INDIAN RADIOLOGICAL & IMAGING ASSOCIATION

TELANGANA STATE CHAPTER

IRIA TELANGANA

e-Newsletter, Issue -10

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FROM THE PRESIDENT'S DESK

Dear and esteemed members of TS IRIA chapter,

Seasons greetings to you all.

As you all know that the TS chapter is releasing the newsletter as per the schedule in the calendar with a sense of happiness and pride, I share with you the 10 th edition of newsletter will be unveiled on 24 th October 2021 on the state conference platform.

Besides providing the basic information regarding Radiology academics happening at state national and international level it will have a special feature on the personal achievements and case presentations by the members.

In the end to keep the association stay afloat your meaningful contributions are a must to the newsletter as it is going to be regular feature.

Lastly I wholeheartedly congratulate Dr.Jagan Mohan Reddy Sir, Dr.Aruna Karnawat & team In the editorial board for making the newsletter a colorful and eventful one.

Wishing you all the best.

Dr Prabhakar Rao.
President IRIA TS chapter.

FROM THE GENERAL SECRETARY DESK

Dear Fellow Radiologists and Friends,

The primary objective of the Indian Radiological and Imaging Association is to strive towards achieving academic and professional excellence in the field of Radiology. In this regard, it is very important to make efficient use of various Orations and Awards that are being offered today. All the young and upcoming Radiologists should utilize Medals, travelling and other fellowships of IRIA, ICRI and IJRI in order to gain both academic and professional knowledge.

Gender equity is an issue of utmost significance in today's society. We have to take steps to encourage participation of Women Radiologists in the organization and contribute our bit to the empowerment of women. Encouraging their participation in the activities of the Association is not just our responsibility but also our duty as gender equity would ensure that our programs and activities would be more women friendly and thus more efficient.

We all know that India is a young country wherein more than half of the population is below the age of 60 years. There is a need to ensure that this is also reflected in our organization. The participation of young, energetic and academically oriented professionals in the functioning of the organization would ensure generation of new ideas and also the energy needed in taking our activities forward.

We are all doctors first and Radiologists next. As medical professionals, we have a burden on our shoulders to ensure that quality health care is accessible to the poor and marginalized sections of our society. The Telangana State Chapter of IRIA has a responsibility to formulate programs and activities keeping this social obligation in mind. We must take steps to ensure that our activities related to social outreach and community well – being are increased both in quality and quantity.

We have already put in place a digital platform to seamlessly carry on our organizational and academic activities with minimal disruptions. We will keep going forward in the direction of IRIA's vision, which is to achieve Academic Excellence and Development of Radiology.

Regards,
Dr. Ravuri Power
GENERAL SECRETARY IRIA TS CHAPTER

EDITORIAL

Dr. Aruna Karnawat
Consultant Radiologist
American Oncology Institute &
Citizen's Hospital, Hydrabad

Dr Jaganmohan reddy
Prof. and HOD, Radiology.
Maheswara Medical College

Dr. Srinadh Boppana
Consultant Radiologist
Kamineni Hospital
LB Nagar

Dr. Ravi Kanth Jakkani
Consultant Radiologist
Yashoda Hospital
Malakpet

Dr. Ravuri Power
Consultant Radiologist
Star Hospital, Banjara Hills,
Hyderabad

EDITORIAL

Dr Jaganmohan reddy
Prof. and HOD, Radiology.
Maheswara Medical College

Teleradiology is the transmission of radiographic images by electronic means from one location to another for the purposes of interpretation and consultation. First developed for military purposes, teleradiology is now an integral part of telemedicine. There is potential for its further expansion with the recent advancements in computer systems.

Of late, with the widespread introduction of digitization in radiology and the low cost of internet connectivity, many of the technical limitations have been resolved. Now, clinical governance, medico-legal aspects and quality assessment are the issues which still remain to be streamlined.

Interpretation of all non-invasive imaging studies – digitized radiographs, CT,MRI and nuclear medicine studies, can be carried out. However, in India,ultrasound studies can only be in-hospital due to procedural guidelines.Interventional radiology and mammography procedures are also to be read in-house. In mammography, the large file sizes and issues related to image resolution required for detection of micro-calcifications
remain a barrier.

The key benefits of teleradiology are – for obtaining expert or second opinions from tertiary centers, providing 24/7 radiology coverage, providing services to remote areas, providing services to centers with shortage of staff or shortage of expertise for sub-speciality reporting, and to ease the burden of being on-call and for research and teaching purposes. It also plays a crucial role in humanitarian crises and disaster relief
operations.

With commercial international teleradiology, issues related to clinical
governance, quality control and the legal framework need to be addressed.Teleradiology is here to stay but has to evolve in a way that it ensures patientcare and safety and does not in any way compromise on the quality of services provided to the patient. Quality control has to operate at all levels – work-flowmanagement, infrastructure and the medical services. Precise reports in terms of content and language are essential. Patient confidentiality and data

EDITORIAL

integrity have to be ensured by both the referring hospital and the teleradiology service provider.

Teleradiology reflects the changing world of medical practice. This change has adv antages and also challenges. The state-of-the-art equipment needed carry heavy price tags and this may not be financially viable for some centers, with the result that the quality of their images may not be good enough for a teleradiologist to read them easily. Training technologists to meet the protocol preferences of teleradiologists can be difficult. Detailed history and access to previous images is a big challenge. Additionally, teleradiologists have to be available to consult with referring physicians and also convey critical findings. Hence, transmission and integration of clinical data, availability of previous reports, language to be used, maintaining confidentiality and data integrity, registration with the appropriate authorities, training and professional development through continuing medical education, maintaining medical licenses and medico-legal issues are some of the matters which require periodic assessment.

All patients deserve prompt and qualified interpretations. And smaller hospitals are demanding round-the-clock radiology coverage for both routine and emergency cases. Teleradiology has largely eliminated the long interpretation wait times that once existed in remote facilities.

Teleradiology has come a long way, significantly impacting the medical field. Today, it is an option for radiologists looking for more flexibility in work-life balance, a way for smaller hospitals to access sub-speciality expertise, and a fill-in service when providers in smaller practices go on vacation. In the future, teleradiology is also likely to follow the larger radiology industry, and incorporate AI technologies.

ACHIEVEMENTS OF TS-IRIA MEMBERS

Dr. Sikandar Shaikh
Secretary, ICRI

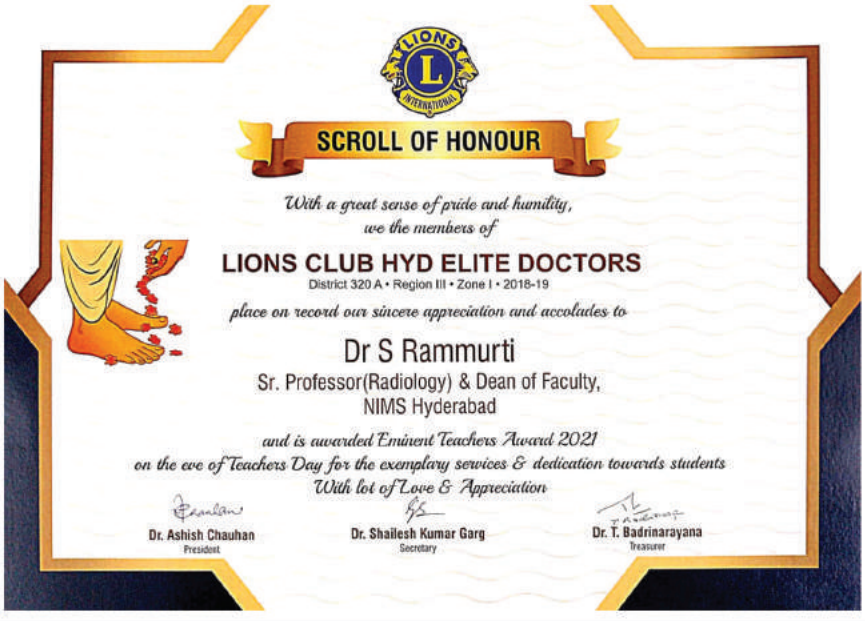
Appointed lead for formulating Structured reports of Oncoimaging
by European Society of Oncoimaging ESOI

Dr k. Prabhakar Reddy
Vice-President ICRI

Dr k. Prabhakar Reddy got elected as VICE- PRESIDENT of
" ASIAN MUSCULO-SKELETAL SOCEITY"

Dr. Rammurthi
MD MAMS FCIR,
Sr Professor & HOD(Radiology)
& Dean of Faculty, NIMS Hyderabad

Congratulations to Rammurthi Sir for being honored by Lions club Elite
Doctors with eminent Teacher award on the occasion of Teachers Day 2021



SCROLL OF HONOUR

With a great sense of pride and humility,
we the members of

LIONS CLUB HYD ELITE DOCTORS
District 320 A • Region III • Zone I • 2018-19

place on record our sincere appreciation and accolades to

Dr S Rammurti
Sr. Professor(Radiology) & Dean of Faculty,
NIMS Hyderabad

and is awarded Eminent Teachers Award 2021
on the eve of Teachers Day for the exemplary services & dedication towards students
With lot of Love & Appreciation

Dr. Ashish Chauhan, President
Dr. Shailesh Kumar Garg, Secretary
Dr. T. Badrinarayana, Treasurer

ACHIEVEMENTS OF TS-IRIA MEMBERS

Dr N.L.N.Moorthy
MD, DNB, FICR
Prof hod radiology Apollo Medical College Hospital Hyderabad

AHERF

Apollo Hospitals Educational and Research Foundation

and

Apollo Hospitals Group

presents

Academic Achievements Award

to

Dr. N.L.N.Moorthy

in recognition of paper

Mucor Mycosis Induced Anterior Mediastinal Abscess with Chest wall Invasion

published in

IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)June 2019

Prof. Nirmal Kumar Ganguly
President
Apollo Hospitals Educational and Research Foundation

Dr. Prathap C Reddy
Chairman
Apollo Hospitals Group

Given on this 17th day of July 2021

AHERF

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A typical site of Fibromatosis in a child

published in

IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)August. 2019

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in recognition of paper

Prevalence of Osteoarthritis of Wrist in Symptomatic Patients â€" A Tertiary Hospital Study

published in

IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)April 2019

Prof. Nirmal Kumar Ganguly
President
Apollo Hospitals Educational and Research Foundation

Dr. Prathap C Reddy
Chairman
Apollo Hospitals Group

Given on this 17th day of July 2021

ACHIEVEMENTS OF TS-IRIA MEMBERS

Dr. Sruthi Subramanian
Pg final year
Mediciti Institute of
Medical Sciences, Ghanpur

Dr. Sruthi Subramanian
Won Gold medal for Virender Mohan Award category papers in AMS MSK conference , Vizag, Sept 16-19th 2021

Dr.Amin Dhanush Jayananda
3rd year MD Radiology Resident
Nizam's Institute of Medical Sciences (NIMS),
Hyderabad

CERTIFICATE OF
PARTICIPATION

The College of Radiology, Academy of Medicine of Malaysia (CoR) recognizes the achievement of

AMIN DHANUSH

for his/her contribution to scientific embodiment and academic knowledge related to the field of Radiology. The CoR Council thereby awards this certificate of achievement to this deserving individual for his/her presentation entitled

ENDOVASCULAR MANAGEMENT OF HEPATIC ARTERY ANEURYSM AND PSEUDOANEURYSM - A RARE CAUSE FOR GASTROINTESTINAL BLEED

at the virtual 19th Asian Oceanian Congress of Radiology (AOCR) 2021, with the hope that future generations will appreciate the research work performed and the dedication demonstrated by him/her for the betterment of mankind.

This certificate acknowledges that the recipient has been granted or recognized as the
Top Free Paper Oral Presentation Finalist

Prof Dr Norlisah Mohd Ramli
President 2020 - 2022
College of Radiology, Academy of Medicine of Malaysia
& Organising Chairman
19th AOCR Incorporating MCOR 2021

Prof Dr Kartini Rahmat
Scientific Chairman
19th AOCR Incorporating MCOR 2021

Virtual Congress

Korean Journal of Radiology
KJR
Supplement
19th AOCR Abstract Book
Kuala Lumpur, Malaysia
1st-4th July 2021

Endovascular Management of Hepatic Artery Aneurysm and Pseudoaneurysm - A Rare Cause for Gastrointestinal Bleed

Amin Dhanush Jayananda*[1], S Rammurti[1], M Phani Chakravarty[1], N Bheerappa[2]

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Objective: To analyze the demographic profile and to evaluate the effectiveness of endovascular management in the treatment of Hepatic artery aneurysm/pseudoaneurysm and its immediate and short-term outcome.
Materials and Methods: This is a retrospective study in which etiologies, presentations, procedures rendered, and outcome were analyzed. Amongst 560patients evaluated with diagnostic visceral angiography on Universal angiography system (Axiom Artis FA, Siemens Medical Systems, Germany) over 10 years (2011–2020), Visceral-artery aneurysm/pseudoaneurysm were detected in 140patients with 30 patients having hepatic artery involvement. Following angiographic localization of bleeding source, sub-selective cannulation with embolization of feeding branch-artery was done with pushable micro-coils or particulate embolics. Endosaccular coiling was done in selected cases with detachable micro-coils. Immediate success was noted as cessation of hemorrhage and/or exclusion of the aneurysm/pseudoaneurysm on control angiogram (100%). Patients were followed up for 3 months to evaluate short-term efficacy.
Results: Most common age-group was 20–40 years, males were more common (84%). 27 patients (90%) had solitary lesion. Majority were 1–2 cm (40%) and Intrahepatic (73%) with right hepatic artery most commonly involved (50%). Most common clinical presentation was pain abdomen (75%) with Blunt-Abdominal Trauma being most common etiology (47%). Embolization of the feeding artery with micro-coils was done in 20/28 (71.4%); particulate embolics in 2/28(7.1%). Endosaccular coiling was done in 6/28 (21.5%). Endovascular management was not done in 2/30 patients (6.6%). Immediate success was seen in all 28 patients. No short-term complications were observed.
Conclusion: Endovascular management by transcatheter embolization is highly effective and should be considered as preferred treatment modality for Hepatic artery aneurysm/pseudoaneurysm.

Dr. Lakshmi Renuka Malireddy
First year post graduate
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Periosteal chondroma of tibia in pediatrics

Renuka Malireddy[1], Srithi Bhui[2], Nln Moorthy[3]
(Department of Radiodiagnosis , Apollo Institute of Medical Science and Research , India)
(Department of Radiodiagnosis , Apollo Institute of Medical Science and Research , India)
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Abstract:
Background :
Periosteal chondromas are rare benign cartilage tumor , most commonly in the metaphyses of long tubular bone which may be mistaken clinically and histologically for other and more common tumors "1-3" .
Patient and methods:
A 12 year old male presented with a painless firm non mobile swelling on the anterior aspect of left knee since 6 months with no history of trauma.Plain radiograph revealed eccentric cortical lesion in the antero-lateral aspect of proximal tibial metaphysis with stippled calcifications . Further on evaluation with CT showed cortical erosion . MRI demonstrated no intramedullary extension / soft tissue component .
Results:
Patient underwent complete excision of the lesion confirming the diagnosis as periosteal chondroma on histopathological examination
Conclusion:
A variable overlap existed in the imaging appearances of chondroid tumors stressing the importance of a multidisciplinary approach to prevent overtreatment of a benign lesion "3,4" .
Keywords: *Periosteal , Chondroma, Pediatrics, Tumor, Benign*

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[5]. Zhenjiang Liu, Wei Yan, Lijun Zhang, Qiwei Li. Periosteal chondroma of the proximal tibia: report of three cases. Int J Clin Exp Med 2016; 9(6):9908-9916
[6]. Judith K.Merchant et al. Juxtacortical chondroma of left –proximal medial metaphyseal tibia. Appl Radiol Novenber 30, 2009.

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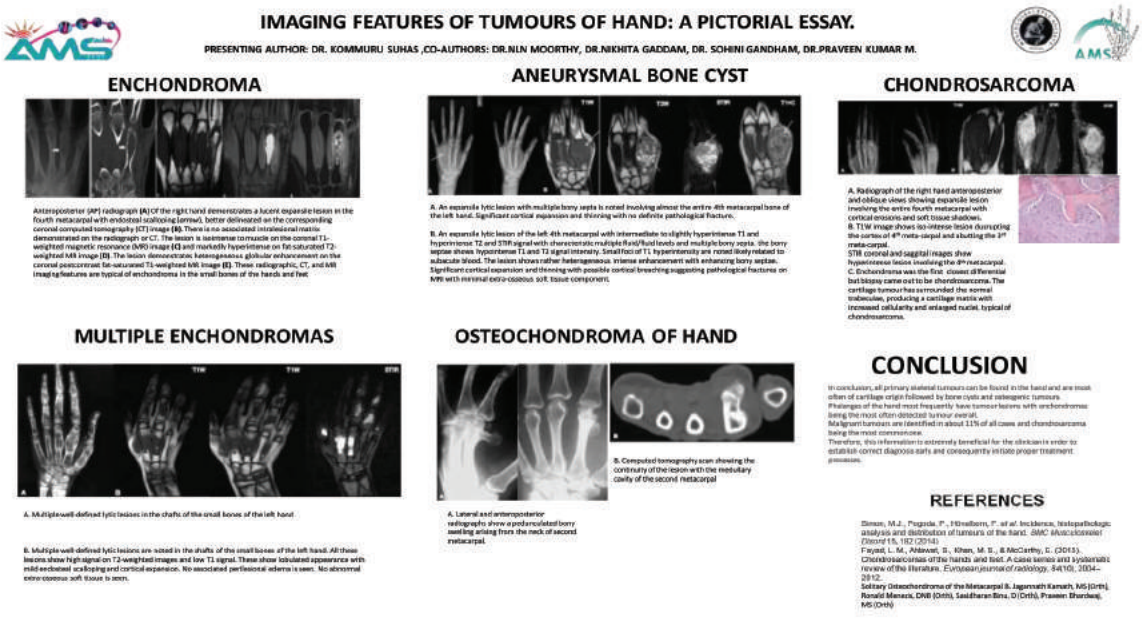

Dr. Kommuru Suhas presented a poster at conference organised by Asian muscuoskeltal society, Vizag, Sept 16-19th 2021

Dr. Lakshmi Renuka Malireddy
First year post graduate
Apollo Institute of medical
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IMAGING OF MUSCLE INJURIES IN SPORTS MEDICINE

Authors - Dr. Lakshmi Renuka Malireddy, Dr. NLN Moorthy, Dr. K.E.Vijay, Dr. Nikitha Gaddam, Dr. Sohini Gandham;

Apollo institute of medical sciences and research, Hyderabad, India

LEARNING OBJECTIVES

The objective of the present study is to describe the ultrasound(US) and magneticresonance imaging (MRI) features of muscle injuries in sports medicine.

INTRODUCTION

- Muscle injuries represent a major challenge for professional athletes.
- The most common mechanism of injury of muscles in elite athletes is related to muscle strain (indirect muscle injury), mainly in the lower limbs.
- Blunt trauma is the most common mechanism of direct muscle injury in sports, mainly affecting the lower limbs.

- Although the clinical examination remains the core of any patient assessment, radiology plays an increasingly important role in the initial assessment and follow-up of muscle injury.
- US offers dynamic muscle assessment and is fast, relatively inexpensive, and easier for patients, allowing for detection and severity assessment of muscle injuries in athletes, as well as for serial evaluation to follow healing;
- MR imaging is considered the reference imaging method to assess the morphology of muscles in athletes. It is well suited to confirm and evaluate the extent and severity of muscle injuries.

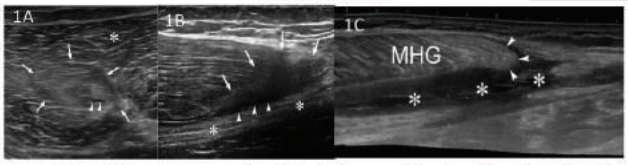
ULTRASOUND GRADING OF MUSCLE INJURIES

GRADE I	GRADE II	GRADE III
negative or exhibit focal or diffuse ill-defined areas of increased echogenicity within the muscle at the site of injury.	discontinuity of the echogenic perimysial striae around either the MTJ or the myofascial junction.	clinically evident with a palpable gap between the retracted ends of the muscle affected
focal fiber disruption occupying less than 5% of the cross-sectional area of the muscle, represented by a well-defined focal hypoechoic or anechoic area within the muscle	areas of partial fiber disruption (less than 100% of the cross-sectional area of the muscle affected)	complete discontinuity or disruption of the MTJ with different degrees of retraction
	intramuscular hematoma +/-	

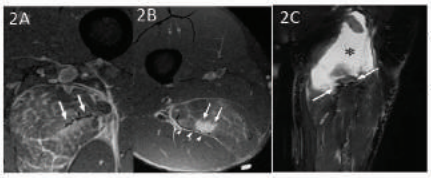
MRI GRADING OF MUSCLE INJURIES

GRADE - I	GRADE – II : grade – 1 features + any of the following	GRADE - III
No disruption of muscle fibres	Partial disruption of muscle with hematoma	Complete disruption of muscle
Edematous pattern only	Focal well defined area of high signal intensity (fluid – sensitive) images.	
Tendon at MTJ appears normal	The tendon adjacent to the MTJ may be thickened and exhibit features of laxity and partial disruption.	Complete disruption of the MTJ with a local hematoma filling the gap created by the tear
Mild peri fascial fluid	Moderate to severe perifascial fluid	Severe perifascial fluid

IMAGING FINDINGS



- Image 1A Transverse sonogram : small area of echogenic edematous muscle (arrows) containing a tiny area of hypoechoic disruption (arrowheads)-Grade 1 injury.
- Image 1B Transverse sonogram : hypoechoic muscle disruption (arrows) with hematoma (arrowheads) also present extending along the disrupted perimysium and abutting the sciatic nerve (•) - Grade 2 injury.
- Image 1C Longitudinal sonogram : edematous muscle (medial head gastrocnemius) with complete tear causing retraction (arrowheads) and extensive hematoma (•) - Grade 3 injury.



- Image 2A - Axial proton-density fat-suppressed MR image : exhibiting the classic feathery pattern of ill-defined muscle edema , mild perifascial fluid – grade 1 injury.
- Image 2B - Axial proton-density fat-suppressed MR image : focal partial tear (fiber disruption) represented by a fairly well-defined area of high signal intensity (arrows) adjacent to the MTJ (tendon demonstrated by arrowheads), mild perifascial fluid. - grade 2 injury.
- Image 2C - coronal proton-density fat-suppressed MR image : depicting complete avulsion of the proximal hamstring tendons There is marked distal retraction of the proximal MTJs (arrows), with a voluminous hematoma filling the gap (•). – grade 3 injury.

CONCLUSION

- In athletes, accurate grading of the severity and precise location of injury is necessary to guide rehabilitation planning to prevent reinjury and ensure adequate healing.
- Many sports medicine physicians have learned to appreciate high-quality imaging to help guide athlete rehabilitation, although the clinical evaluation itself must guide the final return-to-play decision.

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- Imaging of Muscle Injuries in Sports Medicine: Sport Imaging Sports; Ali Guermazi, Frank W. Roemer, Philip Robinson, Johannes L. Tol, Ravindar R. Regatte, and Michel D. Crema; Radiology 2017 283:3, 646-663
- MR Imaging of Muscle Trauma: Anatomy, Biomechanics, Pathophysiology, and Imaging Appearance Dyan V. Flores, Catalina Mejía Gómez, Mauricio Estrada-Castrillón, Edward Smitaman, and Mini N. PathriaRadioGraphics 2018 38:1, 124-148

Dr. Lakshmi Renuka Malireddy presented a poster at conference organised by Asian muscuoskeltal society, Vizag, Sept 16-19th 2021

Academic Activities of IRIA TS chapter

MONTHLY MEETINGS

4th monthly meeting was conducted on 12th September 2021 on virtual platform which was well attended and received.

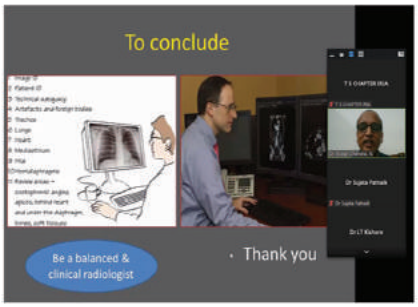
The guest lecture by Dr. karthik consultant radiologist Vijay diagnostic centre on "Imaging overview of pediatric CNS infections" was well appreciated and nearly 8 to 9 case presentations where there on That day. Attendance was encouraging after change of the schedule.

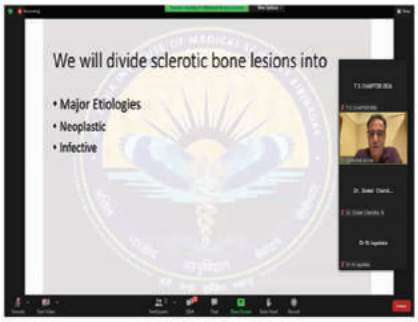
WEBINARS

As there is a dire need of reviving the importance of conventional radiology as felt by the committee and faculty, and inculcate a sense of owning it by faculty as well as residents one webinar was conducted on conventional radiology Titled as " CONVENTIONAL RADIOLOGY- REVISITED "

Dr.N.Eswar Chandra as moderator with able assistance from Dr.Gayathri Senapathy, formulated the scientific Program and made the webinar a most resourceful and informational one. The faculty of the webinar are experienced practicing radiologists of repute and the webinar was a resounding success.

We felt the icing on the cake was concluding remarks on the importance of conventional radiology as a take home message by Prof.Dr.Brig R.S Moorthy & Dr. L.T Kishore.
The webinar was well attended and well appreciated.





Academic Activities of IRIA TS chapter

FLAGSHIP PROGRAMS OF TS IRIA CHAPTER (HARP & RAC)

HARP on 11th and 18th July 2021 was conducted on virtual platform which is a patent program of the chapter was well received and attended by more than 225 delegates across the country in-spite of duplication of the contents by ICRI Weekly physics webinars.
Dr.Sikander, Dr.Vikas Reddy and Dr. Sreni Reddy were the coordinators for the course and spared their valuable time on two consecutive Sundays and the course was conducted in a befitting way by them.

RAC – 22ND & 29TH AUGUST 2021

Dr.Jwala Srikala & Dr.Aruna Karnawat as co-ordinators the RAC was conducted on virtual platform. The response was lukewarm as the new admissions have not taken place through NEET and relative increase of webinars are the reason being sited on postmortem.

Quiz was conducted during RAC and cash prizes were awarded to the winners.

The faculty of HARP and RAC should be commended for their commitment and dedication for having managed them very successfully.

Programmes Conducted by TS IRIA

RAC-2021 QUIZ WINNERS

1st Prize
Dr. Saravana Kumaran G
Virinchi Hospital

2nd Prize
Dr.Sruthi Subramanian
MediCiti Instute of medical sciences

3rd Prize
Dr. S.Ramya Manasvi
MNR Medical college

Interesting Cases

Case - 1

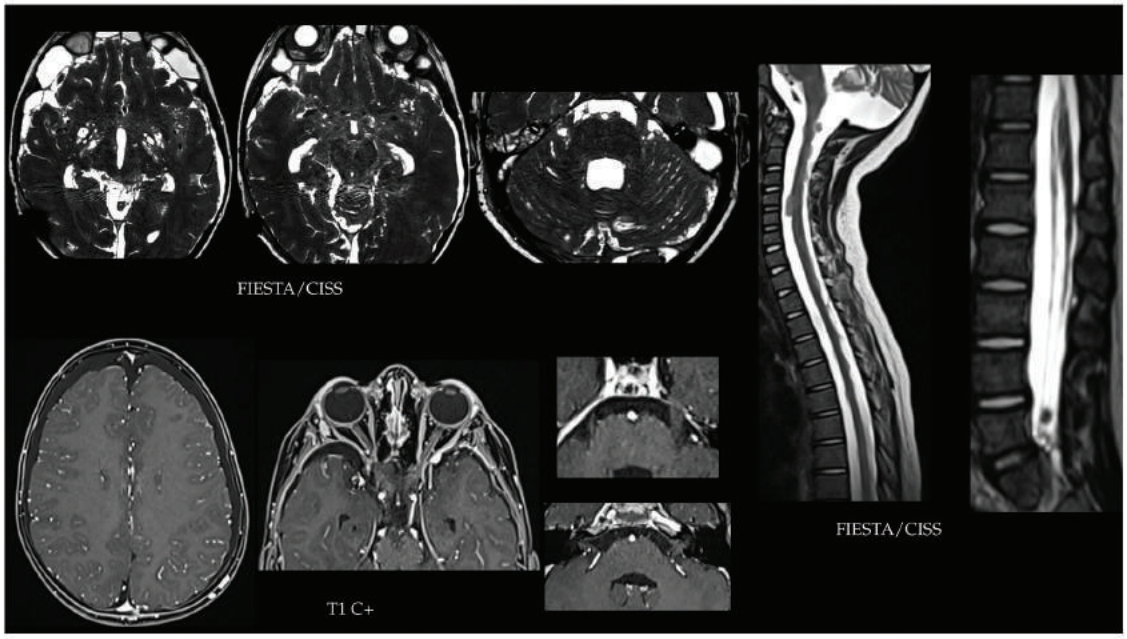
Author

Dr.Nihal Reddy
Consultatant Paediatric Neuroradiologist
Rainbow Childresn's Hospital ,
Tenet Diagnostics,
Hyderabad.

TITLE - Diffuse Leptomeningeal Glionueronal Tumour

AUTHOR - Dr Nihaal Reddy, Dr Lokesh Lingappa, Dr Sirisha Rani
Rainbow Children's Hospital , Hyderabad, India

PRESENTATION - 4.5 years old presented with severe headache for last 8 days. Mild abduction restriction of left eye.



Imaging Findings

- Loculated / Septated Subdural collections in bilateral anterior and lateral convexities
- Diffuse Leptomeningeal and subpial infiltrates
- Dilated Virchow Robin spaces and subpial cysts in the supra and infratentorial brain
- Multiple leptomeningeal deposits in the spinal cord and cauda equina nerve roots
- Variable minimal leptomeningeal enhancement of the intracranial nerves

Interesting Cases

Case - 1

Discussion

Diffuse leptomeningeal glioneuronal tumor (DLGNT), is an entity under the neuronal and mixed neuronal-glial tumors category in the 2016 World Health Organization classification of brain tumours

Clinical Presentation :

Features of raised intracranial pressure.

Imaging :

- Predominant extensive leptomeningeal growth without a evidence of a primary intraparenchymal focus
- Superficial cyst-like/nodular T2 hyper intense lesions throughout CNS
- Small, discrete, intraparenchymal lesions with variable enhancement
- Diffuse leptomeningeal infiltration and variable enhancement
- Mimicker of Tuberculosis
- Presence of progressive growth and dilated Virchow Robin spaces/cystic spaces are more common in DLGNT than TB
- Other differentials :
- Bacterial Infection and Disseminated Neurocysticercosis
- Disseminated Neoplasm - ATRT, Glioma and Leptomeningeal Gliomatosis.
- Leukemia, Leptomeningeal Lymphomatosis.

Interesting Cases

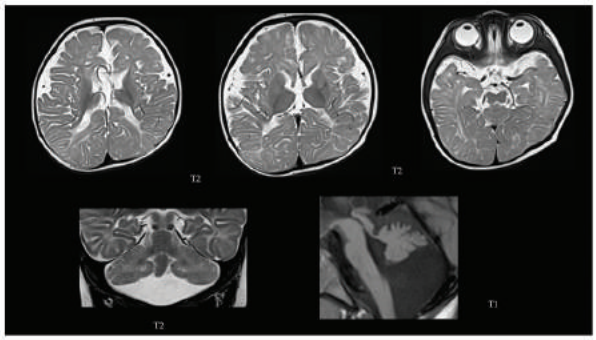
Case - 2

TITLE - Pontocerebellar hypoplasia 9

AUTHOR - Dr Nihaal Reddy, Dr Abhishek Jain Rainbow Children's Hospital , Hyderabad

Presentation :

10 month male w developmental delay , Term baby , uneventful abnormal birth , facial dysmorphism, esotropia , truncal hypotonia and upward gaze palsy No documented antenatal history for any maternal or fetal distress.



Imaging Findings

- Pontocerebellar hypoplasia
- Figure of 8 midbrain on axial images
- Periventricular Leukomalacia type pattern - periventricular hyperintensities, reduced white matter volume, abnormal lateral ventricular morphology with scalloped ependymal margins.
- Hypoplastic corpus callosum

Discussion

Pontocerebellar hypoplasia is a purely descriptive term suggestive of reduced volume of the pons and cerebellum

15 PCH types - OMIM

PCH 9 - due to AMPD2 mutation.

Imaging :

- Mimicker for Periventricular Leukomalacia/ white matter injury of prematurity pattern
- Reduced pontine volume and "figure of 8 " midbrain appearance is characteristic.
- Corpus callosum is usually abnormal and hypoplastic.
- Basal ganglia and thalami can occasionally demonstrate T2 hyperintensities and reduced volume.

Interesting Cases

Case - 3

Author

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Vesicovaginal Reflux – An unusual cause of non-obstructive hydrocolpos

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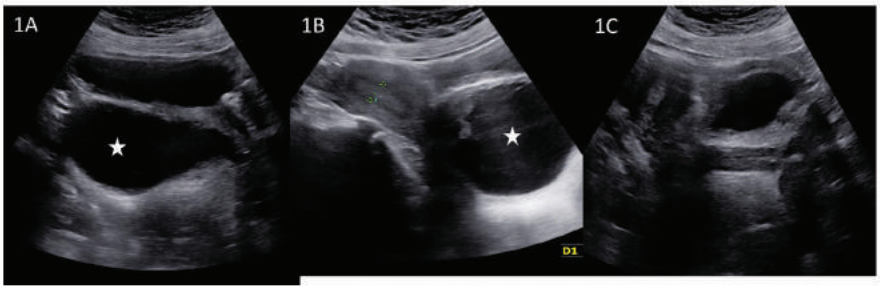

A 15-year-old, adolescent female was referred with complaints of intermittent episodes of dysuria, burning micturition & vulvovaginitis since childhood which had increased in frequency over last 3 months. Patient was obese [Body mass index = 29 kg/m2]. Clinical examination revealed normal external genitalia. An internal examination was not performed as the patient did not consent for the same. Blood counts and renal function tests were normal. Urine microscopy revealed pus cells and gram-negative bacteria. Urine culture was positive for E. Coli. Ultrasonography revealed an anechoic lesion (white asterisk) posterior to the distended urinary bladder causing its anterior displacement with posterior acoustic enhancement. The lesion was causing superior displacement of the uterus and outlining the cervical os (Figs. 1A and 1B), therefore, consistent with a fluid-filled vagina (hydrocolpos). Uterus, bilateral ovaries and urinary bladder were normal. The post-void scan revealed complete resolution of the hydrocolpos, suggesting a plausible diagnosis of vesicovaginal reflux rather than an obstructive cause (Fig. 1C). Thereafter, Computed Tomography (CT) Urography was done (MRI was contraindicated due to previous cochlear implantation) which revealed distention of vagina (black asterisk) with contrast-opacified urine on full bladder delayed imaging suggestive of urocolpos (Fig. 2A). Mass effect due to urocolpos was noted on the adjacent structures like urinary bladder and uterus. The post void CT revealed resolution of the fluid-filled vaginal distension (Fig. 2B). There was no evidence of an ectopic ureter, vesicovaginal fistula, bladder diverticuli or any other structural abnormality, thereby cementing the diagnosis of non-obstructive urocolpos due to vesicovaginal reflux. The patient was advised to undergo behavioral therapy with a voiding retraining program, including the proper toileting position, as a part of her management.

Hydrocolpos refers to the dilatation of vagina due to fluid, which could be cervical or endometrial secretions or rarely urine. Etiology is either obstructive (transverse vaginal septum, imperforate hymen, vaginal atresia, vaginal agenesis) or non-obstructive (misplaced bladder catheter, vesicovaginal reflux, leakage of amniotic fluid in pregnant patient).(1)

Vesicovaginal reflux (VVR) though a common entity, is an uncommon cause of hydrocolpos. VVR is a functional voiding disorder which falls under the umbrella of a spectrum of diseases referred to as dysfunctional elimination syndrome. VVR has variable clinical presentation ranging from asymptomatic bacteriuria, enuresis to vulvovaginitis. (2) (3) Etiology of VVR is unclear with a few

predisposing factors being implicated: obesity with tightly opposed large labia majora which prevent passage of urine, abnormal toileting position with voiding with legs apposed tightly, adhesions of labia minora , ureteral duplication or ectopic ureter with insertion into vagina, female hypospadias, spastic pelvic floor muscles due to functional disorder or cerebral palsy. (1) VVR is rarely encountered in radiological literature because of it predominantly being a clinical diagnosis. (4)Treatment is behavioral therapy with a voiding retraining program. The imaging finding of hydrocolpos being resolved on the postvoid scan could also be seen in cases of vesicovaginal fistula (VVF); however, a detailed clinical history, a threeswab test, and imaging can help differentiate these two entities. A patient with VVF presents with continuous dribbling of urine per vagina; however, in a case of VVR, the bladder empties into the vagina intermittently on overdistention, with intermittent dribbling of urine pooled in the vagina. VVF usually occurs as a result of postoperative and obstetric complications, pelvic malignancy or trauma, or irradiation of pelvic neoplasms. In our case, the 15-yearold female had no predisposition for VVF and presented with repeated episodes of dysuria and vulvovaginitis. There was no history of urinary incontinence, making a clinical diagnosis of VVF unlikely. A three-swab test may also differentiate ureterovaginal fistula/VVF from VVR. In ureterovaginal fistula or VVF, the uppermost swab will be wet (with associated discoloration in the case of VVF); in a case of VVR, the lowermost swab will be wet and contrast-stained. However, low urethral fistulas may be indifferentiable from VVR in this examination. On imaging, VVR presents as hydrocolpos in the pre-void overdistended state, which then completely resolves on post-void scan. A case of VVF is unlikely to present an overdistended bladder with gross hydrocolpos as there is continuous dribbling of urine. The bladder may show air within along with inflammatory changes adjacent to the fistulous track, which are unlikely in cases of VVR. (5)

In patients with clinical suspicion of VVR, USG in pre-voiding state is the first investigation. If an anechoic cystic lesion outlining the cervical os (hydrocolpos) is found, further evaluation in post-voiding state is essential to differentiate non-obstructive from obstructive causes of hydrocolpos. Complete resolution on a post-voiding scan suggests the diagnosis of VVR.

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