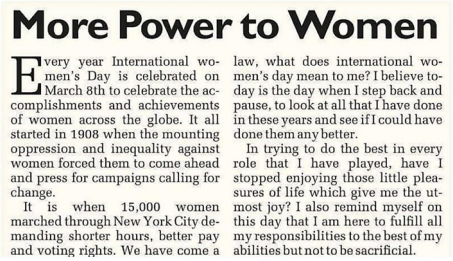
Issue 12 April 2022

IRIA Telangana e-Newsletter

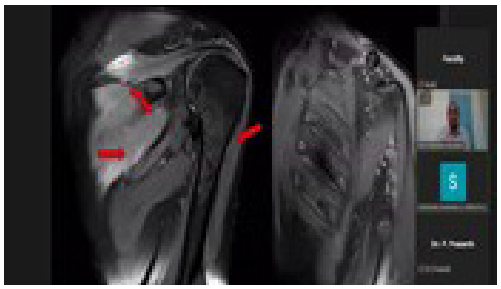


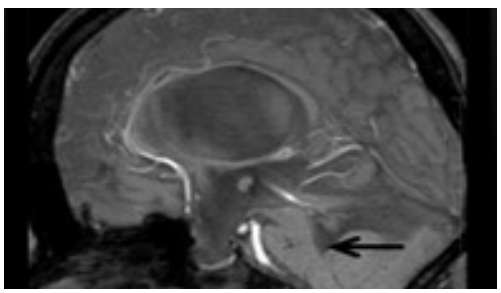
More Power to Women

Every year International women's Day is celebrated on March 8th to celebrate the accomplishments and achievements of women across the globe. It all started in 1908 when the mounting oppression and inequality against women forced them to come ahead and press for campaigns calling for change.

It is when 15,000 women marched through New York City demanding shorter hours, better pay and voting rights. We have come a law, what does international women's day mean to me? I believe today is the day when I step back and pause, to look at all that I have done in these years and see if I could have done them any better.

In trying to do the best in every role that I have played, have I stopped enjoying those little pleasures of life which give me the utmost joy? I also remind myself on this day that I am here to fulfill all my responsibilities to the best of my abilities but not to be sacrificial.





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Indian Radiological & Imaging Association

Telangana State Chapter 2022

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From the President's Desk

Dear All,

Warm wishes to all the members of the IRIA- TS Chapter.

We are happy to inform you that the new edition of the newsletter will be released this month.

The newsletter is brought out with the good efforts and cooperation of the editorial team under the guidance of Dr. Jagan Mohan Reddy sir. This will showcase many interesting cases, information of various meetings and achievements of our Radiology Colleagues.

I am also happy to inform you that the next monthly meeting will be offline on 8th April 2022 at Hotel Mercure, Erramanzil Colony at 7 PM.

I wish you all a **Happy Subhakruth Ugadi** and hope for a pleasant year ahead.

Thanks and regards
Dr Venkat Nageshwar Goud
President, IRIA TS Chapter

From the General Secretary Desk

Dear esteemed members,

It has been a wonderful beginning this year, having conducted three monthly meetings and a webinar conducted in the first three months of the year. KARE conference was conducted for the exam going students. I am happy to share that We have planned an on-site monthly meeting in the month of April for the first time after a gap of two years as the Covid pandemic is in declining trend.

We want to continue this trend of conducting physical meetings in the future if Covid pandemic is under control.

I thank all the faculty and the Heads of the department of various medical institutions for encouraging their post graduates to present interesting cases in the monthly meetings. I request postgraduate students and consultants to send interesting cases to publish in the newsletter of IRIA TS CHAPTER.

I congratulate Dr Sikander for organizing Resident education programs under ICRI and getting recognition and award from the world book of records.

I thank all the members and office bearers of IRIA for their wholehearted support.

Long live IRIA

Regards,

Dr. Krishna Mohan Pottala

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ARTIFICIAL INTELLIGENCE IN RADIOLOGY

Artificial Intelligence (AI) is one of the fastest-growing areas of informatics and computing with great relevance to radiology. AI can be understood as a set of tools and programs that make software "smarter" to the extent that an out- side observer thinks the output is generated by a human. True AI is characterised by the process of autonomous learning, without explicit programming of each step, based on a network of algorithms and connections, similar to what humans do.

The applications of AI in radiology include the paediatric bone age machine learning challenge on plain radiographs, breast cancer detection in mammography and MRI, chest radiograph interpretation, liver lesion characterisation on ultrasound and CT, brain tumour and prostate cancer detection.

Automated segmentation is crucial as an AI application for reducing the burden on radiology workflow of the need to perform segmentation manually. It also provides vital information on the functional performance of tissues and organs, disease extent, and burden.

The other applications of AI in radiology which likely impact other areas include: Radiomics: extraction of features from diagnostic images, the final product of which is a quantitative feature/parameter, measurable and mineable from images. Imaging biobanks: the constantly enlarging memory capacity of computers permits storage of large amounts of data. In radiology, the need to store native images and big data derived from quantitative imaging represents the main cause of PACS overload. Quantitative imaging can produce imaging biomarkers that can be stored and organised in large imaging biobanks (potentially using data from many institutions and locations), available to be processed, analysed, and used to predict the risk of disease in large population studies and treatment response.

AI can be an optimising tool for assisting the technologist and radiologist in choosing a personalised patient's protocol, in tracking the patient's dose parameters, and in providing an estimate of the radiation risks associated with cumulative dose and the patient's AI can aid the reporting workflow and help the linking between words, AI tools can also impact the daily workflow by filtering exam priority based on appropriateness criteria ,images, and quantitative data, and finally suggest the most probable diagnosis.

Radiologists' skills are based on many years of training during which the trainee is taught to interpret large numbers of examinations based on a combined process of reading coupled with the knowledge of clinical information.

The implementation of AI in radiology requires that trainees learn how to best integrate AI in radiological practice, and therefore a specific AI and informatics module should be included in the future radiology training curricula.

AI involvement in our professional lives is inevitable. We need to work with software developers and computer engineers to assist the process of integration of AI tools into our workflows (PACS/RIS systems, task automation, etc.), always protecting the interests of patients primarily.

Will radiologists be replaced by AI? The simple answer is: NO. However, radiologists' working lives will undoubtedly change in this era of artificial intelligence. Many of the single routine tasks in the radiology workflow will be performed faster and better by AI algorithms, but the role of the radiologist is a complex one, focused on solving complex clinical problems. AI can enhance radiology, and allow radiologists to continually improve their relevance and value.

ACHIEVEMENTS

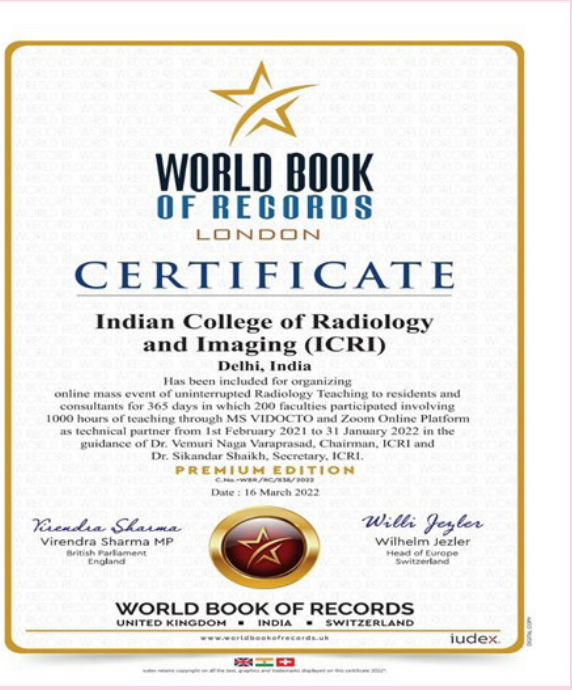
Congratulations

Dr Shaikh Mohd Sikandar
DMRD, DNB, MNAMS, FICR
Consultant PET-CT & Radiology
Yashoda Hospitals, Hyderabad

Appointed as a Review Editor on the Editorial Board of Neuroradiology (Specialist section of Frontiers in Radiology).

Congratulations

Dr. Sikandar Shaikh, Dr. Varaprasad & Team



Congratulations

Dr S Rammurti
MD, MAMS,FICR
Sr. Professor & Dean, Nizam's Institute of Medical Sciences, Hyderabad.

Received "Vaidya Ratna" Award for Service to the Society from Mother Foundation at Ravindra Bharathi, (Hyderabad) on 27th February 2022

Delivered "2nd Annual Oration" of the Society for Emergency Radiology at IGMC, Shimla on 13th November 2021.

Congratulations

Dr. P Krishna Pavan

MBBS, DMRD

Consultant Radiologist Owaisi Hospital & Research Center, Deccan College of Hyderabad.

OBITUARY

Dr. D Obulaiah

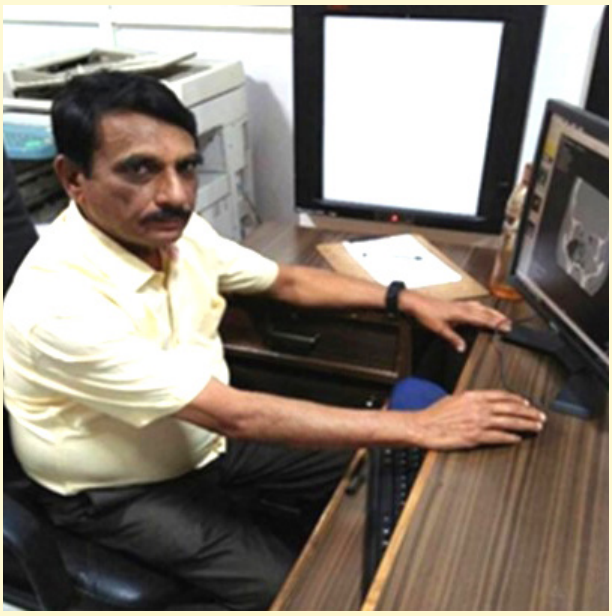
A noble soul laid to rest!

We extend our deepest condolences to the bereaved family members of Dr. Obulaiah.

Dr. Obulaiah was a Senior Radiologist, former In charge of the Department of Radiology, Lalaguda Railway Hospital and also served as the Superintendent of Railway Hospitals. He was a sincere, helpful and an honest gentleman who did yeoman service to the Railway community. A dedicated academician, he regularly attended all the radiology CME programs and conferences.

We pray to the God Almighty to grant SADGATI to his departed soul.

OBITUARY



Dr. Suryanarayana

We extend our deepest condolences to the bereaved family members of Dr. Suryanarayana.

Dr.Suryanarayana, former Senior Consultant, Yashoda hospitals, Malakpet had expired due to MI. He had worked in Yashoda Hospitals for nearly two decades. We all know him as a very gentle and helpful person. Hard working, dedicated and sincere, he was loved by all his colleagues and will be missed.

We pray to the God Almighty to grant SADGATI to his departed soul.

PUBLICATIONS

Dr. Priya Nathani

CT Enterography – Current role in small bowel imaging , Technique and protocol

- Small bowel evaluation has for long been a diagnostic challenge for both the gastroenterologist and the radiologist.
- Noninvasive cross- sectional imaging with greatly improved spatial and temporal resolution provided by multidetector CT scanners, combined with good luminal distention provided by negative oral contrast agents and good bowel wall visualization using appropriate protocols have made CT enterography the main imaging modality
- CT Enterography is a noninvasive technique using intravenous contrast and neutral enteric contrast material to visualize intrinsic small bowel abnormalities, as well as associated extraenteric pathologic processes.
- CLINICALSITUATIONS:-Inflammatoryboweldisease,Obscuregastrointestinal bleeding, Neoplasms,Low grade obstruction,Diarrhoea of unknown origin
- TECHNIQUE AND PROTOCOL : Neutral enteric contrast materials include VoLumen: a commercially available neutral agent containing barium sulfate suspension (VoLumen; Bracco Diagnostics, Princeton, NJ), methylcellulose, polyethylene glycol (PEG) solution, or water.
- Patients are NPO for 6 h prior to imaging.
- As per the current regimen, a total of 1.35 L of VoLumen is ingested over 1 h:
- 450 mL at 60 min, 450 mL at 40 min, and 225 mL at 20 min, with the last 225 ml bolus immediately before CTE imaging .
- After the oral contrast agent is ingested, a bolus of intravenous Non ionic contrast material (100 to125 mL followed by 50 mL of saline solution is administered with a power injector at a rate of 3-5 mL/sec.
- Helical scanning is performed from the diaphragm to the symphysis pubis, beginning 40-50 seconds after the administration of intravenous contrast material, and includes a single (venous) phase for the evaluation of known or suspected Crohn disease or dual (arterial and venous) phases for the evaluation of mesenteric vessels, GI tract bleeding, and suspected tumors.
- Scanning parameters include a section thickness of 0.625 mm and interval of 0.625 mm .
- Multiplanar reformatting of axial image data allows excellent demonstration and characterization of enteric and extraenteric abnormalities
- Maximum intensity projection images are particularly useful for visualizing the mesenteric vasculature.

References:

Radiopedia,CT Enterography: Principles, Trends, and Interpretation of FindingsKhaled M. Elsayes , Nov 1 2010,Radiographics, CT enterography: review of technique and practical tips-Br J Radiol. 2012 Jul; 85(1015): 876–886

R Ilangovan

Dr. Jwala Srikala

THE HINDU

More Power to Women

Every year International women's Day is celebrated on March 8th to celebrate the accomplishments and achievements of women across the globe. It all started in 1908 when the mounting oppression and inequality against women forced them to come ahead and press for campaigns calling for change.

It is when 15,000 women marched through New York City demanding shorter hours, better pay and voting rights. We have come a long way since the last century where today's women hold positions of power in every aspect of life, be it politics, government services, the police, military services, business or the medical field. There is no facet of life that women have not excelled, not just excelled but soared very high and reached the pinnacles of success in whatever they've chosen.

Being a doctor, a qualified Radiologist, I thank my family to have given me the freedom to make choices and live by them.

Freedom of choice is the greatest gift that one can have. Very often in my practise I have seen that women give least preference to their needs and choices, be it the aspect of their health and wellbeing or any other.

They are forever sacrificial in their outlook, putting the needs and happiness of others in the family before their own.

I also see that most decisions regarding their health and treatment are made by male members of their family, even if it meant a procedure which compromised their body image. The only answer to this is education and empowerment.

Education would empower these women to take informed decisions, not only for themselves but also for others in their family. Also an educated mother would mean a healthier family and a healthier and responsible society.

A professional doctor,a mother, a wife, a daughter and a daughter-in-law, what does international women's day mean to me? I believe today is the day when I step back and pause, to look at all that I have done in these years and see if I could have done them any better.

In trying to do the best in every role that I have played, have I stopped enjoying those little pleasures of life which give me the utmost joy? I also remind myself on this day that I am here to fulfill all my responsibilities to the best of my abilities but not to be sacrificial.

I believe, I should not stop enjoying the beauty of life in the process of trying to be the best in everything I do, be it my profession or my home. It is so very common to see women be so hard on themselves trying to be the best and please everyone around them. Remember, it is Ok not to be the BEST, it's OK not to be PERFECT.

What is important is to have the freedom to do what you want and enjoy it. To grow beyond the pressure of expectation and stereotypes would be a true liberation.

The true celebration of womanhood would be to accept ourselves with all the little flaws that we have in us and work towards setting up achievable goals and work towards them with grit and determination.

A true celebration of women's day would be when we all girls get equal opportunity to education and employment and thereby the power of choice.

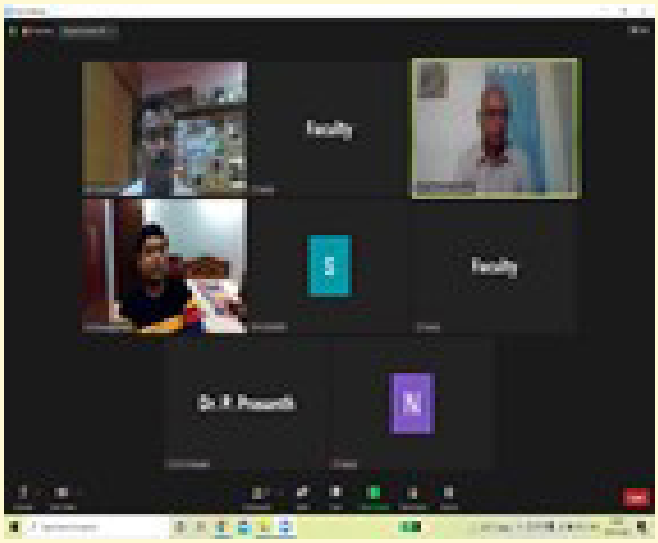
It is my education and freedom to pursue a career of my choice that has unfolded countless opportunities for progress both professionally and personally.

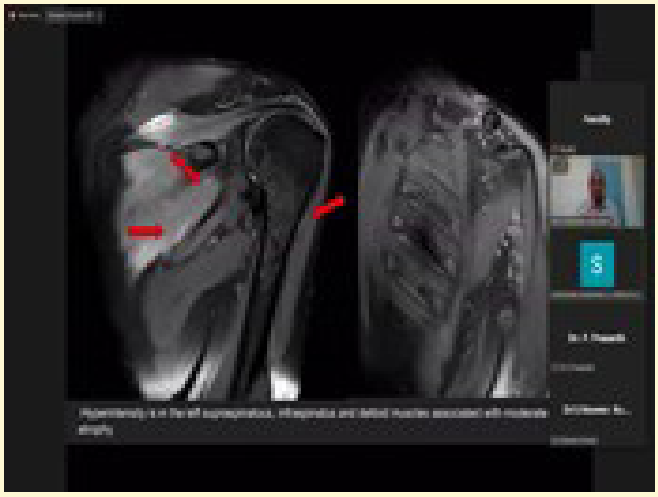
A woman is the creator and nurturer of the future of this world and empowering her would mean more power to the creation.

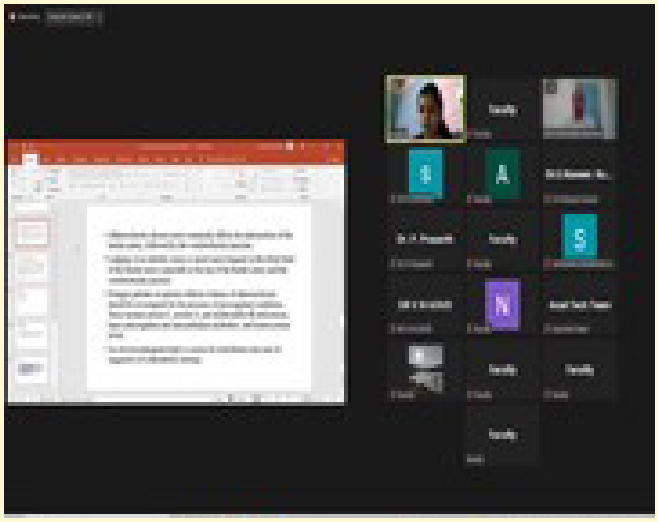
Dr. Jwala Srikala
DMRD, DNB (Radiology),
Senior Consultant Radiologist,
Lead Breast Imaging and
Interventions,
KIMS, Secunderabad

ACADEMIC ACTIVITIES OF IRIA TELANGANA STATE CHAPTER

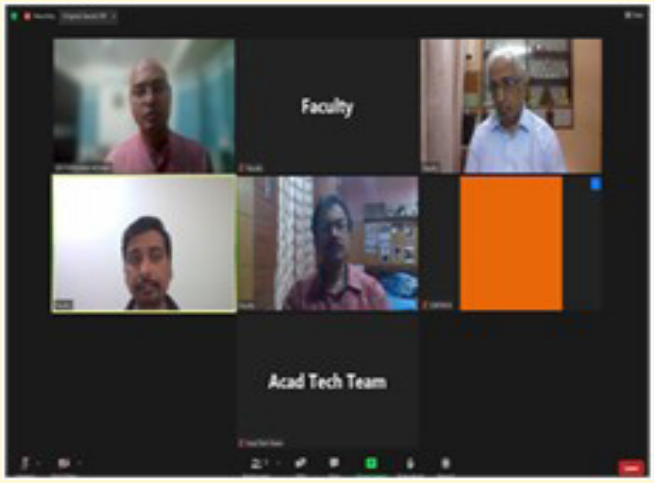
In January, Dr Naveen of Chalamada Ananda Rao Institute of medical sciences had delivered a guest lecture on TB and TB mimics. 10 students presented interesting cases in this monthly meeting.

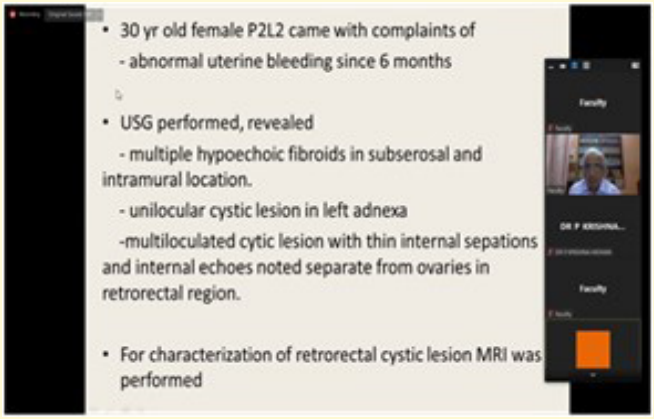






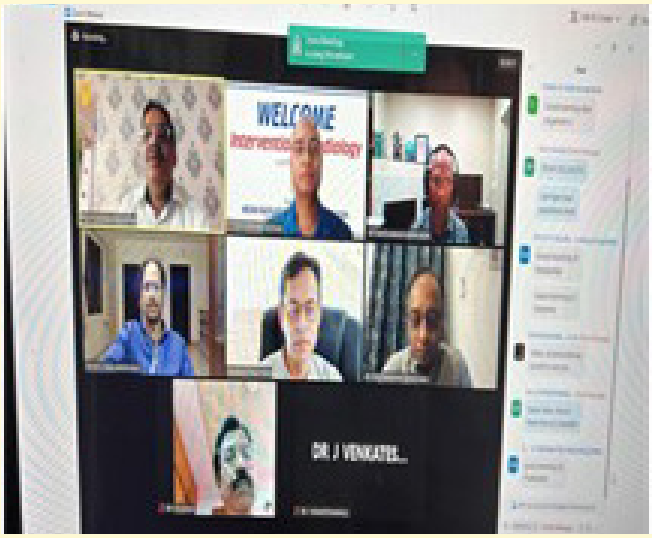
In February, Dr Subhash from SVS medical College Mahabubnagar has delivered a talk on mammography. Many students presented interesting cases in this monthly meeting. Dr Anand Abkari Emeritus Professor and a senior Radiologist was the chair person chairperson for this meeting.



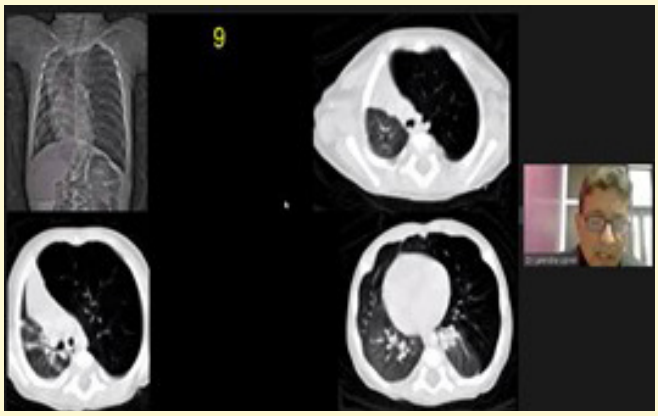


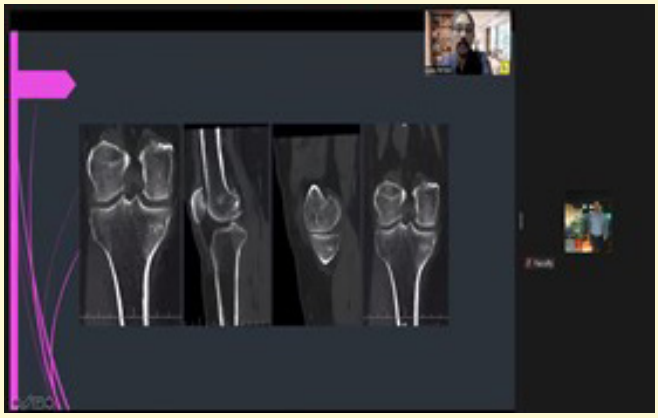
In February, we organised webinar on interventional radiology. Dr M V Chalapathi Rao was the coordinator

for this webinar program. Four well-known national and international speakers delivered talks related to interventional radiology procedures. Many delegates attended the programme on online portal platform. Dr J Venkateshwarlu Sr interventional radiologist was the chairperson for this meeting.

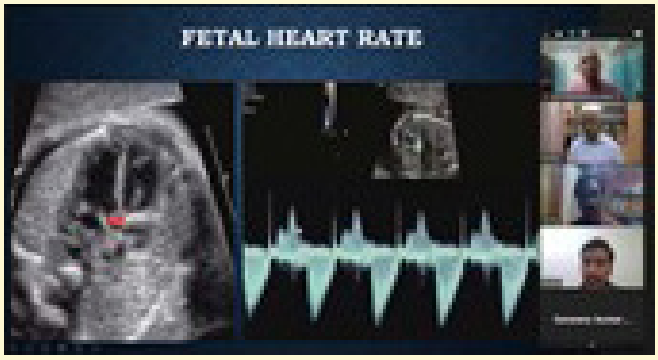


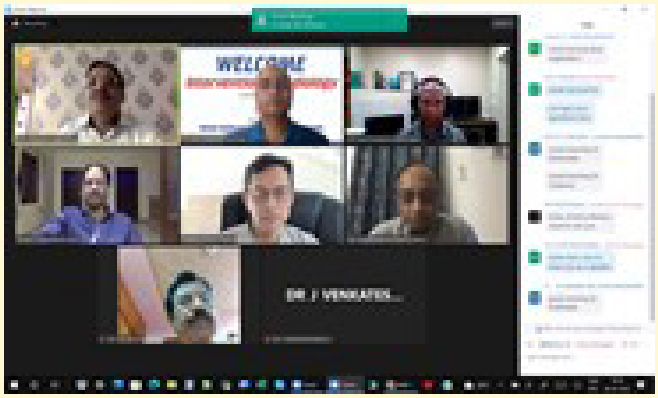
In the month of March, we conducted the prestigious Kakatiya Academy of radiology education(KARE) annual conference for the exam going students on online platform. There was an overwhelming response from the post graduates across the India with around 200 registrations. Dr Anitha Mandava was the coordinator of this program. There were spotter sessions and case discussions of major sub specialities of radiology in keeping with the interest of exam going postgraduate students of Radiology. Six national faculty delivered the talks and guided the students for the exam preparation.





In the month of March we conducted a monthly meeting. Dr Priya Nathani of Yashoda Hospital Secunderabad had delivered a talk on "Enterography". Many students presented interesting cases in this meeting. Dr. J. Jagan Mohan Reddy, Professor and HOD of Maheswara Medical College, Patancheru was the Chairperson for this meeting.





I thank all the office bearers of IRIA and Dr Prabhakar Reddy for the guidance and support in conducting various academic activities.

Dr G.Vaishnavi Reddy
2nd Year Resident
SVS Medical College

CASE REPORT:

CASE REPORT OF UTERINE LEIOMYOSARCOMA

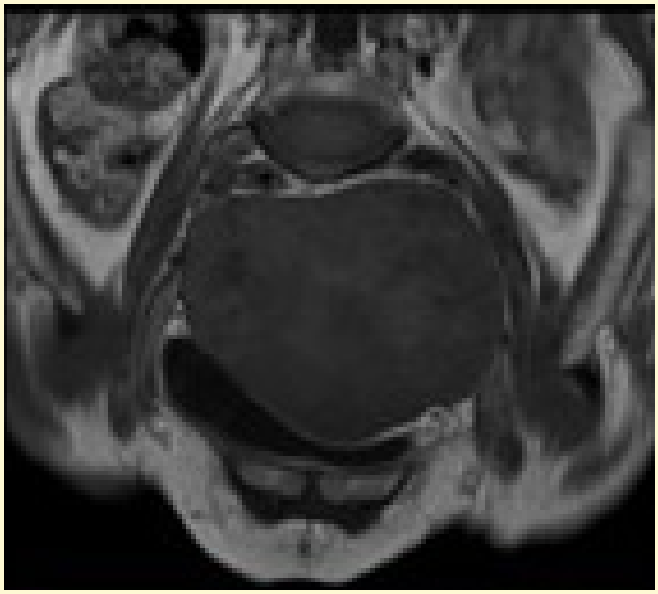
[1]Dr G. Vaishnavi Reddy, [2]Dr Sandeep Madineni, [3]Dr G.Rama Krishna Reddy, [4]Dr K.Venkat Ram Reddy

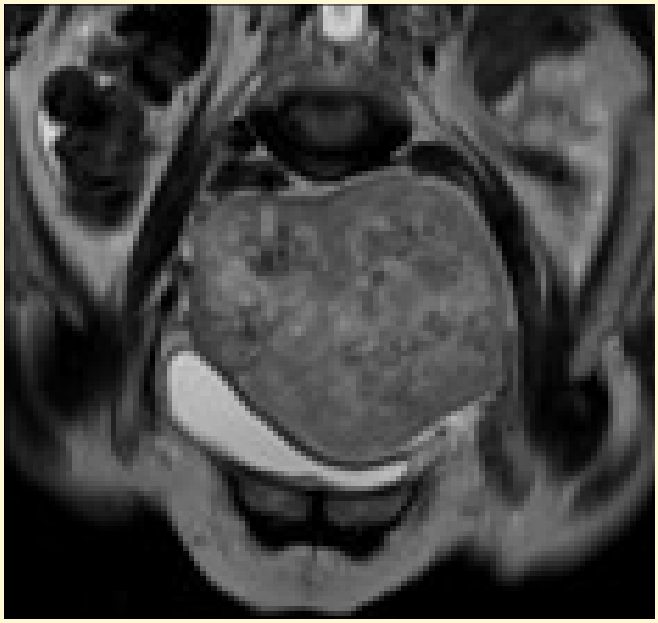
[1]Resident, [2]Assistant professor, [3]Professor, [4]Professor and HOD,
Dept of Radiology SVS Medical College

A 60yr old female presented with chief complaint of lower abdominal pain on left side since 15 days. Pain is intermittent and dragging type.

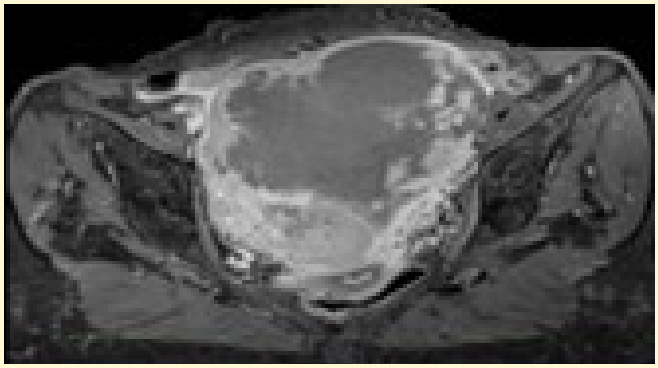
ULTRASOUND AND MRI FINDINGS:

Large Lobulated heterogeneously hyperechoic mass noted arising from pelvis, extending into abdomen upto the level of umbilicus which is taking minimal flow on application of color Doppler. Uterus is not separately seen and the mass is continuous with the cervix.





The mass is predominantly hypointense on T1W, heterogeneously hyperintense on T2W/T2-STIR, which is showing restriction diffusion on DWI and reversal on ADC.



ON POST CONTRAST: Intense enhancement of solid component with non enhancing necrotic areas.

DIFFERENTIAL DIAGNOSIS INCLUDES:

a) Leiomyosarcoma.
b) Malignant mixed mesodermal tumor.

BIOPSY

- The biopsy findings showed pleomorphic spindle shaped cells with hyperchromatic nuclei,high number of abnormal mitoses. Irregular and extensive invasion to myometrium.

FINAL DIAGNOSIS:

LEIOMYOSARCOMA

DISCUSSION

- It is a malignant smooth muscle tumor of uterus arising from myometrium itself or smooth muscle of myometrial vessel.
- Large size of tumor at presentation (6-10cm).
- Spread: Local extension ,peritoneal implantation, lymphatic or hematogenous spread.
- Distant metastases: Lung, liver, brain, kidney, bone.
- Rare uterine tumor.
- Age: Most commonly affects women in 5th decade.

REFERENCESS: DeMulder D, Ascher SM. Uterine Leiomyosarcoma: Can MRI Differentiate Leiomyosarcoma From Benign Leiomyoma Before Treatment? **AJR Am J Roentgenol** 2018;211(6):1405–1415. Crossref, Medline, Google Scholar.

Tirumani SH, Ojili V, Shanbhogue AKP, Fasih N, Ryan JG, Reinhold C. Current concepts in the imaging of uterine sarcoma. **Abdom Imaging** 2013;38(2):397–411. Crossref, Medline, Google Scholar.

Dr Madhulatha kyatham
2nd Year Resident
SVS Medical College

CASE REPORT OF TUBERCULAR ABSCESS OF SPLENIUM OF CORPUS CALLOSUM WITH VENTRICULITIS OF POSTERIOR HORN OF RIGHT LATERAL VENTRICLE

Dr Madhulatha kyatham1, Dr Sandeep Madineni2, Dr.Ramakrishna reddy3 , Dr K.Venkat Ram Reddy4

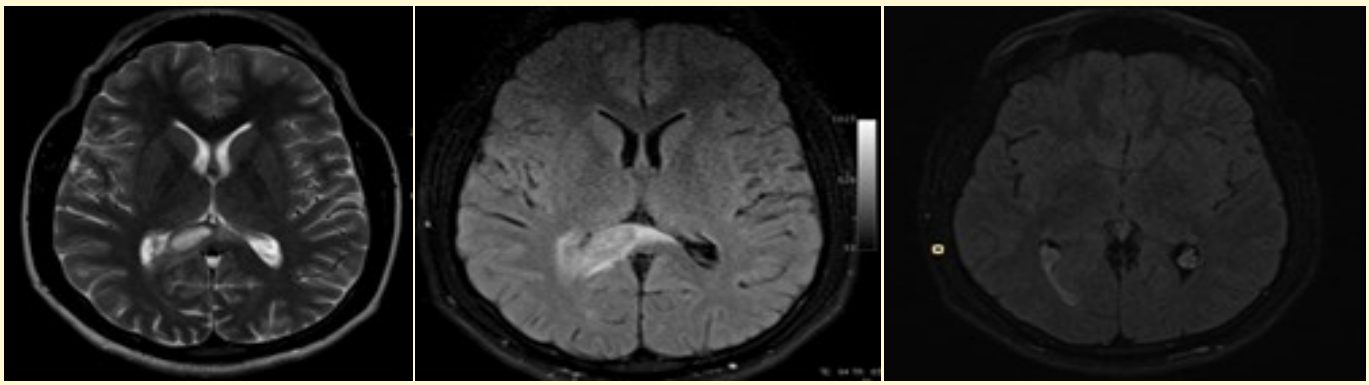
1 Resident, 2 Assistant professor, 3 Professor and 4 HOD Dept of radiology SVS Medical college.

CLINICAL HISTORY

A 22 year old male presented with history of severe headache, spiking fever and two episodes of vomitings, blurring of vision, diplopia since a week.

ON PLAIN MRI

T2W | T2W FLAIR | T2W FLAIR



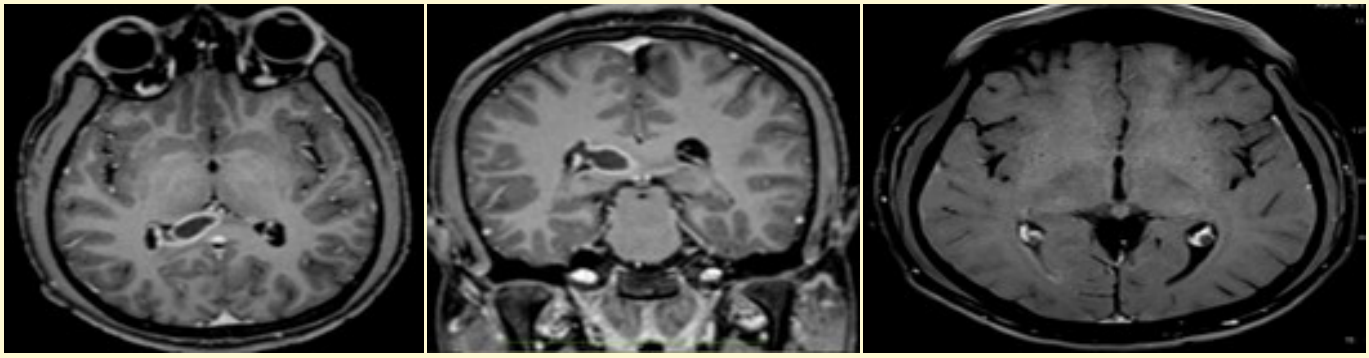
Imaging findings:

Solitary well defined T1 hypo,T2/T2 FLAIR hyperintense lesion noted in right side of corpus callosum,which is showing diffusion restriction on DWI and reversal on ADC.

There is T2 FLAIR Perilesional hyperintense edema noted.

Hyperintensities noted along the walls of posterior horn of right lateral ventricle

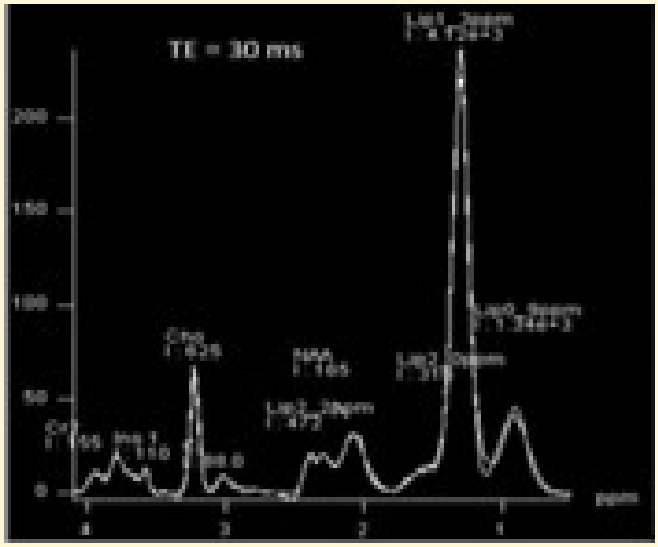
ON POST CONTRAST T1 W IMAGES:



ON POST CONTRAST -Ring like enhancement noted in lesion with breach in the lateral aspect of lesion, which is leading into right lateral ventricle causing ventriculitis.

MR SPECTROSCOPY

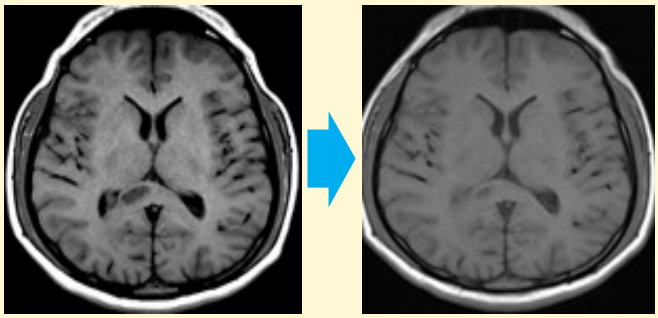
MRS of lesion shows very high lipid peak, reduction of NAA and creatinine and a choline/creatinine ratio of >1.



CSF ANALYSIS:

- Report of ZN and gram negative stains: No acid fast or gram negative bacilli are seen
- Appearance: Straw colour, Clear ,Coagulum absent
- Cell count: WBC 800 cells/cumm , RBC-200cells/cumm ; Cell type:Neutrophils-10%,lymphocytes-90%
- CSF sugar - 23 mg/dl [50-70mg/dl] ; CSF total protein- 130 [10-50 mg/dl]
- ESR-20mm/hour [0-10]

All F/S/O-Tubercular abscess of splenium of CC with ventriculitis of posterior horn of right lateral ventricle.



Before treatment During treatment[On 13 th day of TB medication]

DISCUSSION

Lesions of corpus callosum are uncommon , because of its compact structure comprising tightly packed white-matter tracts.

Brain abscess is rarely seen in the corpus callosum &solitary bacterial abscess confined to the splenium of the corpus callosum less reported previously.

Typically amongst neoplasms, only aggressive lesions can invade the corpus callosum as it composed of very dense white matter tracts which is acts as barrier for tumour spreading.

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CASE REPORT OF SEROUS CYSTADENOCARCINOMA:

Dr G.Vaishnavi Reddy[1] ,Dr Sandeep Madineni[2], Dr Shubash Reddy Doni[3],Dr Geethika mandepudi[4],Dr G.Rama Krishna Reddy[5] ,Dr K.Venkat Ram Reddy[6]

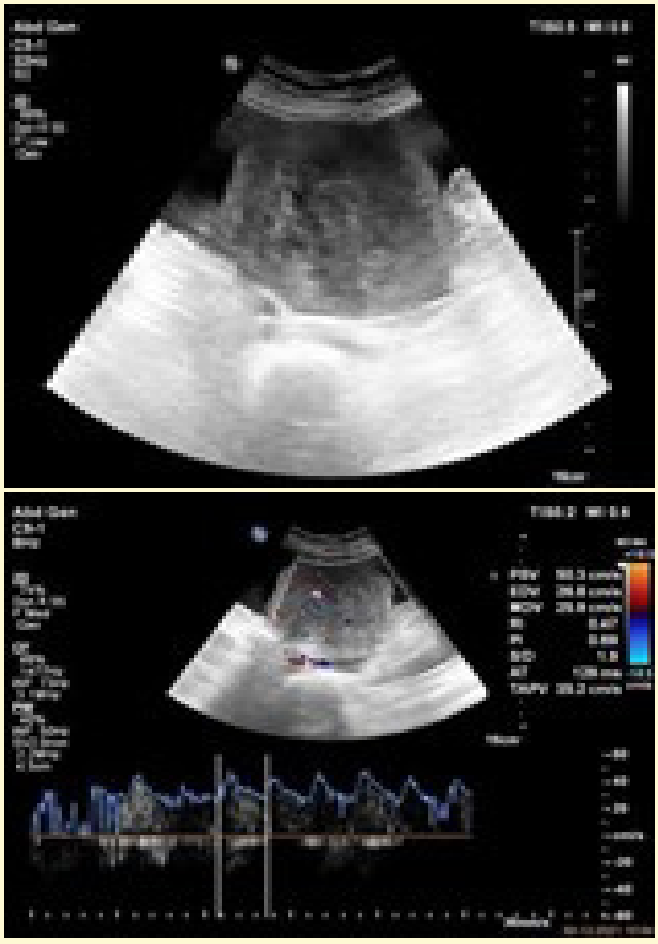
[1]Resident, [2]Assistant Professor, [3]Assistant Professor, [4]Assistant Professor, [5]Professor
[7]Professor and HOD Dept. of Radiology SVS Medical College

Dr G.Vaishnavi Reddy
2nd Year Resident
SVS Medical College

CLINICAL HISTORY

A40 years old female presented with chief complaints of pain abdomen since 7 days ,fever since2 days. Her LMP was3 weeks back and no significant menstrual history was given.

Ultrasonography was done:



There is heterogenous hypoechoic well defined lobulated mass lesion noted in right adnexa measuring approximately 10.6X7.8cm with gross ascites. Resistive indexes less than 0.4–0.8 and pulsatility indexes less than 1.0 are generally considered to be suspicious for malignancy

There is evidence of filling defects noted in both ventricles of heart .There is lack of enhancement on CECT

? Likely Thrombus.

CT and CECT Findings:

There is an ill defined heterogenous solid lesion noted in right adnexa measuring approximately 9.7 X9.7X9 cm (MLXAPXCC).

There is heterogeneous enhancement with patchy non enhancing necrotic/cystic components, with few heterogeneously enhancing pelvic peritoneal deposits noted adjacent to left external iliac vessels.

THE FOLLOWING DIFFERENTIAL DIAGNOSIS WERE CONSIDERED:

A. Serous cystadenocarcinoma.
B. Adult granulosa cell tumor.
C. Endometrioid carcinoma.

HISTOPATHOLOGY REVEALED : SEROUS CYSTADENOCARCINOMA.

DISSCUSION:

General Features:

- Most (90%) of ovarian cancers originate from germinal epithelium.

Epithelial ovarian cancer subtypes:

- Serous (50%), mucinous (20%), endometrioid (20%), clear cell (10%) and undifferentiated (1%).
- Serous cystadenocarcinoma is most common type of epithelial ovarian cancer.

Gross pathologic & Surgical Features:

- Most often unilocular or septated cystic masses with papillary solid projections.

DEMOGRAPHICS:

Age :Predominantly perimenopausal and postmenopausal women.

Morphology:

- Predominantly cystic masses with papillary solid components.
- May also be seen as predominantly solid masses.
- Best diagnostic clue :Most often seen as cystic masses with solid/papillary components in ovary.

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- Jung SE ,Lee JM ,Rha SE ,Byun JY ,Jung JI ,Hahn ST .CT and MR imaging of ovarian tumors with emphasis on differential diagnosis .Radiographics 2002 .Nov-Dec.1305-25:(6)22; doi/10.1148 :rg .226025033.PMID.12432104 :

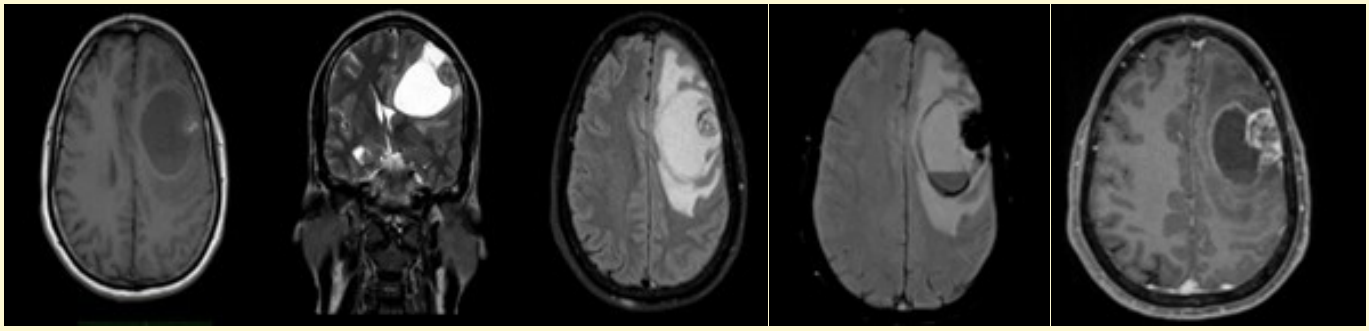
A CASE REPORT OF RARE LOCATION OF GANGLIOGLIOMA.

Dr. Mohd Mohsin Khan[1], Dr. Sandeep Madineni[2],
Dr. Rama Krishna Reddy[3], Dr. Venkat Ram Reddy[4]
[1]Resident, [2]Assistant Professor, [3]Professor, [4]Professor and HOD, SVS Medical College

Dr. Mohd Mohsin Khan
2nd Year Resident
SVS Medical College

CLINICAL HISTORY:

A 50 YR OLD MAN PRESENTING WITH CLINICAL FEATURES OF HEADACHE, DIZZINESS AND ALTERED BEHAVIOUR SINCE 20 DAYS.



A Large Intra-Axial predominantly cystic lesion noted in the left posterior frontal lobe with eccentric solid component.

The cystic component appears hypointense on T1WI and hyperintense on T2/T2 FLAIR images with dependent fluid-fluid level.

S/o Intracystic Hemorrhage.

The eccentric solid component within the lesion abuts the adjacent dura and shows multifocal T1W1 hyperintensities and predominantly hyperintense on T2/T2 FLAIR images with incomplete T2WI/ FLAIR hypointense rim.

Significant blooming is seenin the entire solid component on SWI images. No signigficant diffusion restriction noted.

ON POST-CONTRAST : Heterogeneous Enhancement is seen within the solid component.

DIFFERENTIAL DIAGNOSIS:	**FINAL DIAGNOSIS:**
1. Oligodendrogliomas.	[Histopathologically Proven]
2. Dysembryoplastic Neuroepithelial Tumors.	Left Frontal Lobe Ganglioglioma.
3. Pilocytic Astrocytomas.	[Rare Location]
4. Pleomorphic Xanthoastrocytomas	

DISCUSSION:

Ganglioglioma is an infrequent tumor of the central nervous system.

The age of presentation of these tumors varies from 2 months to 70 years. The majority of gangliogliomas occur in the temporal lobe (> 70%) .The most common presenting signs and symptoms are seizures (temporal lobe and other supratentorial locations), followed by headache, dizziness, ataxia (posterior fossa), and progressive weakness (spinal cord). The typical of ganglioglioma is a benign, calcified tumor in the temporal lobe of a child with seizures.On CT, the picture is of a circumscribed solid mass or cyst with a mural nodule. On MR imaging, gangliogliomas are isointense to hypointense on T1-weighted images, are hyperintense and heterogeneous on T2-weighted images, and can contain solid, cystic, and calcified components. Enhancement after administration of gadolinium has also been found to vary from no enhancement to marked, heterogeneous enhancement.

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INTERESTING CASE

Co Author - Dr Sandeep Ponnaganti,
Junior Consultant Neuro-Radiologist

Dr Yasam Preethi
Final Year DNB Resident
Department of Radiology,
KIMS Hospitals, Secunderabad

CLINICAL FINDINGS

48 year old male presented with complaints of headache since 4- 5 days and blurring of vision since 18 months, which is gradually progressive in nature. Patient was a known hypertensive and diabetic. Past history - ventriculoperitoneal shunt drainage in view of hydrocephalus was done in postnatal period at an outside hospital 40 years back.

ADVISED MRI BRAIN (PLAIN + CONTRAST) WITH CSF FLOW STUDY

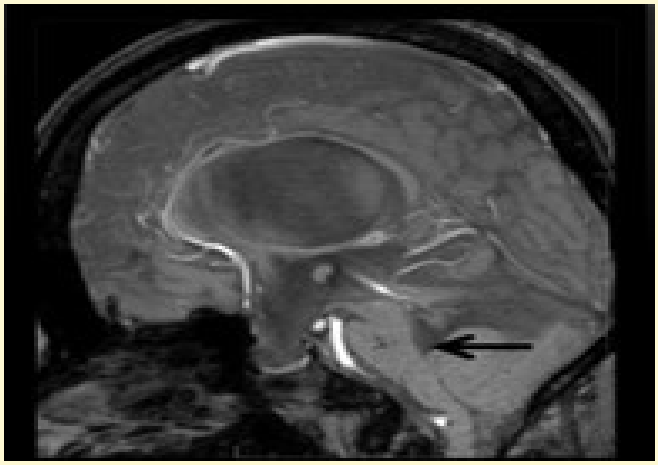

Figure 1 - CSF FLOW STUDY (Rephased Image) reveals no obvious CSF flow across fourth ventricular outlet resulting in hydrocephalus.

Figure 2 – T2WI Axial section reveals linear interhemispheric cleft in between cerebellar hemispheres and a defect (measuring approximately 8.4 x 11mm) involving medial wall of left Meckel's cave with evidence of meningocele extending into sphenoid sinus due to raised intracranial tension.

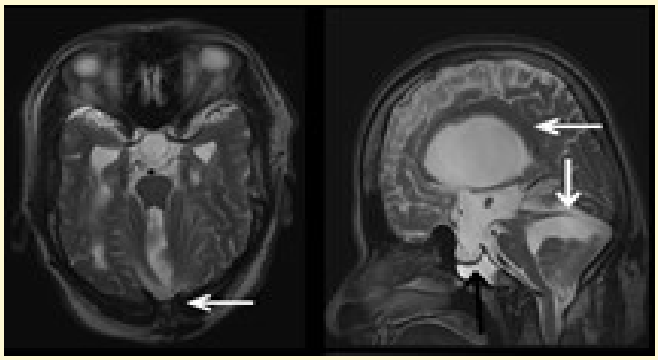

Figure 3 – T2WI Axial and Sagittal sections reveal traction on inferior aspect of tectum with inferior tectal beaking and rotation of cerebellar hemispheres ventrolaterally due to midline occipital encephalocele.

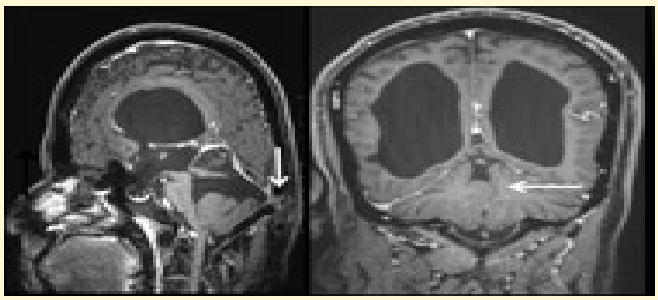

Figure 4 – Post Contrast T1 FAT SAT Sagittal and Coronal sections reveal Cerebellar interhemispheric cleft and atretic Occipital Encephalocele.

Also seen are thinning with elevation of corpus callosum and partial empty sella due to raised intracranial tension from obstructive hydrocephalus.

FINAL DIAGNOSIS

Tectocerebellar Dysraphia with Occipital Encephalocele and Fourth ventricular outlet obstruction with Hydrocephalus.

EMBRYOLOGY

During the fifth week of gestation, thickening occurs bilaterally in the alar plate of the rhombencephalon, forming the rhombic lips, which are the primordia of the cerebellar hemispheres.[1] The cerebellar vermis is formed upon fusion of the developing hemispheres when they meet superiorly at the midline during the ninth gestational week; fusion then continues inferiorly as the hemispheres grow.[1] Therefore, the vermis cannot be formed without development of the cerebellar hemispheres.

Four distinct congenital malformations of the cerebellar vermis have been recognized.

Dandy Walker Variant (Hypoplastic vermis with rotation) consists of partial or complete vermian agenesis, posterior fossa & brainstem are of normal size with no / small cyst and keyhole vallecula (communication of fourth ventricle with cisterna magna).[1]

Joubert syndrome is a clinical diagnosis associated with posterior fossa abnormalities. It consists of vermian hypoplasia or aplasia, resulting in a triangular mid-fourth ventricle and a batwing-shaped fourth ventricle superiorly;however, neither a posterior fossa cyst nor hydrocephalus is seen. Patients with Joubert syndrome have a characteristic clinical syndrome consisting of, among other signs and symptoms, episodic hyperpnea, which was not seen in our patient.[1]

Tectocerebellar dysraphia consists of vermian hypoplasia or aplasia, an occipital cephalocele, and dorsal traction of the brain stem, such that the hypoplastic cerebellar hemispheres are rotated around the brain stem to lie ventrolaterally to it.[3]

Finally, **rhombencephalosynapsis** consists of vermian hypogenesis or agenesis associated with cerebellar hemisphere, dentate, peduncular, or collicular fusion ; it has not been described with cerebellar folial dysplasia.[2]

TECTOCEREBELLAR DYSRAPHIA WITH OCCIPITAL ENCEPHALOCELE (TCD-OE)

This malformation was first described by Padget and Lindburg in 1972.[3] It consists of an occipital encephalocele, a cerebellar midline defect, inverted cerebellum, and deformity of the tectum.[3]

Less consistent anomalies include posteriorly kinked brainstem, fusion of the thalami, aplasia of the mammillary bodies, callosal dysgenesis, abnormal cerebral gyral anatomy, bifid atlas, bifid occipital bone, and cervical hydromyelia.[3]

Triad of occipital encephalocele, polycystic kidneys and postaxial polydactyly in Meckel-Gruber syndrome.[4] Phocomelia, radial ray defects and urogenital anomalies in Von Voss syndrome.[4] Agyria with retinal dysplasia in Walker Warburg syndrome.[4]

Recently Poretti et al., investigated the relation between TCD with occipital encephalocele and Joubert syndrome.[5]

Molar tooth sign in MRI, absence of the midbrain decussation of the superior cerebellar peduncles in colour-coded fractional anisotropy and homozygous mutation within the TMEM237 gene may reveal that TCD with occipital encephalocele represent as a structural manifestation within Joubert syndrome and related disorders spectrum.[5]

CONCLUSIONS

Strict vigilance while performing antenatal ultrasound can aid in the early suspicion for congenital brain anomalies. MRI is the best technique that allows a morphological study of the encephalocele's content and assessment of associated cerebral anomalies.

ACKNOWLEDGEMENTS

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