TELANGANA STATE CHAPTER

INDIAN RADIOLOGICAL & IMAGING ASSOCIATION

IRIA TELANGANA

e-Newsletter, Issue -6

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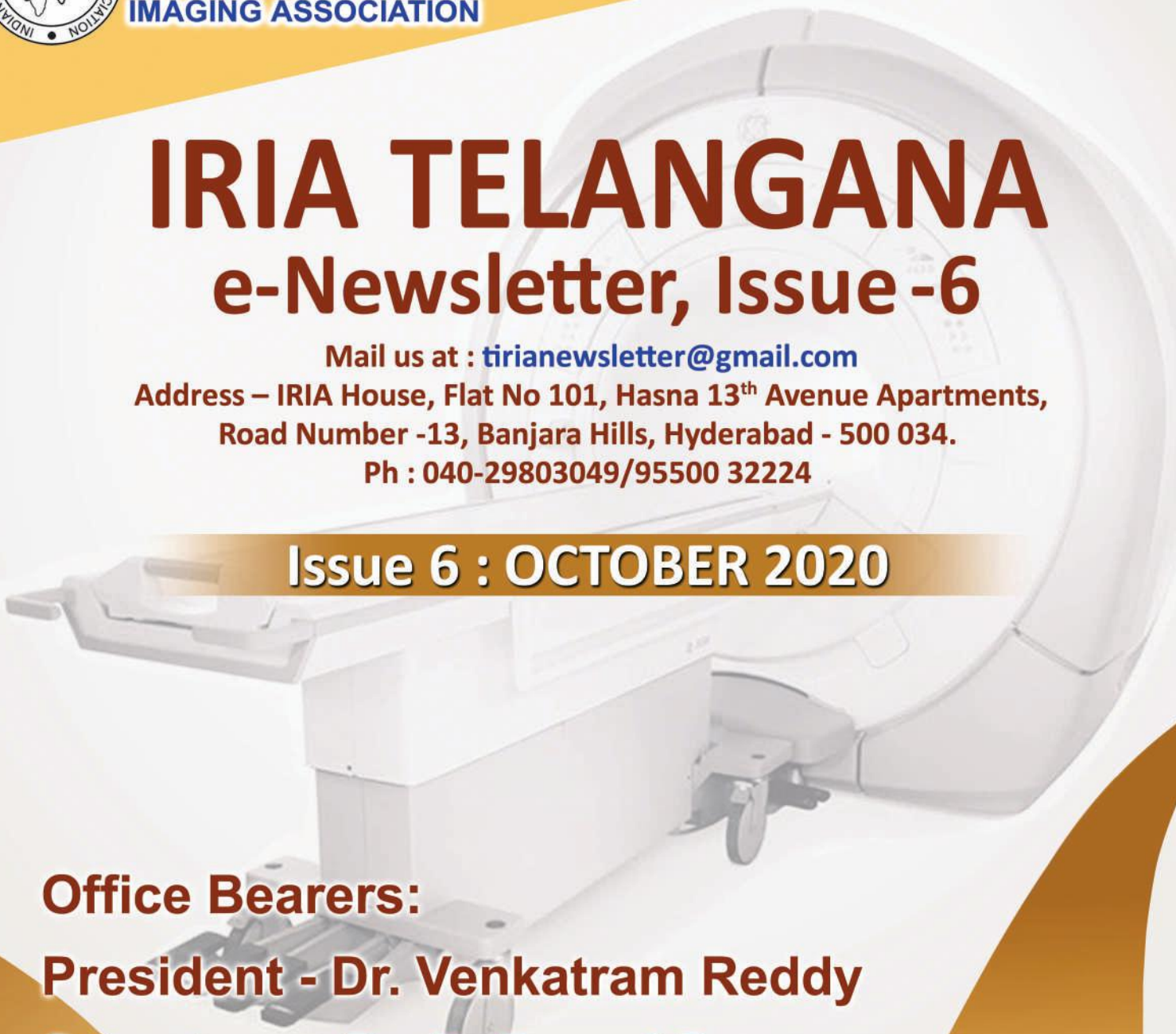

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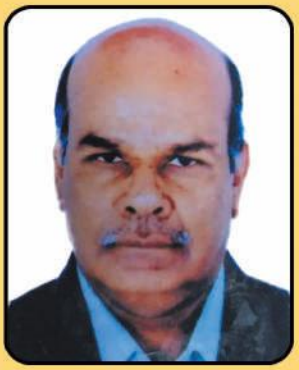
FROM THE PRESIDENT'S DESK



Dear colleagues and friends of IRIA,

I congratulate all the radiologists who participated in the previous news bulletin of IRIA TS chapter. We also request you to attend the 11th October Annual IRIA TS chapter state webinar conference in which national and international speakers are participating.I hope Dr.Aruna Karnawat will reflect the views of all our colleagues in the news bulletin.

Thanking you,

Long live IRIA.

Dr. Venkatram Reddy
PRESIDENT IRIA TS CHAPTER

FROM THE GENERAL SECRETARY DESK

Dear Friends,

Firstly, on behalf of IRIA, I would like to express my sincere gratitude and happiness for your constant support, encouragement and participation in the various activities of IRIA. The past three months have been very eventful and productive for our organization.

The HARP Course was conducted to educate the Post Graduate Students on the Physics of Radiology. It was very well attended and we received great feedback from the students. We also organized a webinar on Abdominal Imaging, which was primarily taken by young and bright Radiologists. As part of our efforts to bring on board international expertise and to create a platform of knowledge sharing, we have associated with the Royal College of Radiologists, UK and came out with talks by experts from the UK and India on Ankle Imaging.

We are also in consultation with the Trade partners of Radiology to build a synergistic relationship in line with objectives of IRIA. Their support to us has been excellent.

In these tough and challenging times of the COVID pandemic, we are putting in all our efforts to go forward with IRIA's vision of Academic Excellence and Development of Radiology. We hope that we will keep supporting us with your participation in our future endeavors.

Regards,

Dr. Ravuri Power
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Managing Director

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on 25th September 2020
At HITEX, Hyderabad.

CONFERENCES

HYDERABAB ANNUAL RADIOLOGIC PHYSICS COURSE (HARP) 2020





The 19th Hyderabad Annual Radiologic Physics Course (HARP) 2020 was conducted on 12th and 19th July, 2020 virtually. This is the first virtual HARP Course conducted by IRIA Telangana State Chapter in order to ensure physical distancing during the COVID 19 pandemic. The course was attended by 546 Post Graduate students from all over the country.

In this course, Radiologic Physics is covered from the most basic to the high end advanced technology in the field of Radiology. The faculty included a panel of experienced clinical radiologists with well-equipped knowledge of Radiologic Physics. Every effort was made to address the questions asked in the examinations over the last 10 years. The course material was sent online to all the participants. There was a very positive feedback from the participants with lot of interaction with the faculty. The conference was a huge success in terms of dissemination of knowledge of Radiologic Physics and attendance.

AUGUST IRIA TS MONTHLY MEETING

We have conducted the virtual monthly meet of our chapter on 14th August in which we had guest lecture by Dr Venkat Ramana Sudigali and presentations by Post Graduate students from various medical colleges in Hyderabad.

Due to the COVID pandemic, we have decided to conduct webinars. The first webinar of our chapter as conducted on Abdominal Imaging. As we have decided to encourage and promote younger generation radiologists, 4 guest-lectures were delivered by speakers from Hyderabad and outside Hyderabad – Dr Priya Nathani, Dr S. Shruthi, Dr Hari Kishore and Dr Kaushik. They were well appreciated by the attendees.

SEPTEMBER IRIA TS MONTHLY MEETING

We have conducted the virtual monthly meet of our chapter on 10th September 2020 in which we had guest lecture by Dr G. Srinivasa Rao and presentations by Post Graduate students from various medical colleges in Hyderabad.

The Second webinar of our chapter was conducted on "Decoding Complexities of Ankle Imaging and Interventions". Four guest lecturers were delivered by speakers from UK and India – Dr Harun Gupta, UK, Dr Rajesh Botchu, UK, Dr Rakhee Paruchuri, Hyderabad and Dr Srinadh Boppana, Hyderabad. All the lectures were well appreciated by the attendees. This webinar was supported by the members of Royal College of Radiologist (UK).

Introduction to research for international young academics, Radiological Society of North America scientific assembly and annual meeting, 2019, Chicago: Our experience

Authors

Dr. Ankit Balani, Dr. Chinky Chatur

Department of Radiology, Vijaya Diagnostic Centre,

Department of Radiology, Care Hospital, Hyderabad, Telangana, India.

Dear Sir,

"Publish or perish" – a phrase that every academician gets to hear not once, not twice but innumerable number of times. In this day and age, the numbers of publications are gauged as a marker of professional efficiency and are a decisive factor for recruitment and promotions in an academic setup. In this exasperating and taxing rat race, the true essence of medical research to benefit the patient, physician and community at large is lost. Radiological Society of North America (RSNA) organizes Introduction to Research for International Young Academics (IRIYA) workshop every year to encourage young radiologists from all across the globe to pursue careers in academic radiology. In 2019, we both were two of the 16 candidates selected worldwide for this training program. We wish to share our wonderful learning experience during this training program, spread awareness about the fundamentals of ethical research, encourage young academicians to apply and benefit from this excellent program and dive into the field of academic radiology. At the outset, we would like to thank our mentors and our respective institutions for nominating us for this program. The program is aimed for residents or fellows currently in radiology training or radiologists no more than two years out of training and beginning or considering an academic career. It is held at McCormick Place, Chicago during the time of annual meeting of Radiological Society of North America and spans over 5 days. The program starts with welcome reception wherein all the participants get to meet and interact with each other and the program organizers and mentors. Various aspects of clinical research including designing and planning a clinical research, oral presentation of clinical research, preparing an original research paper, research ethics, clinical effectiveness, and outcomes, conducting clinical research, statistics, quality, and safety research were dealt with in great detail by renowned and esteemed academicians in the field of radiology.

This was accompanied by multiple research workshops wherein each participant was given a chance to present an overview of ongoing/future research project which was commented upon and constructively critiqued by an insightful panel of experts comprising of Johan G. Blickman, Stephan D. Voss, Alexander A. Bankier, Musturay Karcaaltincaba, Ruth Carlos, and Jean Pierre Tasu. Also, there was a workshop and interactive session on "designing a research question" wherein the IRIYA participants along with participants of introduction to academic radiology (ITAR– similar program only for North American radiology residents) were randomly grouped and asked to develop a research question which was then discussed by two revered panellists (John Eng and Richard D. Hichwa). An interactive session titled "Ask the editors" helped us in learning the trade and craft from the leaders in radiology research which included Editor in chief and senior editors of renowned radiology journals including Radiology, Applied radiology and Journal of the American College of radiology. Young radiologists, us included, consider research synonymous to something novel, experimental or ground breaking. However, the faculty stressed that research is simply asking a question and doing something to answer it. Usually, the main focus is on doing something whilst the fundamental step should be to develop a research question. The elements of a good question, types of bias including selection bias and pitfalls were discussed extensively. In our country, in spite of having many brilliant minds with great potential, research is usually lagging as resources and funding for healthcare and research is limited. We cannot resist sharing the elements of "effort" expressed by Alexander A. Bankier which were: (1) never underestimate the importance of local issues and problems which may have implications far beyond imagination and may be extrapolated to apply on a global level, (2) never underestimate the importance of local context and relevance of local tools so as to use them to the best of abilities, (3) not to be afraid of writing and publicizing our thoughts, ideas and findings as what is unpublished does not exist. Most of the young radiologists who are just starting their academic career are not very familiar with statistics and heavily depend on statisticians for the same. However, basic knowledge of statistics is imperative as statistical analysis should be prospectively planned in every research. There were two phenomenal sessions on statistics during the program which made the subject simpler, more relevant and easily applicable. An important learning experience was about the ethical issues pertaining to clinical research especially in the current era of artificial intelligence. The relevance of informed consent, institutional review board approval and publication ethics were discussed. Dubious research practices such as ghost/gift authorship, fabricated data, duplicate publication and plagiarism were taken up in detail and advised to absolutely refrain from. In conclusion, every research work should focus on its clinical impact, utility and practical applications so as to benefit the patient, physician and community at large. Thus the question, "what is best for the patient?" should be the elemental component of every research. All in all, IRIYA 2019 was a very well curated wholesome program and we would encourage all fellow young radiologists to apply for the same and further strengthen the radiology research in their institutes and country.

INTERESTING CASES

CASE - 1

Non Obstructive Hydrocolpos Due to Vesicovaginal Reflux in an Adolescent Female

Authors

Dr. Ankit Balani, **Dr. Chinky Chatur**

Department of Radiology, Vijaya Diagnostic Centre,
Department of Radiology, Care Hospital, Hyderabad, Telangana, India.

A 14 year old, adolescent female was referred to the Department of Imaging for pelvic ultrasonography with complaints of recurrent urinary tract infections since childhood which had increased in frequency over the course of last 6 months. Patient was obese (weight: 72 kg and height: 1.6 m (body mass index = 28.12 kg/m2)). Menstrual history was unremarkable and clinical examination revealed normal external genitalia. Internal examination was not performed as the patient did not consent for the same. Renal function tests and blood counts were in the normal range. Urine microscopy revealed pus cells, epithelial cells, and gram negative bacteria. Urine culture revealed Escherichia coli. Ultrasonography revealed an anechoic lesion posterior to the distended urinary bladder causing its anterior displacement with posterior acoustic enhancement. It was causing superior displacement of the uterus and outlining the cervical os [Figure 1a], 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 [Figure 1b]. Thereafter, Magnetic Resonance Imaging (MRI) of the pelvis was done which revealed distended fluid filled vagina on full bladder imaging suggestive of hydrocolpos [Figure 2a]. Mass effect due to hydrocolpos was noted on the adjacent structures like urinary bladder and uterus. The post void MRI revealed resolution of the fluid filled vaginal distension [Figure 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 hydrocolpos 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. Treatment is behavioral therapy with a voiding retraining program.

CASE - 1

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient/parent(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Non Obstructive Hydrocolpos Due to Vesicovaginal Reflux in an Adolescent Female

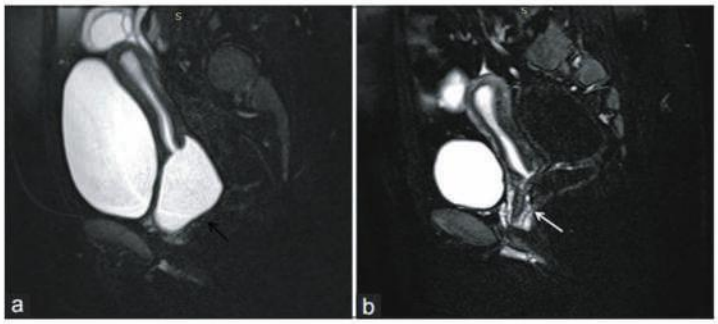

Figure 1: Pelvic ultrasonography in prevoid (a) and post void (b) states using low frequency (3 5 MHz) transducer showing anechoic lesion (black arrow) seen posterior to the distended urinary bladder causing its anterior displacement, posterior acoustic enhancement, outlining the cervical os and causing superior displacement of the uterus consistent with hydrocolpos. The post void scan revealed complete resolution of the hydrocolpos (white arrow), suggesting a plausible diagnosis of vesicovaginal reflux

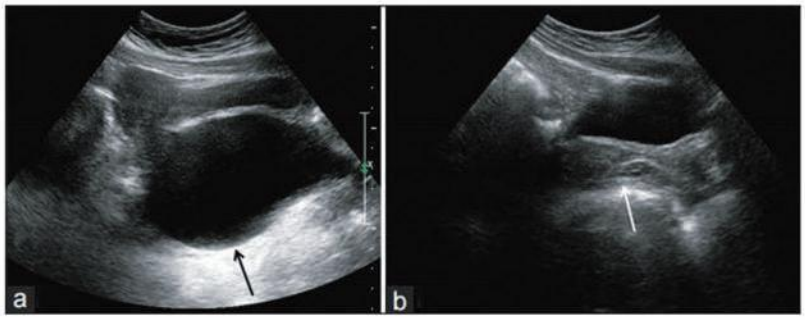

Figure 2: Sagittal T2 weighted sections of MRI pelvis with fat suppression in prevoid (a) and post void (b) states. Distended fluid filled vagina on full bladder imaging representing hydrocolpos (black arrow) with mass effect on the adjacent structures like urinary bladder and uterus. The post void MRI revealed resolution of the fluid filled vaginal distension (white arrow). No structural abnormality was demonstrable on MRI

Authors

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INTERESTING CASES

CASE - 2

PARATESTICULAR RHABDOMYOSARCOMA

Authors

Dr. Mohammadi Sumayya Fatema, Dr. Veeraiah Koppula

Department of Radiodiagnosis, Basavatarakam Indo American Cancer Hospital and Research Centre, Banjara Hills, Hyderabad.

Clinical profile :

A 16 years old boy presented to the urology OPD with complaints of a swelling and pain in right inguinal region. He was afebrile and hemodynamically stable.

Imaging findings:

An ultrasound performed outside was reported as an ill-defined heterogeneous hypoechoic mass lesion involving right testis and scrotum with vascularity on Colour Doppler.

Further evaluation was done at our institute with CT-PET and MRI scans.

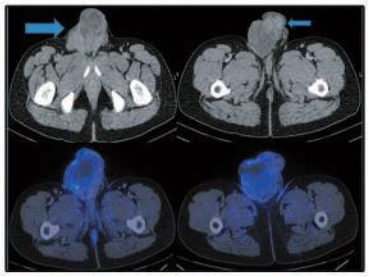

Fig 1.A, B, C and D: Axial CT and PET CT images of inguinoscrotal region reveal a large, ill-defined heterogeneously enhancing mass lesion in the scrotal sac on right side(large blue arrow), displacing the left testis laterally(small blue arrow), extending proximally along the spermatic cord up to the inguinal region. Right testis is not seen separately from the lesion. The lesion shows increased FDG uptake on PET CT scan.

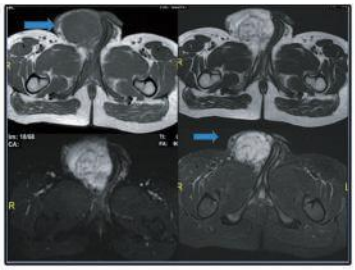

Fig 2.A, B, C and D: MRI T1W, T2W, STIR and DWI axial images of inguinoscrotal region reveal a large T2W/STIR heterogeneously hyperintense lesion with restriction of diffusion on right side. Lesion is hypointense on T1W with multiple hyperintense areas (hemorrhage). Lesion is seen extending proximally along the spermatic cord / tunica vaginalis. Left testis is compressed and pushed laterally.

The histopathological diagnosis was that of a rhabdomyosarcoma.

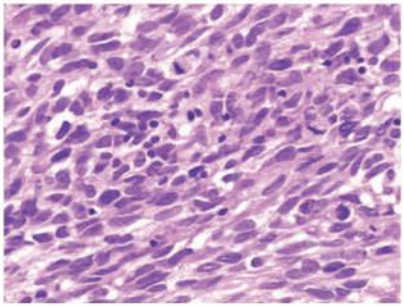

Fig 3: The section studied shows moderately cellular neoplasm in a myxomatous stroma. The lesional cells are arranged in small nests and trabeculae. The cells are small, round with scanty cytoplasm, round hyperchromatic nucleus and inconspicuous nucleoli with occasional mitotic figures in atypical form. Also seen are rhabdomyoblasts with abundant eosinophilic cytoplasm and eccentric nucleus.

CASE - 2

DISCUSSION :

Rhabdomyosarcoma is the most common soft-tissue sarcoma of childhood, representing 5% of all childhood cancers (1). The term refers to a mesenchymal tumor originating from striated muscle, though rhabdomyosarcoma typically arises in regions lacking striated muscle (2).

Genitourinary system is the second most commonly involved after the head and neck area. The common sites of origin of rhabdomyosarcoma in males are bladder, prostate, testes and paratesticular location involving scrotal sac, penis, and perineum. As the exact site of origin may be difficult to determine, paratesticular rhabdomyosarcoma is more appropriate term (3, 4).

It has a bimodal age distribution, with one peak during infancy and the other during adolescence. It presents as a unilateral painless scrotal swelling. Most cases are of the embryonal histologic subtype, followed by alveolar, pleomorphic and mixed types. Paratesticular rhabdomyosarcomas representing approximately 30% of it (3, 4).

The sonographic appearance varies from predominantly solid to almost cystic lesion with solid mural nodules or a solid mass with cystic degeneration and hemorrhage. Colour-Doppler ultrasound shows increased low resistance flow. CT appearance is that of an ill-defined heterogeneously enhancing soft tissue attenuation lesion. It frequently spreads to regional and retroperitoneal lymph nodes. The lungs and bone are distant metastatic sites. On MRI, it appears low to intermediate intensity on T1W images with hyperintense areas of hemorrhage. The lesion is hyperintense on T2W / STIR imaging sequences with restriction of diffusion and considerable enhancement after contrast administration.
CT is imaging modality of choice for evaluation of metastatic sites. MRI may be helpful in delineating its relationship to adjacent organs.

Rhabdomyosarcoma is a heterogeneous disease that may arise in virtually any organ or tissue
except bone. The natural history, pattern of metastatic spread, treatment, and prognosis vary with the anatomic site of the lesion. Meticulous diagnostic imaging of both the primary tumor and sites of potential local, regional, and distant metastatic spread is crucial to the selection of appropriate therapy. Radical orchidectomy with combined chemotherapy is the standard treatment which results in excellent outcome in patients with localized disease.

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Geoffrey A. Agrons, MD #{149}Brentj Wagner, MD #{149}Gaelj Lonergan, Maf, USAF,

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INTERESTING CASES

CASE - 3

CARDIAC MAGNETIC RESONANCE IN ENDOMYOCARDIAL FIBROSIS

Author

Dr. Shruthi Kalyan, DNB

Fellowship in Cardiac Imaging Star Hospitals, Hyderabad.

Clinical profile :

A 63 year-old female presented with breathlessness. Chest radiograph revealed mild cardiomegaly. ECG showed atrial fibrillation, with T wave inversion in V1 to V 3. 2D Echocardiogram showed obliteration of the LV apex with Good ventricular systolic functions.

Patient was referred for a cardiac MRI to further characterize the abnormality.

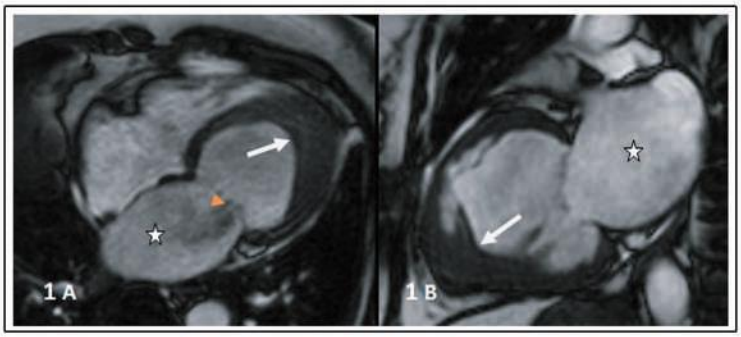

Figure 1 A and B : Cardiac MRI still image of cine Steady-State Free Precision(SSFP)MRI sequence in 4-chamber and 2 chamber shows LV apical thickening with apical obliteration (white Arrow), Mild left atrial enlargement (*) and Moderate MR (orange arrow head).

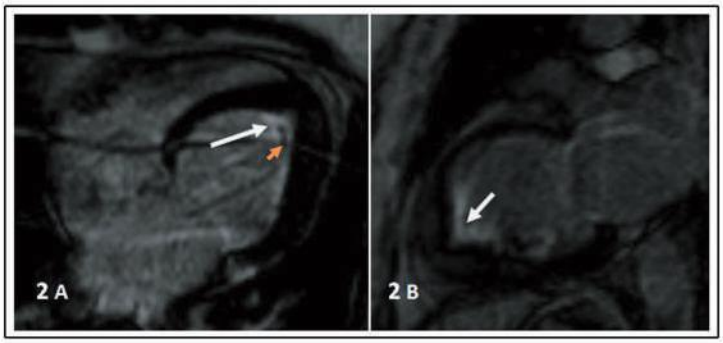

Figure 2 A and B: Cardiac MRI Delayed enhanced Phase sensitive inversion recovery(PSIR) image in 4 chamber and 2 chamber shows Subendocardial enhancement at the apical left ventricle(white arrow) with small thrombus/calcification (orange arrow head)in the LV apex.

What are your findings? What is the diagnosis?

Answer-

MRI findings reveals:

- LV apical thickening with Blunting of apex
- Subendocardial delayed enhancement of LV apex
- Preserved bi-ventricular systolic functions with LV diastolic dysfunction.
- Normal Bi-ventricular volumes
- Mild left atrial dilatation
- Moderate MR.

Final diagnosis: Endomyocardial Fibrosis (EMF)- Restrictive Cardiomyopathy .

CASE - 3

DISCUSSION :

Endomyocardial fibrosis (EMF) is the most common type of Restrictive cardiomyopathy in Tropical areas. It is characterized by fibrotic tissue deposition in the endocardium of the inflow tract and apex of one or both ventricles. Ventricular morphology is usually distorted with normal or reduced volumes, whereas atrial volumes are increased. The cause of EMF is unknown; however, early hypereosinophilia may play a role in its pathogenesis. Diastolic dysfunction is responsible for the severe heart failure.

CMR provides detailed information on ventricular morphology and function, including excellent visualization of the ventricular apex. Late gadolinium enhancement (LGE)-CMR allows the evaluation of the presence of myocardial inflammation and fibrosis.

MRI has definitive role in confirming and characterizing this pathology as compared to Echocardiography.

Purpose :

1. To study the extent and morphological pattern of involvement.
2. To confirm and assess the severity of involvement.
3. To assess the feasibility of endocardiectomy and subsequent follow up.
4. To differentiate EMF from other non-ischemic cardiomyopathies.
5. To determine early disease in contralateral ventricle.

Characteristic CMR features are :

- Major diagnostic criteria of EMF on CMR include ventricular apical obliteration with subendocardial delayed enhancement (typical "double V" sign , consists of a three-layered pattern of normal myocardium, thickened enhanced endomyocardium, and overlying thrombus at the ventricular apex with or without calcifications) it has excellent correlation with histopathologic findings and plays an important role in differentiating EMF from other cardiomyopathies.
- Secondary respective atrial enlargement.
- Atrioventricular valve regurgitation: Tricuspid and Mitral valve regurgitation secondary to fibrosis of the papillary muscles.

Endomyocardial biopsy is not essential to diagnose EMF.

Medical management usually includes treatment with diuretics and anticoagulants. Surgical treatment consists of resection of fibrotic tissue and valve repair or replacement.

Conclusion :

EMF is a type of restrictive cardiomyopathy noted in tropics and commonly affecting females of middle age.

Advanced cases of EMF show calcification and valvular involvement (regurgitation) of different grades.

The pattern of post contrast delayed enhancement clearly differs from other types of cardiomyopathy (typical "double V" sign).

Cardiac MRI is the Modality of choice in EMF, to confirm the diagnosis and to assess the severity of involvement.

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