst experienced shoulder arthroscopists for SLAP tear classification & treatment
- Difficulty in differentiation of normal labrum from Type I and Type II SLAP
- Labral variants can mimic SLAP tear
- Variability of reading and lack of reproducibility on MRI

Gobeze and Warner. SLAP lesion: what is it... really? Skeletal Radiol (2007) 36: 379

Practical utility of SLAP

- In daily practice, it is important to describe the essential features of a SLAP lesion (location, morphologic appearance, extension as per labral clock, and associated injuries) and to emphasize the characterization of the lesion rather than the SLAP designation
- It is important to differentiate fraying and tearing of the labrum
- Always mention whether LHBT origin is involved or not
- Mention presence and location of displaced or free fragments of labrum if any
- Extension of SLAP lesion to antero-inferior labrum suggests glenohumeral instability and should be described appropriately



Calcutta Academy of Radiology

34B, Harish Mukherjee Road,
Kolkata 700025,
WB, INDIA

Phone:

98310 42543

98310 01650

98300 92244

Email:

calcuttaacademyofradiology@gmail.com

**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.



Next issue will be published in December 2020

We will be bringing out such Newsletters with a frequency of one issue every two months. So, next issue will be published in December, 2020.

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 November, 2020. 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.