

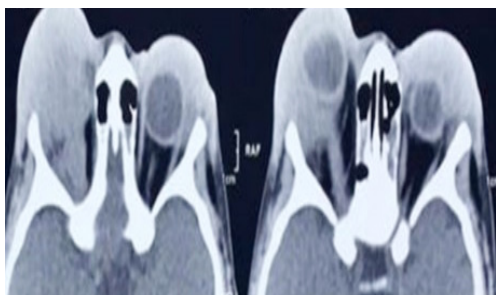
IRIA Telangana

e-Newsletter



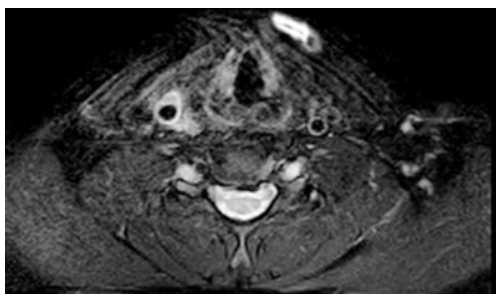
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Indian Radiological & Imaging Association

Telangana State Chapter 2025

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From the President's Desk



Dear esteemed members,

I am deeply honored and grateful to all TSIRIA members for unanimously electing me as the President of our state chapter for 2025. I pledge to dedicate myself wholeheartedly to serving the association and its goals. I want to take this opportunity to thank Dr. Prabhakar Reddy for his unwavering support and encouragement and Dr. Ramesh for his outstanding leadership and contributions as the President of IRIA over the past year.

This year, our efforts are focused on preparing for the IRIA National Conference scheduled for January 2026. It is a shared responsibility of each member to actively contribute toward making the conference a resounding success. I congratulate the newly elected executive committee members and look forward to work as a team to serve our chapter diligently. Despite being occupied with conference preparations, we remain committed to conducting popular educational activities and condensing some of our CME's in 2025. The annual academic program will be announced soon, so please stay tuned and save the dates!

I would like to express my sincere gratitude to the TSIRIA newsletter editorial team for helping me over the last three years keep us updated with the latest news and academic activities. Special congratulations to Dr. Sudha Bindu on her well-deserved nomination as the newsletter editor and to all the newly appointed board members of the editorial team.

Wishing you all the best,

Dr. J. Jagan Mohan Reddy

President

Indian Radiological and Imaging Association

Telangana State Chapter

From the General Secretary Desk



Dear Esteemed Members,

Greetings! Wishing you all a very Happy New Year and a joyous Sankranthi.

I am delighted to share some updates regarding the upcoming IRIA Annual Conference 2026. The registration process will officially commence on 23rd January, and I urge all of you to take advantage of the early bird registration. Please encourage your colleagues and friends to join us in making this event a remarkable success.

We are expecting an impressive participation of approximately 5000 delegates from across the country and beyond. The conference will feature more than 100 international speakers, including renowned luminaries, making it an intellectually enriching experience for all attendees.

I am happy to inform you that the 2nd Organizing Committee Meeting was successfully held on 28th December at Taj Krishna, where the planning and progress were enthusiastically discussed. We have finalized HITEX as the conference venue, a space that perfectly aligns with the grandeur and scale of our event.

I earnestly request every member to register early and also encourage participation from your peers, especially from both Telangana and Andhra Pradesh, to ensure that IRIA 2026 is an outstanding success.

Looking forward to your active participation and support.

Long live IRIA, and Jai Hind!

Warm regards,

Dr. P. Krishna Mohan

General Secretary, IRIA Telangana

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Chief Radiologist and HOD,
Basavatarakam IndoAmerican Cancer Hospital and Research Institute,
Banjara Hills, Hyderabad

Preventive radiology deals with detecting cancer and noncancerous health conditions in their early stages, when diseases are more treatable and curable. Medical imaging is an integral part of screening, early identification, assessment of the progress of disease and effectiveness of the interventions and management of several public health conditions including tuberculosis, breast cancers, lung and colon cancers, coronary heart diseases, and congenital malformations in foetuses.

In our country, several lacunae exist in the awareness of preventive care guidelines, and this review briefly discusses the current scenarios and appropriate radiological screenings in high risk patients.

Cancer screening

Historically, the most successful outcome of cancer screening is based on the randomized controlled trials showing significant reduction of breast cancer deaths (20% - 40%) due to early detection with screening mammography. Compared to screening mammography which detects 2 to 8 cancers per 1000 mammograms, screening ultrasound detects 2 to 4 additional cancers per 1000 examinations but requires many recalls and a large number of biopsies for confirmation of diagnosis. The ACR (American College of Radiology) recommends that women begin annual screening mammography at age 40, and additional screening MRI is recommended in high risk women (BRCA mutation carriers, first-degree relatives of BRCA mutation carriers who remain untested, women with a history of mediastinal irradiation between the ages of 10 and 30, and women with certain genetic syndromes).

Colorectal cancer is the second leading cause of cancer death, despite the fact that it is readily preventable with early detection and removal of

clinically relevant polyps. Virtual colonoscopy or CT colonography (CTC) is a safe, ideal, non-invasive, cost-effective and validated screening test that is equivalent to optical colonoscopy (OC) for the detection of advanced adenomas and early-stage cancer to effectively screen patients allowing for prevention, early detection and early intervention in colon cancer. ACR guidelines advice CTC for colorectal cancer screening in average risk individual of age 45 to 75 years as initial screening modality and then follow-up every 5 years after initial negative screen. Hepatocellular carcinoma has a high prevalence among populations with cirrhosis and if detected early, HCC potentially may be cured by surgical resection, liver transplant, or local ablation. HCC screening and surveillance is recommended in any patient with cirrhosis irrespective of cause, noncirrhotic chronic HBV and HCV carriers, those with chronic right heart failure, hemochromatosis, or suspected nonalcoholic steatohepatitis. At-risk patients should undergo HCC screening/surveillance every 6 months. ACR developed the US LI-RADS, a unified system, with precise criteria for interpretation, and standardized reporting and follow-up recommendations in hepatic US evaluation of patients at risk for developing HCC. The finding of a focal observation larger than 1 cm, new venous thrombus, or suspicious parenchymal distortion detected sonographically in a patient at risk for developing HCC should prompt further investigation with a diagnostic multiphasic contrast-enhanced CT/MRI examination.

Biliary cancers include gallbladder cancer (GBC) and cholangiocarcinoma (CCA). Early detection of these cancers is important as the prognosis is poor with a 5-year survival rate of 10% for advanced cancers. Risk factors include gallstones, polyps, porcelain gallbladder, anomalous pancreaticobiliary junction,

and primary sclerosing cholangitis (PSC). Patients with gallbladder polyps that are at low risk for GBC, that is, 6 to 10 mm in size without concomitant risk factors such as solitary sessile polyp or PSC, may be screened with ultrasonography. Patients with PSC would benefit from annual gallbladder ultrasonography to assess for polyps. Sonography and/or MR imaging with MRCP together with semiannual CA19-9 measurements is advice in patients with PSC for early detection of CCA.

Lung cancer is the second most common malignancy in both men and women, and is curable if detected at an early stage. Low-dose computed tomography (LDCT) of the chest is an effective screening tool for detection of lung cancer with 20% relative reduction of mortality in high-risk individuals. The ACR developed Lung CT Screening Reporting and Data System (Lung-RADS) in order to standardize interpretation, reporting and management recommendations and to facilitate outcome monitoring.

Hereditary cancer syndromes constitute a diverse group of genetic syndromes characterized by the early-onset development of histogenetically distinct neoplasms in specific organ systems in multiple family members. These syndromes such as hereditary breast and ovarian cancer syndrome, hereditary nonpolyposis colorectal cancer, Lynch syndrome, Familial adenomatous polyposis, Li-Fraumeni syndrome, Cowden syndrome, von Hippel-Lindau disease, Birt-Hogg-Dube syndrome, Multiple endocrine neoplasia (MEN) syndromes, Tuberous sclerosis complex, hereditary leiomyomatosis and renal cell carcinoma, comprise of 3% to 10% of all malignancies in various organ systems. Genetic tests (germline mutations, tumor suppressor genes, BRCA1 and BRCA2), laboratory tests, and imaging-based screening strategies allow early diagnosis in asymptomatic patients with a familial predisposition to cancers. Cross-sectional imaging techniques play an integral role in the screening, early diagnosis, surveillance and management of patients with these syndromes in conjunction with clinical and pathologic findings. Annual screening with CT or MR imaging is recommended for most patients with a genetic predisposition, although the interval and age at which surveillance imaging begins vary.

Screening in noncancerous conditions

Intrauterine growth restriction has a prevalence of

10% for all pregnancies, and 25% or higher for some high-risk groups, such as hypertensive mothers. Growth-restricted pregnancies are often complicated by a high rate of antepartum and intrapartum fetal distress and the need for cesarean delivery. The ACR recommends US as the initial imaging modality to screen pregnant women for IUGR, followed by duplex Doppler velocimetry of the umbilical artery and a biophysical profile. It is also found that first-trimester uterine artery Doppler is useful in predicting preeclampsia later in the pregnancy.

Nonalcoholic fatty liver disease (NAFLD) is one of the most common cause of chronic liver disease, occurring in approximately 30% of the general population. NAFLD consists of a spectrum of diseases, including simple steatosis, nonalcoholic steatohepatitis (NASH), liver fibrosis, and liver cirrhosis. NASH, characterized by hepatocyte injury, inflammation, and fibrosis, is a clear risk factor for progression to cirrhosis, and such progression has been reported in up to 25% of patients. NASH is also associated with an increased risk of liver cancer and death from cardiovascular diseases or liver-related causes. NAFLD is closely related to obesity, insulin resistance, hypertension, and dyslipidemia and is now regarded as a hepatic manifestation of the metabolic syndrome. Various imaging methods have been utilized to evaluate patients with NAFLD, including US, CT, MRI, and Elastography to quantify hepatic steatosis.

Cardiac CT scan with coronary artery calcium scoring is a non-invasive screening investigation in patients with risk factors for CAD but no clinical symptoms to detect the presence, location and extent of calcified plaques in the coronary arteries.

Osteoporosis and fractures associated with it have become a global burden, with the worldwide increase in the older population, as one in three women and one in five men over the age of 50 suffer osteoporotic fractures. Regular bone density screening test using dual-energy X-ray absorptiometry (DXA or DEXA) is recommended for women over 65 and men over 70 for the diagnosis of osteoporosis and estimation of fracture risk.

Artificial Intelligence (AI) in preventive radiology

Every year, millions of CT and MRI scans are performed and yet their diagnostic potential is

often confined to the specific indications for which they are requested. CT scans of abdomen and chest not only give the primary diagnosis, but also potentially offer quantitative assessment of bone mineral density, calcification in large arteries, body composition, and liver volume/attenuation. In future, this opportunistic screening can leverage AI to analyse large volumes of scans for imaging-based biomarkers with minimal impact on radiologist workload.

In conclusion, preventive radiology plays a pivotal role in the screening, initial diagnosis, management, and long-term surveillance of general population and high risk individuals, and goes a long way in reducing the burden on health care systems.



IRIA Telangana State Chapter:

www.iriatelangana.org

IRIA National Chapter:

www.iria.org.in

***ICRI (Indian College
of Radiology and Imaging):***

www.icri.co.in

AOSR (Asian Oceanian Society of Radiology):

<https://theaosr.org>

AMS (Asian Musculoskeletal Society):

www.asianmsk.org

ACHIEVEMENTS



Congratulations Dr. Anand Abkari Sir for being Elected Unopposed Telangana State Working Committee, IMA State Working Committee



Dr. Mahesh Kumar Thumu, Chief Interventional Radiologist, Mallareddy Narayana Hospital, Successfully completed the toughest run . The Border 100 km . It is really a hell race . Fighting with extreme temperatures. Both heat at day time and zero degrees at night.



Thanks
*to all the support given by you
i will try to do the best possible in the
interest of association*



Dr. P. RAM KIRAN
Cell : 9866592340

JOINT SECRETARY ZONE -2 2024-25
IMA TELANGANA STATE

Congratulations to Dr. P. Ram Kiran for being elected as Joint Secretary Zone-2 2024-25, IMA Telangana State



Sir, Dr.Tharani madam (AIG , Associate Director of radiology) got invitation and she accepted to be member of Latest "Revised Atlanta classification of Acute pancreatitis "



Congratulations to Dr. Ravuri Power for being part of the Largest Radiology Lesson (Multiple Venues), now officially recognized as a Guinness World Record, with 1,286 delegates in attendance! Sir participated as a faculty member, and the event was organized by Guerbet India on the eve of the International Day of Radiology.



Congratulations to Dr. K. Veeraiah for being Honoured with Lifetime Achievement Award by IRIA Telangana State Chapter in October 2024 at the Annual State Conference of IRIA.



Congratulations to Dr. Anand Abkari for being Honoured with Lifetime Achievement Award by IMA Hyderabad City Branch on 27-28 December 2024.



Congratulations to Dr VeeraiahKoppula, Dr AnithaMandava, Dr MeghanaKandati, Dr SnehaYarlagadda, Dr Arvind K Reddy and Dr Rakesh Juluri from the Department of Radiology, Basavatarakam Indo American Cancer Hospital & Research Institute, Hyderabad, for their noteworthy publications in prestigious radiology journals in 2024. We are proud of your achievements and wish you continued success in your future endeavors. Keep shining!"

RSNA journal - Radiology: Imaging Cancer

Mandava A, Kandem S, Juluri R, Reddy AK, Koppula V. Primary Osteosarcoma of the Sternum with Lung Metastases. Radiology: Imaging Cancer. 2024 Feb 23;6(2):230199.

RSNA journal - Radiology: Cardiothoracic Imaging

Yarlagadda S, Mandava A, Fonseca D, Koppula V. Mucoepidermoid Carcinoma of the Lung in Intralobar Bronchopulmonary Sequestration. Radiology: Cardiothoracic Imaging. 2024 Apr 11;6(2):230365.

Review article - The Indian Journal of Radiology and Imaging

Mandava A, Koppula V, Kandati M, Reddy AK, Rajappa SJ, Rao TS. Multimodality Imaging in the Diagnosis and Staging of Gestational Choriocarcinoma. Indian Journal of Radiology and Imaging. 2024 Aug 9.

10th ANNUAL TELANGANA STATE IRIA CONFERENCE 2024

Best Poster Awardees

1 st Prize	Dr.Sumaiya Sehrish	Citi Neuro Center
2 nd Prize	Dr. Harish K Khobragade	Basavatarakam Indo American Cancer
3 rd Prize	Dr. Shravani Reddy K	Chalmeda Anand Rao Institute Of Medical Sciences

Prof. T. Mandapal Gold Medal - 2024 Awardees

1 st Prize	Dr. Uzma Nausheen	Bhaskar Medical College And Bhaskar General Hospital
2 nd Prize	Dr. Vinitha Malgireddy	Narayana Medical College
3 rd Prize	Dr. Sarath Kumar Maddi	Basavatarakam Indo American Cancer

Best Oral Presentation Awardees

1 st Prize	Dr.Harsini Aachi	Kims Sunshine
2 nd Prize	Dr. Vidya Reddy Surasani	Chalmeda Anand Rao Institute Of Medical Sciences
3 rd Prize	Dr. Chenna Vishnuvardhan	Osmania Medical College

Quiz Winners

1 st Prize	Dr. Abdus Samad Ameen K	Osmania Medical College
2 nd Prize	Dr. Lakshmi Prathyusha Katakam	Osmania Medical College
3 rd Prize	Dr. Nouheen	Yashoda Hospital

Case of the Day

1 st Prize	Dr. Pugalendhi Kc	Chalmeda Anand Rao Institute Of Medical Sciences
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8th KARE - 2024

Dr. K. Prabhakar Reddy Gold Medal - 2024 Awardees

1 st Prize	Dr. K P Anuhya	NIMS
2 nd Prize	Dr. K Sravana Kumar	Kamineni
3 rd Prize	Dr. K Srija Bandi	Maheshwara Medical College



Congratulations to
Dr. Shashank Chapala
for his publication of the article on
*Digital Screen Usage Amongst Doctors:
Demographics, Patterns of Use and Effect
of Health Parameters*

Original Article



Digital Screen Usage Amongst Doctors: Demographics, Patterns of Use and Effect of Health Parameters

Shashank Chapala ¹, Mohsin Hussein ², Kapil Shirodkar ², Karthikeyan P. Iyengar ³, Raju Vaishya⁴, and Rajesh Botchu ¹

Background: Advances in digital technology have led to widespread availability of digital devices and consequent increased usage amongst across the population including practising healthcare professionals. Increased 'Digital Screen time' and its effect on physical, psychological health, and sleep patterns has been predominantly evaluated in children, adolescents and adults from various walks of life.

Purpose of the Study: The purpose of this survey was to evaluate the impact of Digital Screen usage (time and patterns) spent on portable and desktop digital devices amongst physicians, surgeons and radiologists.



Congratulations to Dr. NLN Murthy for being Awarded as Legend Radiologist for
Rednering Exceptional services to society on 19th October 2024.

ARTICLE



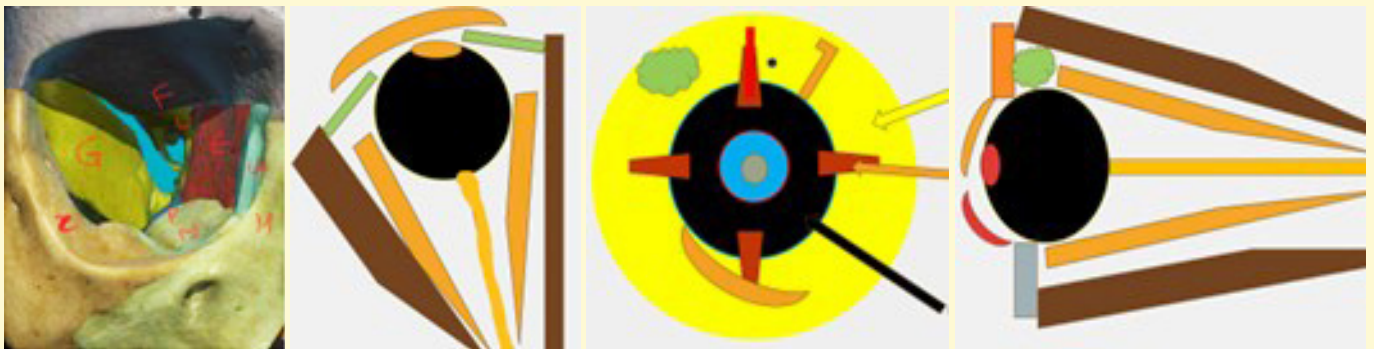
Dr. T. Sudha Bindu

Prof. &HOD, Mamata Academy of medical sciences and Hospital, Bachupally, Hyderabad

COMPARTMENTAL OVERVIEW OF ORBITAL LESIONS

NORMAL ANATOMY OF ORBIT

Pyramidal socket of the skull that is formed by the frontal(F), greater wing of sphenoid(G), lesser wing of sphenoid(L), ethmoid(E), lacrimal(La), zygomatic(Z), and palatine(P) bones and the maxilla(M)



a. Bones of the orbit, b. axial, c. coronal, d. sag line diagram sections of orbit (yellow is extraconal space, Red is conal space in c)

- ▶ Optic nerve can be divided into anterior and posterior segments based on vascular supply
- ▶ The optic nerve is not a true nerve but an extension of brain tract and part of CNS and hence gliomas occur in the optic pathway
- ▶ Myelin laid by oligodendrocytes and not Schwann cells
- ▶ Intraocular optic nerve is not myelinated

FAT SUPPRESSION MR

Advantages

- ▶ detection of intraocular (small) lesions
- ▶ the evaluation of extraocular extension of eye tumors and inflammation
- ▶ T2-weighted acquisitions of the optic nerve and optic pathway

Disadvantages

- ▶ inhomogeneity in the face and orbit

ORBITAL COMPARTMENTS

Orbital lesions can be divided into three main compartments with reference to the extraocular muscular cone

Intraconal compartment

Located within the extraocular muscle cone. The optic nerve and globe are considered separate from the rest of the intraconal contents. 1

Contents

Fat, Cranial nerves—optic nerve, oculomotor nerve, nasociliary branch of ophthalmic artery, ciliary ganglion, Ophthalmic artery

Optic neuritis

- ▶ acute or subacute vision loss with periorbital pain and painful eye movements
- ▶ Multiple Sclerosis-unilateral, involving the anterior intraorbital segment of the optic nerve, Contrast enhancement, T2 hyperintensity, and occasional diffusion restriction of the nerve optic neuritis
- ▶ Neuromyelitis optica (long segment)
- ▶ Myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD)(+optic nerve head oedema)
- ▶ sarcoidosis
- ▶ herpes zoster infection

Anterior and posterior ischemic optic neuropathy

	AION	PION
ETIOLOGY	Posterior ciliary A. Optic nerve head and disc	Central retinal artery and pial branches of ophthalmic artery Posterior optic nerve
PATHOLOGY	Arteritic — Giant cell non arteritic-small vessel disease	Arteritic — Giant cell non arteritic-small vessel disease
FUNDOSCOPY	Disc oedema	No disc oedema
CLINICAL	Painless loss of vision ARTERITIC-new-onset temporal headache, jaw claudication, and elevated C-reactive protein	Painless loss of vision ARTERITIC-new-onset temporal headache, jaw claudication, and elevated C-reactive protein
IMAGING	Restricted diffusion and the bright spot sign, disc enhancement	T2 hyperintensity of the optic nerve, reduced contrast enhancement, restricted diffusion
TREATMENT	ARTERITIC - steroids	ARTERITIC - steroids

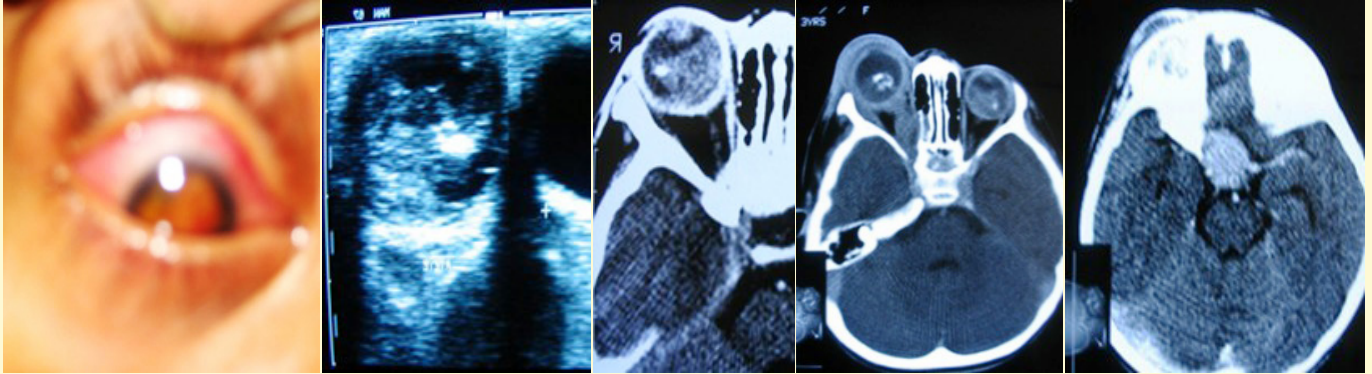
Optic pathway glioma

- ▶ First decade (2-6yrs), Female predilection Assoc. with NF 1
- ▶ Smooth margin, No calcification, No hyperostosis, Kinking & buckling of optic N, Heterogeneous enhancement.
- ▶ MR: T1 isointense and heterogeneous to hyperintense on T2. A rim of T2 hyperintensity is often observed at the tumor periphery, a finding that may mimic an expanded subarachnoid space -finding corresponds histopathologically to leptomeningeal infiltration and proliferation (arachnoidal gliomatosis)
- ▶ occur anywhere at retrobulbar, along the optic nerve, chiasm, optic tract, lateral geniculate body and optic radiation
- ▶ Histopathological grade 1 astrocytoma, slow-growing
- ▶ associated meningeal hypertrophy causing differentiation from meningioma difficult at times
- ▶ MRI is better— as retrobulbar areas are better imaged on MRI

Periopic Meningioma

- ▶ 4-5th decade, Early vision loss with proptosis
- ▶ Irregular margin, Homogenous dense enhancement
- ▶ Calcification +, Hyperostosis+
- ▶ Optic N is straight, Tram track sign

Retinoblastoma



a. Leukocoria b.usg c. axial CT showing unilateral , d.axial CT showing bilateral , e.trilateral Retinoblastoma

- ▶ Arises from the neuroectodermal cells/glial cells (small round cells)
- ▶ Most commonly in less than 5 years of age
- ▶ Associated with Rb1 gene -autosomal dominant and these are prone to osteosarcoma
- ▶ Ultrasound-Has limitation of smaller field of view and cannot diagnose the extension of the tumour.
- ▶ CT-Intraocular mass with Calcification(> 90%)
- ▶ MR-Appears moderately hyperintense in relation to the normal the vitreous on T1, Low signal intensity on T2, Moderate to marked enhancement on post contrast images, Optic nerve, extracranial and intracranial involvement is better imaged
- ▶ **trilateral retinoblastoma**-Ectopic midline retinoblastoma in the pineal body/para sellar/suprasellar region. In view of the similar histology-multicentric malignancy is considered
- ▶ **tetralateral retinoblastoma**-Both suprasellar and pineal deposits

Choroidal melanoma

- ▶ Can arise from choroid, ciliary body or iris
- ▶ 90% originate from the choroid, most common primary intra-ocular tumours in adults
- ▶ 5th-6th decade, decreased vision, visual field defects, or floaters
- ▶ Imaging: Determine the extent of the disease. MRI is superior to CT
- ▶ Melanin has intrinsic T1 and T2 shortening effects- T1-WI and T2-WI signal intensity
- ▶ identifying tumour size, extraocular extension, ciliary body infiltration, identification of retinal detachment, extra scleral spread

Orbital apex disorders

Includes lesions affecting the superior orbital fissure and / or optic canal and /or cavernous sinus . Hence divided as three entities

- ▶ Orbital apex syndrome (Jacod syndrome)
- ▶ Superior orbital fissure syndrome (Rochon-Duvigneaud syndrome)
- ▶ Cavernous sinus syndrome

Tolosa-Hunt syndrome

- ▶ periorbital pain, often described as a “gnawing” or “boring” pain, associated with ocular motor nerves paresis
- ▶ idiopathic inflammatory condition involving the cavernous sinus and orbital apex
- ▶ granulomatous inflammatory condition affecting the cavernous sinus, which may extend to the superior orbital fissure, orbital apex, or optic nerve
- ▶ enlargement and dural margin convexity, with or without T1-isointense with gray matter abnormal tissue, and isointense to hypointense on T2 sequences

Extraconal compartment

Orbital space located outside the extraocular muscle cone between the extraocular muscles and the orbital periosteum. The lacrimal gland is considered separate from the rest of the extraconal contents.

Contents

Fat, Cranial nerves–lacrimal and frontal branches of the ophthalmic nerve, Lacrimal gland

Orbital haemangioma

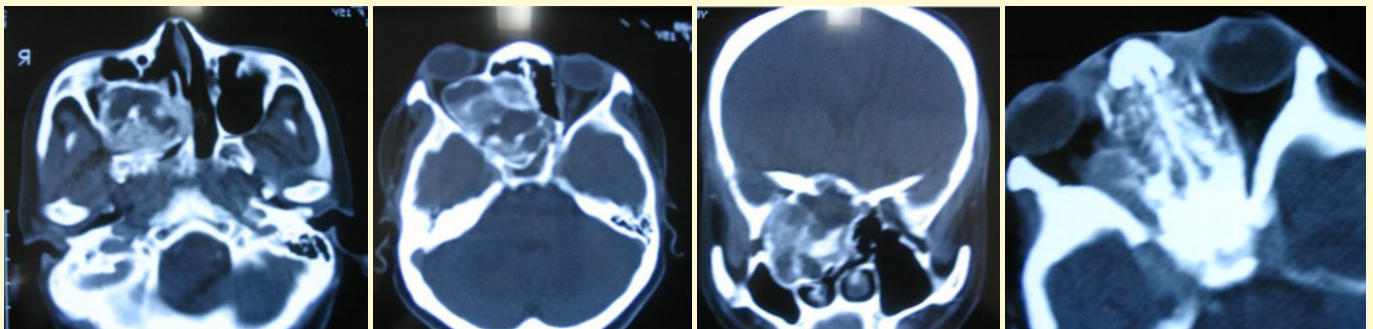
- ▶ appear at or shortly after birth, rapidly increase in size for 6 –12 months, gradually involute over the next 5–7 years
- ▶ nonencapsulated, lobulated, irregularly marginated, heterogeneous and demonstrate intense homogeneous enhancement
- ▶ hyperechoic on usg, hypointense on T1-weighted images, and iso- to hyperintense on, T2-weighted images, enhance intensely

Orbital cavernous venous malformation

- ▶ Dynamic contrast study on MRI shows delayed enhancement
- ▶ Well defined , encapsulated , Show mass effect

Ossifying fibroma

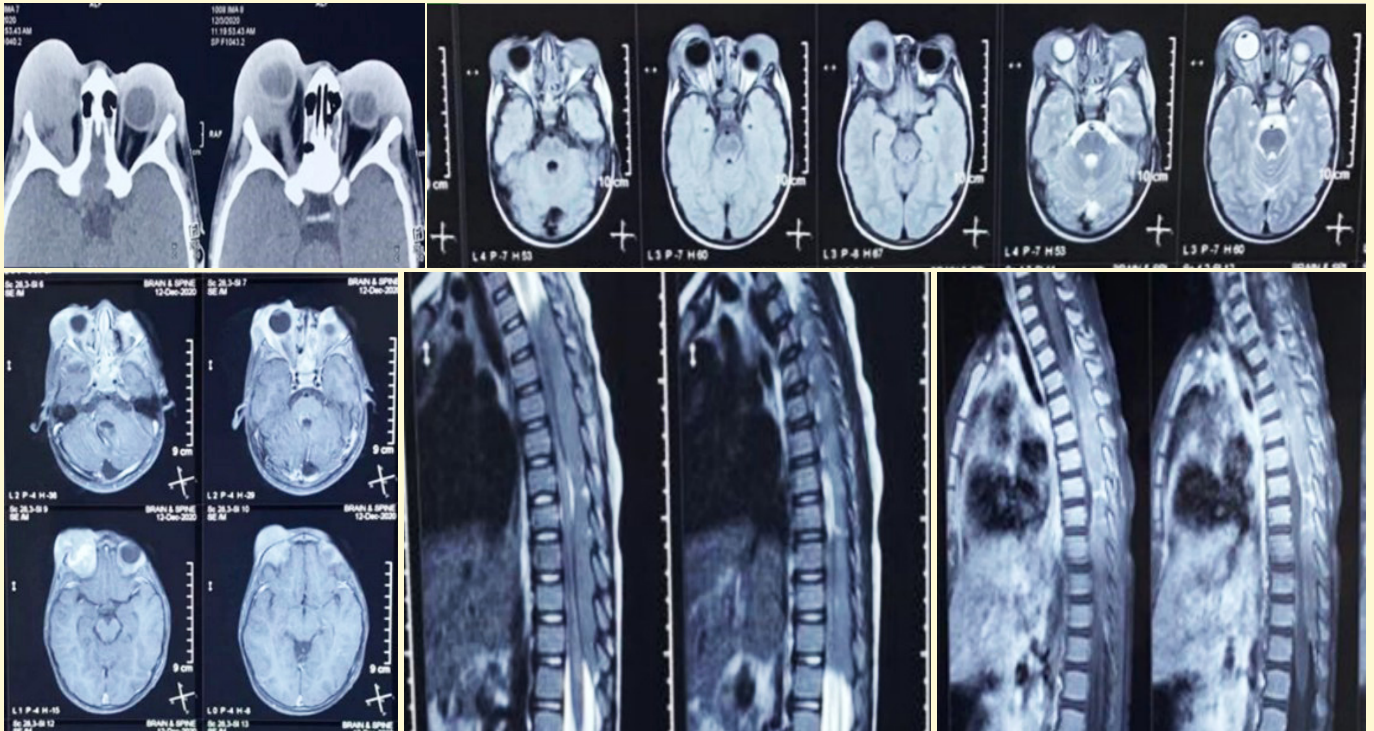
- ▶ manifests as a well-marginated round or oval mass with a thin or thick sclerotic rim and internal lucent areas mixed with mineralized foci of various shapes
- ▶ The central area consists of a nonhomogenous matrix with “ground-glass” opacification representing diffuse calcifications and low attenuation areas containing fibrous tissue with possible contrast enhancement
- ▶ The walls of the involved sinuses may undergo further remodelling and thickening, sometimes along with erosions.



CT showing a large, expansile, well-circumscribed, corticated left sinonasal mass involving the left ethmoid sinus, nasal cavity and left maxillary sinus

Lymphoma

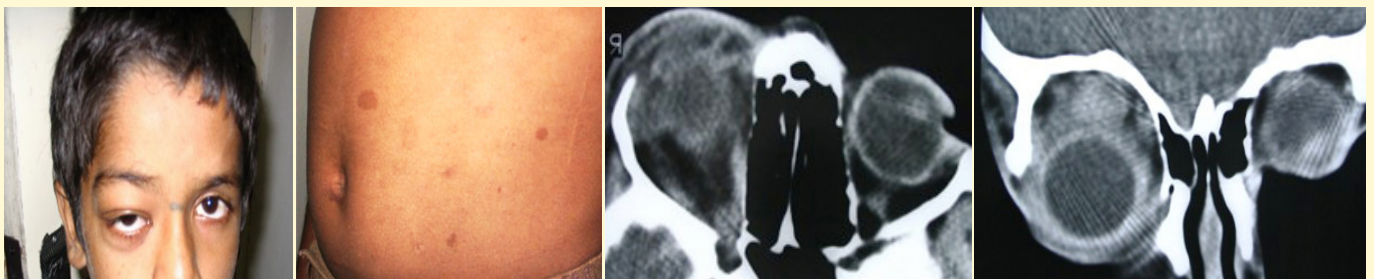
- ▶ Bilateral lesions, relatively high-density masses on CT, with sharp margins
- ▶ More often seen in the anterior portion of orbit, retrobulbar area and superior orbital compartment of lacrimal gland.
- ▶ Lesions mould themselves to structures such as globe and optic nerve, No erosion/enlargement of the orbit
- ▶ Mostly part of a systemic disease
- ▶ More common in the sixth decade



a. axial CT showing hyperdense masses, b, c, d axial mri pre and post contrast images showing homogeneously enhancing masses in extraconal space of bilateral orbits, e. sag mr pre and post contrast images showing elongated masses extradural space of dorsal spinal canal - Lymphoma

Plexiform neurofibromatosis

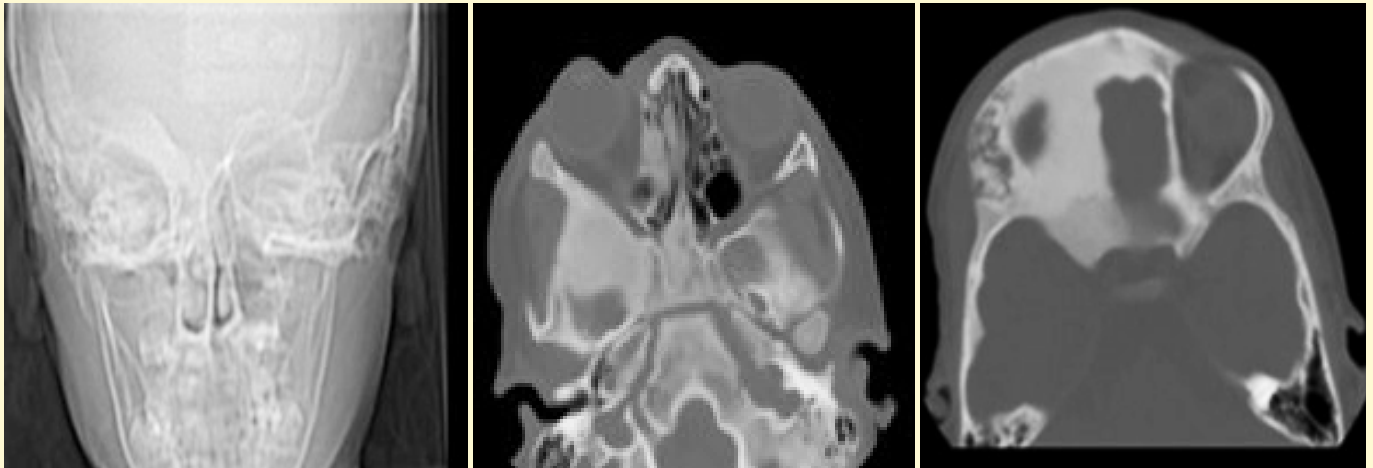
- ▶ Neurofibromatosis 1
- ▶ solitary neurofibromas often occur at the superior extraconal orbit
- ▶ causing downward displacement of the globe (hypoglobus)
- ▶ orbit is enlarged
- ▶ Upper eyelid and periorbital soft tissues are thickened
- ▶ Increased density of intraconal fat
- ▶ more commonly extraconal, owing to their frequent origin from sensory branches of the trigeminal nerve



a. Hypoglobus of right eye lid, b. Café au lait spots, c. axial, d. coronal CT sections showing neurofibroma in the superior extraconal space of right orbit

Fibrous dysplasia

- ▶ skull base and facial bones are common sites with jaws being the most frequently affected bones
- ▶ 1st and 2nd decades of life , female predilection
- ▶ Clinical manifestations of painless swelling, facial deformity, exophthalmos
- ▶ symptoms related to narrowing of skull base foramina
- ▶ growth of lesion tends to decrease after puberty
- ▶ expansile lesion that has ill-defined margins and a thinned cortex, ground-glass appearance, replaces normal bone but rarely involves bone erosion
- ▶ on MRI, increased diffusivity on apparent diffusion coefficient maps, which can help in differentiating it from a malignant lesion



a. CT topogram , b,c. axial CT sections showing expansion with sclerosis of the right greater and lesser wing of sphenoid and frontal bone on right side - fibrous dysplasia

CONAL COMPARTMENT

Contents

Extraocular Muscles

Thyroid ophthalmopathy

- ▶ Most common cause of proptosis in adults
- ▶ Inferior rectus and medial rectus muscles are most commonly involved
- ▶ Usually bilateral, Muscle belly involved and tendons are spared (Coke bottle appearance), Increased volume of retroocular fat
- ▶ "I'M SLOW" I: Inferior rectus, M: Medial rectus, S: Superior rectus, L: Lateral rectus, O: Oblique muscles

Pseudotumor

- ▶ Belly and tendon is enlarged
- ▶ Commonest inflammation of orbit
- ▶ Triad: proptosis, pain and impaired ocular motility
- ▶ Good response to steroids

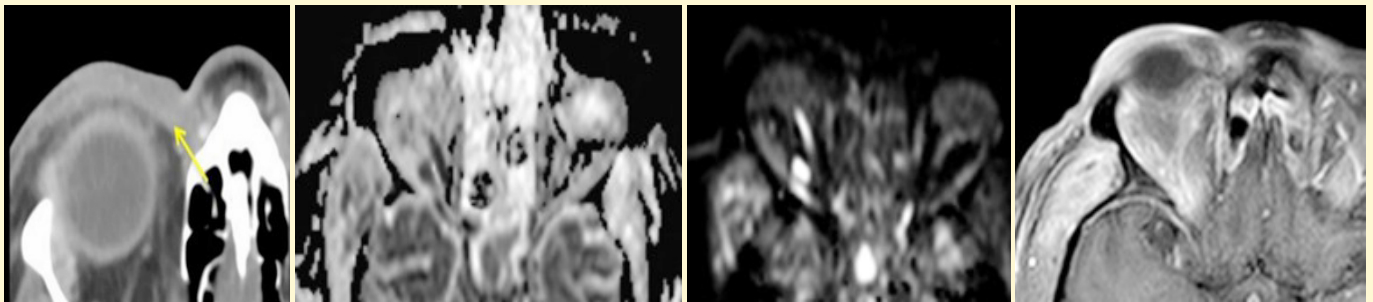
IG 4 associated ophthalmopathy

- ▶ systemic inflammatory process , unknown etiology
- ▶ characterized by tissue infiltration by IgG4 plasma cells
- ▶ sparing tendons

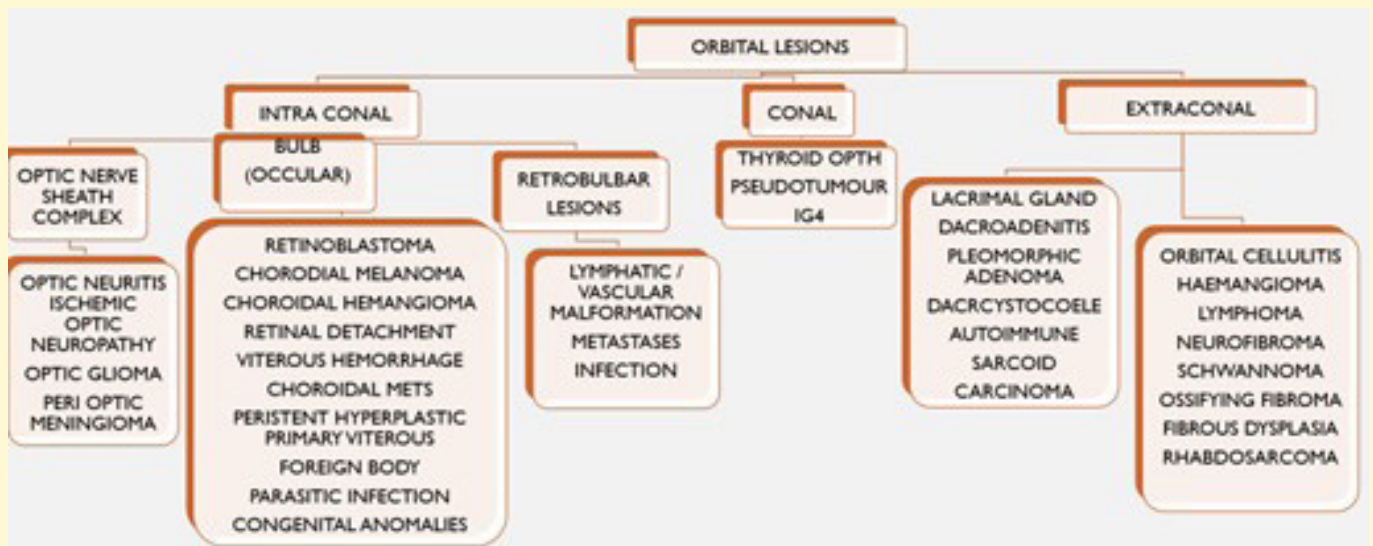
- ▶ lateral rectus is the most enlarged muscle
- ▶ T2 hypointense with post contrast enhancement
- ▶ Also lacrimal gland , cranial nerve enlargement
- ▶ Orbital fat stranding

Orbital cellulitis

- ▶ Orbital septum divides the orbit into preseptal space and post septal space
- ▶ Can be preseptal – when contained to preseptal soft tissues
- ▶ Can be post septal- extending into the post septal soft tissues



a. axial CT showing preseptal cellulitis of right orbit, b.adc, c. DWI, d.post contrast T1 axials showing restricted diffusion in the retrobulbar space - abscess, enhancement of right lateral rectus- post septal cellulitis



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1. Guilherme Gotti Naves , Heytor José de Oliveira Cabral, Helen Ribeiro de Oliveira, Thiago Luiz Pereira Donoso Scoppetta, Henrique Bortot Zuppani, Fernanda Boldrini Assunção-Practical Approach to Orbital Lesions by Anatomic Compartments, Published Online: Sep 26 2024 <https://doi.org/10.1148/rg.240026>
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BASIC AND ADVANCED FETAL INTERVENTIONS

Fetal interventions have significantly advanced in recent years, offering new hope in managing high-risk pregnancies and improving maternal and fetal outcomes. These interventions range from basic procedures, such as amniocentesis, to advanced techniques like fetoscopic laser ablations and multifetal reductions. This article summarizes key interventions and their implications in clinical practice.

Checklist for Fetal Interventions

Before performing any fetal intervention, the following checklist ensures safety and efficacy:

1. **Informed Consent:** Comprehensive counseling and documentation.
2. **Ultrasound Scanning:** Determine fetal viability, presentation, placenta, and umbilical cord location.
3. **Asepsis and Anesthesia:** Maintain sterility and provide local anesthesia.
4. **Post-Procedure Monitoring:** Confirm fetal viability and address complications immediately.



Figure 1: Ultrasound-guided fetal intervention setup

Basic Fetal Interventions

Amniocentesis

Amniocentesis involves the transabdominal aspiration of amniotic fluid, commonly performed after 16 weeks of gestation for prenatal diagnosis of aneuploidies. The procedure requires 1 cc of amniotic fluid per week of gestational age for optimal analysis.

Complications:

- Late abortion
- Chorioamnionitis
- Preterm rupture of membranes (PROM)

Clinical Application: A case of monochorionic monoamniotic twins at 24 weeks, complicated by pelviectasis and echogenic foci in the fetal heart, highlights its diagnostic utility.



Fig: AMNIOCENTESIS procedure

Sample

Amnioreduction

Used primarily in twin-to-twin transfusion syndrome (TTTS) stage I, amnioreduction relieves polyhydramnios by controlled fluid drainage.

A 29-year-old patient with discordant amniotic fluid volumes underwent successful reduction, removing 3.2 liters of fluid, under ultrasound guidance.

Technique: 18-gauge needle connected to IV tubing ensures controlled drainage over 1-2 hours.



Figure: Controlled amnioreduction procedure under ultrasound guidance



Fig:Amnioreduction

Advanced Fetal Interventions

Chorionic Villus Sampling (CVS)

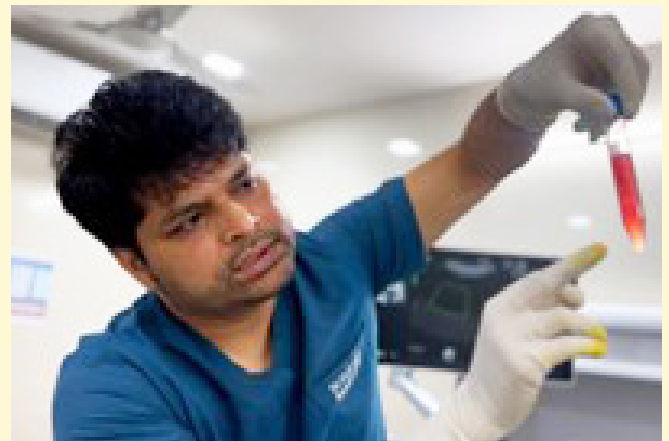
CVS is performed between 11 and 14 weeks for early genetic screening. The procedure can be transabdominal or transcervical, with a loss rate similar to amniocentesis (0.2% to 2%).

Challenges:

- Avoiding the amniotic cavity to prevent complications.
- Requires experience to minimize risks, including miscarriage.



Fig: CVS sampling with 18G spinal needle



Villi sample

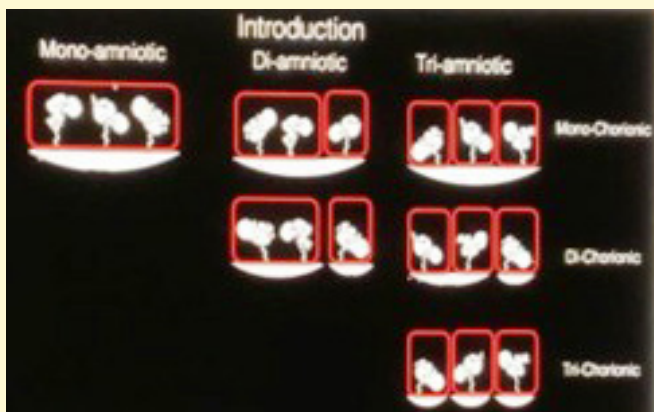
Cordocentesis

Cordocentesis, or fetal blood sampling, is indicated after 18 weeks for diagnosing and treating fetal conditions like anemia or infections. The technique varies by placental location—using a 22-gauge needle for sampling and 20-gauge for intrauterine blood transfusion.

Complications: Rarely, fetal bradycardia may occur, requiring prompt management.



Figure : Cordocentesis under ultrasound guidance



Multifetal Pregnancy Reduction (MFPR)

MFPR reduces fetal numbers in high-order multiple pregnancies to minimize risks to both the mother and remaining fetuses. The procedure is performed under ultrasound guidance in the late first or early second trimester.

Technique: A 22-gauge spinal needle delivers potassium chloride (KCl) to the targeted fetal heart, ensuring asystole.

Case Highlight: A 21-year-old patient with quadruplet gestation underwent successful reduction of two anomalous fetuses. Post-procedure monitoring showed stable cardiac activity in the remaining fetuses.



Figure: Ultrasound-guided multifetal reduction , with 22G spinal needle in the heart of the fetus.

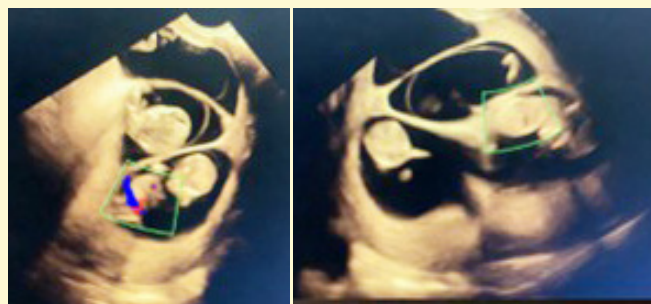


Fig:Preprocedure: vascularity post procedure:No vascularity

Radiofrequency Ablation.

- TRAP Sequence
- **Patient:** A 39-year-old woman with a monochorionic monoamniotic twin pregnancy diagnosed with TRAP sequence at 18 weeks.
- **Condition:** Fetus A was viable, while Fetus B presented with acardia and acrania.



Fig: FetusA(normal cardia&crania) Fetus B(Acardia& Acrania)

- **Procedure:** RFA was used to stop blood flow to the acardiac twin.
- **Outcome:** Successfully reduced risks to the pump twin, ensuring its viability.



Figure 5: Pre-procedure and post-procedure comparison of RF ablation for TRAP sequence.

Pre-Procedure Highlights

The RFA technique offers several advantages over alternatives like laser or bipolar coagulation due to its smaller instrument size:

Instrument: 14-gauge needle (~1 mm diameter) reduces trauma compared to 3 mm instruments used in other procedures.

Benefits: Fewer complications such as preterm labor and reduced maternal trauma.

Guidance: Real-time ultrasound ensures precision during the procedure.

Preparation:

- 1 Routine surgical profile and consent.
- 2 Pre-procedure administration of indomethacin (uterine relaxant), test dose of local anesthesia, and high-dose antibiotics.

Procedure

1. Setup: RFA machine set to 150 watts, 3 minutes per cycle, 110°C temperature.
2. Patient Prep:
 - Sterile draping of abdomen with betadine.
 - Application of electrode pads on the patient's thighs.

2.Execution:

- a. Under ultrasound guidance, the RF probe was inserted to the aortic flow of the acardiac fetus.
- b. Heat was generated to halt blood flow, with two cycles performed until no detectable flow remained in the TRAP fetus.

Additional Techniques

Vesicocentesis and Thoracocentesis

- **Indication:** Diagnosed cases of lower urinary tract obstruction (LUTO) or fetal hydrothorax.
- **Outcome:** Reduced risk of renal damage or pulmonary hypoplasia.

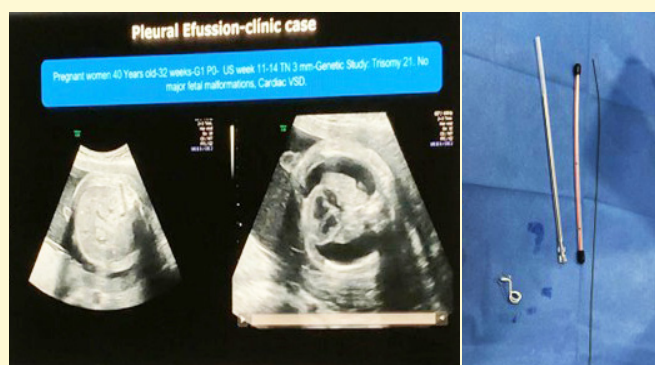


Fig: Thoracocentesis.

Amnioinfusion

- **Indication:** Severe oligohydramnios for anatomical assessment.

- **Technique:** Involves careful infusion of isotonic fluid into the amniotic sac.

Conclusion

The rise in multifetal pregnancies necessitates advanced fetal interventions to address associated risks. Procedures like amnioreduction, CVS, and MFPR significantly enhance maternal and fetal outcomes, while techniques like fetoscopic laser ablation offer targeted solutions for complex conditions. Continuous advancements and expertise are vital for optimizing these life-saving procedures.

Key Takeaways:

1. Pregnancies with multiple fetuses present significant risks, including preterm birth and maternal complications.
2. Multifetal pregnancy reduction offers significant benefits, particularly in reducing higher-order multiples to twins.
3. Fetal interventions require a multidisciplinary approach and adherence to safety protocols.

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INTERESTING CASES



TIPIC SYNDROME- A CASE REPORT

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INTRODUCTION:

Transient perivascular inflammation of the carotid artery syndrome-TIPIC SYNDROME A/K/A Carotidynia (or) FAY SYNDROME is a relatively newly defined condition characterized by acute, unilateral neck pain localized to the carotid artery, sometimes accompanied by tenderness. The pathogenesis of this syndrome remains non specific inflammation of the adventitia and surrounding tissue.

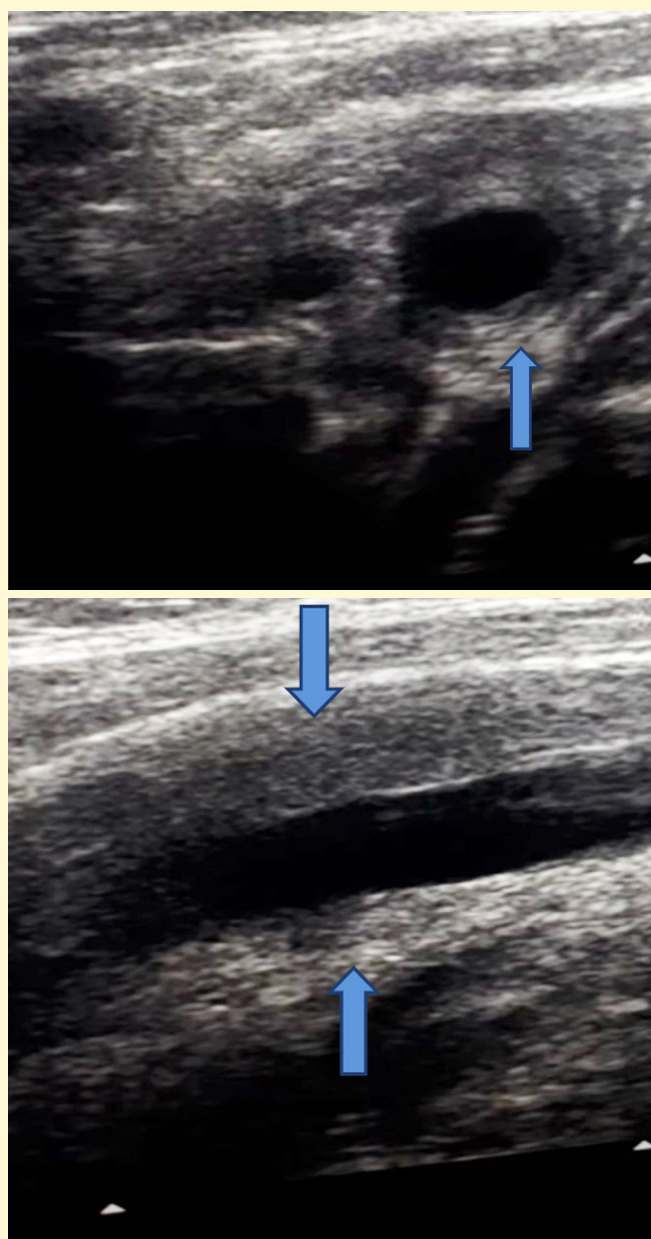
CLINICAL DETAILS:

A 37 years old Cardiologist presented to our radiology department with complaint of right sided pricking type of localized neck pain associated with tenderness and unilateral headache since two days. On examination there was no local rise of temperature and the vitals remained normal. Blood investigations showed elevated CRP and ESR levels. On Colour doppler Focal hypoechoic transmural thickening of the vascular wall at the right carotid bulb was noted with focal luminal narrowing. The left carotid bulb was normal.

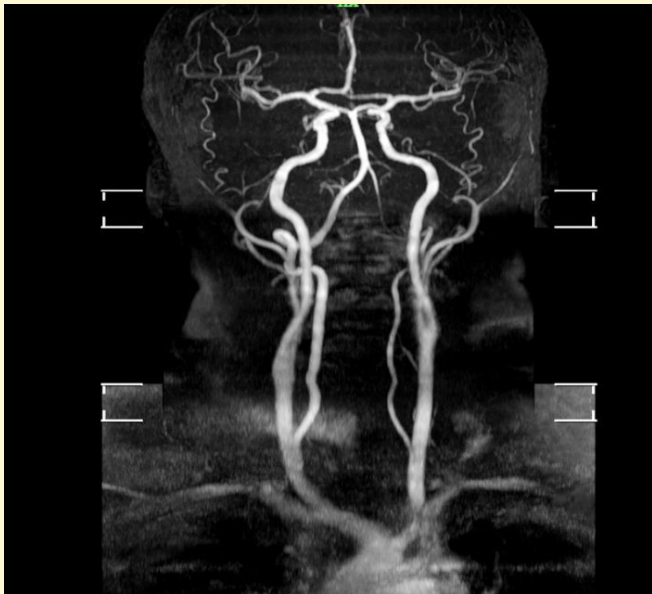
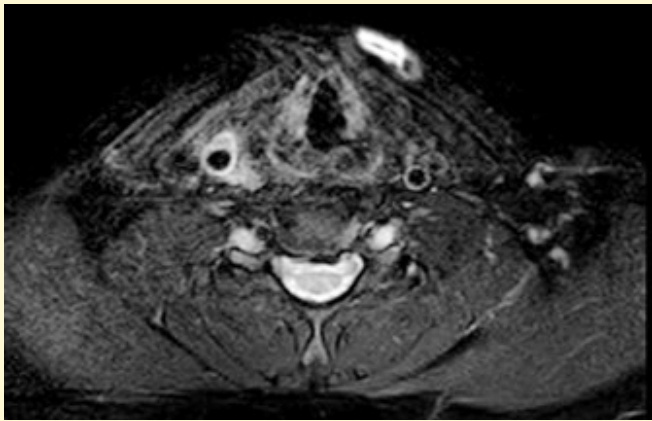
DISCUSSION:

TIPIC SYNDROME is proposed acronym for the term carotidynia which was given by Fay in 1927, characterized by tenderness and pain at the level of the carotid bifurcation, with no structural abnormalities. However former remained more useful as it correlates to a specific syndrome with defined imaging features (thickening and inflammation around the carotid bifurcation) and prognosis (spontaneous resolution within 1-2 weeks).

IMAGING FEATURES:



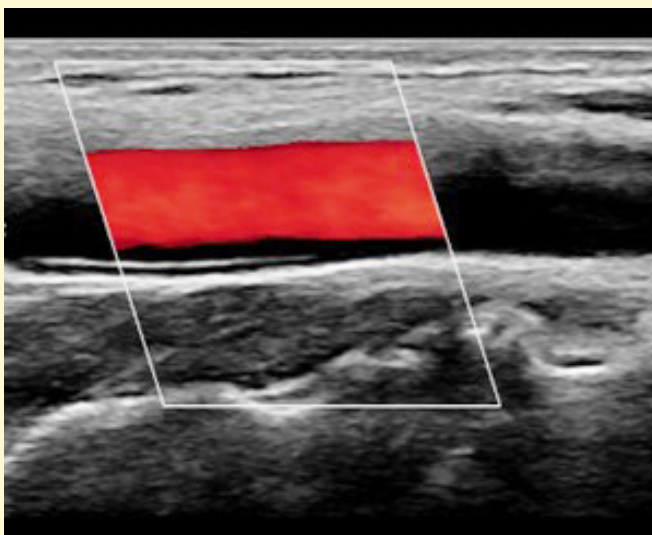
USG -Eccentric circumferential thickening of right CCA wall causing mild narrowing of the lumen.



T2 weighted Dixon imaging shows perivascular hyperintense signal intensities with thickened wall of right common carotid artery approximately 3-4cms away from the aorta, extending for a length of 2-3cms.

A Follow up USG was done after a period of two weeks.

There appeared complete resolution of the inflammation.



The age onset typically ranges from 30-50 years.

TIPIC syndrome cases present with unilateral neck pain in the region of the carotid bifurcation, typically tends to be dull and throbbing in nature, continuous, and it may radiate to the ipsilateral mandibular, buccal, ocular, or auricular regions and is usually associated with tenderness on palpation in the region of the affected area.

Imaging Findings remains as thickened carotid wall and surrounding soft tissue on ultrasound, MRI, or CT, with sparing of the arterial lumen. MRI with contrast is particularly useful to identify perivascular inflammation and exclude other pathologies.

Typical Imaging features of TIPIC syndrome include- The regions involved are distal common carotid artery, bulb, and proximal internal carotid artery with mild lumen narrowing and eccentric wall thickening and surrounding fat stranding.

“KING KONG CAROTID” Sign was given as striking imaging feature by some of the neurologists.

DIFFERENTIAL DIAGNOSIS

- ✓ Arterial dissection
- ✓ Other large vessel vasculitis

CONCLUSION

TIPIC syndrome is a benign, self-limiting condition which usually resolve within two weeks.

Awareness of imaging findings is crucial for accurate diagnosis and avoiding unnecessary interventions.

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2. Modi et al., Indian Journal of Radiology and Imaging, 2021.
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ROLE OF CT IN ASSESSING RESECTABILITY OF PANCREATIC TUMORS

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A 5-year survival rate after diagnosis of pancreatic carcinoma is less than 10%. Fewer than 30% of patients can undergo curative resection at the time of diagnosis. Therefore, assessing the eligibility of pancreatic carcinoma for surgical resection becomes a crucial step in the management.

Among the various criteria for imaging-based resectability assessment of pancreatic cancer, those proposed by the National Comprehensive Cancer Network (NCCN) are the most widely used and serve to classify pancreatic cancer as resectable, borderline resectable, or unresectable.

National Comprehensive Cancer Network (NCCN) criteria:

Category	Criteria	Description
Resectable	<ul style="list-style-type: none"> - No arterial tumor contact (e.g., celiac axis, superior mesenteric artery [SMA], or common hepatic artery [CHA]). - No tumor contact with the superior mesenteric vein (SMV) or portal vein (PV), or $\leq 180^\circ$ contact without vein contour irregularity. 	<ul style="list-style-type: none"> - Tumor is confined to the pancreas without involvement of major vessels. - Venous structures are clear, or only minimally involved without deformity.
Borderline Resectable	<ul style="list-style-type: none"> - Tumor contact with CHA without extension to celiac axis or hepatic artery bifurcation, allowing for safe vascular reconstruction. - Tumor contact with SMA or celiac axis $\leq 180^\circ$. - Tumor contact with SMV or PV $> 180^\circ$ or causing vein contour irregularity but still amenable to reconstruction. 	<ul style="list-style-type: none"> - Limited arterial involvement still permits potential reconstruction. - Partial encasement but no severe narrowing or occlusion. - Significant venous involvement, but surgical options exist to restore blood flow.
Unresectable	<ul style="list-style-type: none"> - Tumor contact with SMA or celiac axis $> 180^\circ$. - Tumor contact with first jejunal branch of SMA. - Unreconstructible involvement of SMV or PV due to occlusion. - Distant metastases present (e.g., liver, peritoneum). 	<ul style="list-style-type: none"> - Extensive arterial encasement, making surgical removal infeasible. - Advanced invasion of surrounding arterial structures. - Venous structures cannot be surgically reconstructed. - Spread beyond the pancreas to other parts of the body rules out surgical cure.

Definitions:

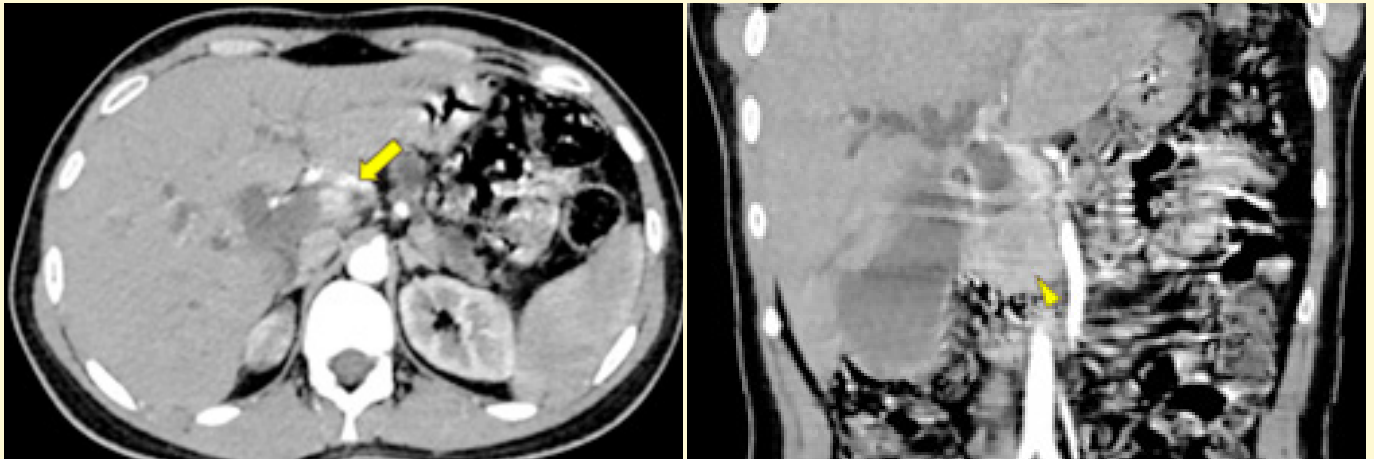
Abutment is defined as tumor contact with no more than 180° of the vessel circumference.

Encasement is defined as tumor involvement with more than 180° of the vessel circumference or that produced vascular deformity.

Hazy attenuation-vascular contact is not considered tumor-vascular contact.

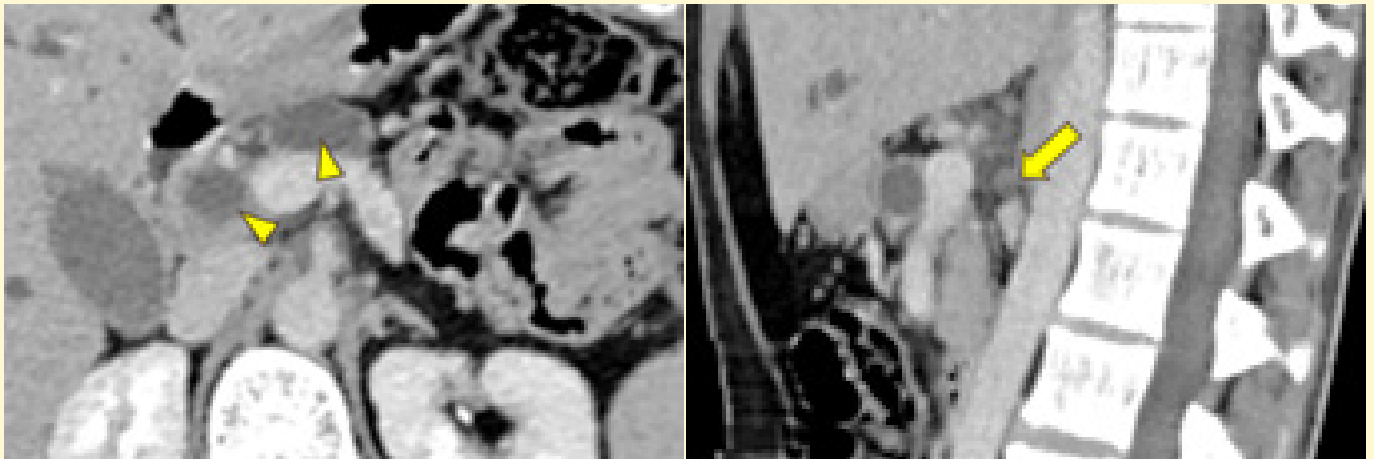
Representative cases:

Case 1.



Solid tumor (arrowhead) contact with common hepatic artery (arrow) without extension to the celiac artery or hepatic artery bifurcation allowing safe and complete resection – Borderline resectable.

Case 2.



Double duct sign (arrowheads) with dilated main pancreatic duct and CBD. Perineural invasion in the form of soft tissue infiltration on medial side of pancreatic head (arrow) - Irresectable

Case 3.



Axial section shows large irregular mass in the region of the head of pancreas with invasion of the superior mesenteric vein (arrow) and multiple non-enhancing metastatic lesions in the liver – Irresectable

Discussion:

Perineural invasion, a hallmark of pancreatic cancer's aggressive behavior, is commonly associated with poor prognosis.

Enlargement, obliteration, or displacement of nearby neural structures, such as the celiac plexus or SMA nerves, can be an indicator.

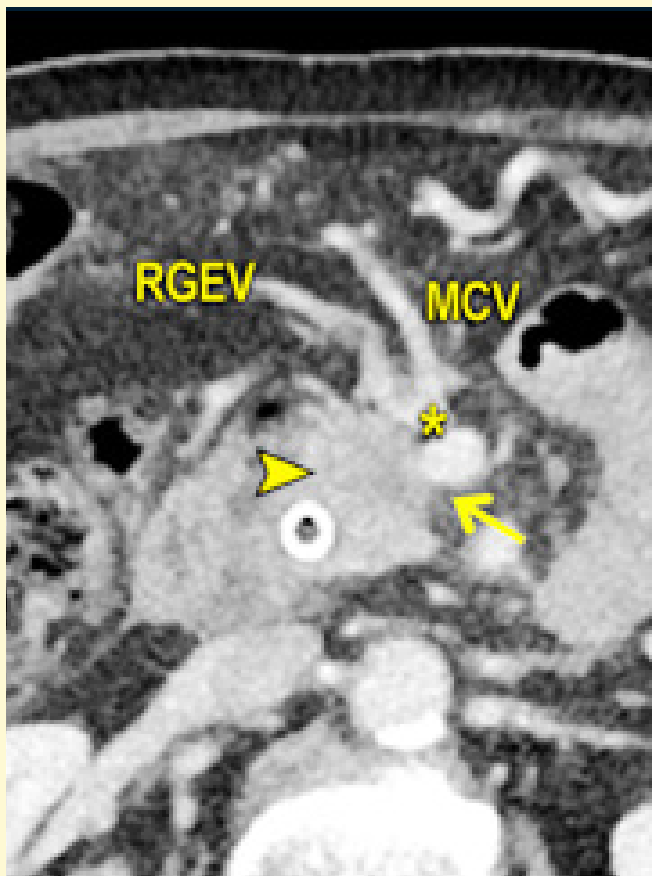
Severe, localized pain in the epigastric region or back can often correlate with nerve involvement, even if CT findings are subtle.

Mesocolon Invasion: The transverse mesocolon is in contact with the ventral side of the head of the pancreas and can be invaded by a tumor of the pancreatic head.

Invasion of the transverse mesocolon does not necessarily preclude resection, but since additional hemicolectomy might be needed this is essential pre-operative information.

References:

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Mass in the pancreatic head (arrowhead). In less than 90 degrees contact with the SMV (arrow), but also in close contact to the gastrocolic trunk (asterisk), in this case the venous confluence of the right gastroepiploic vein (RGEV) and the middle colic vein (MCV).



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SPLenic ARTERY PSEUDOANEURYSM - UNCOMMON COMPLICATION OF CHRONIC PANCREATITIS. - A CASE REPORT.

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Dr. Sandeep Mandineni², Dr. Subhash Reddy Doni³,

Dr. Geethika Mandepudi⁴, Dr. Venkat Ramreddy⁵, Dr. G. Ram Krishna Reddy⁶

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Department of Radiodiagnosis SVS Medical College

INTRODUCTION:

An uncommon but important complication associated with a chronic pancreatitis is formation of pseudo aneurysm. Most common artery affected by aneurysm is splenic artery.

Pathogenesis of these aneurysms is poorly understood.

There are two types of aneurysms associated with pancreatitis although this cannot be differentiated.

1. If the inflammatory process causes the partial digestion of arterial wall with loss of elastic tissue, it results in focal dilatation of the vessels forming true aneurysm.
2. False aneurysms are thought to occur due to incorporation of artery within the wall of pseudocysts, with digestion of the arterial wall the vessel rupture into the pseudocyst converting it into pseudoaneurysm.

CLINICAL DETAILS:

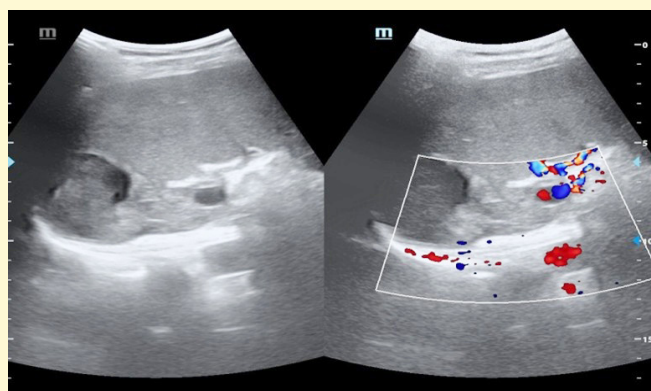
A 30-year-old male patient, who previous history of pancreatitis treated almost an year ago, came with the complaints of epigastric pain, and distention of abdomen.

At this stage the patient was referred to SVS medical college for further evaluation. The patient was evaluated with serum amylase and lipase levels and the values were 420 IU/ml and 300 IU/ml respectively.

The patient underwent ultrasound abdomen 2 days after the presentation, which showed well defined heterochoic cystic lesion at tail of the pancreas abutting the upper pole of the spleen.

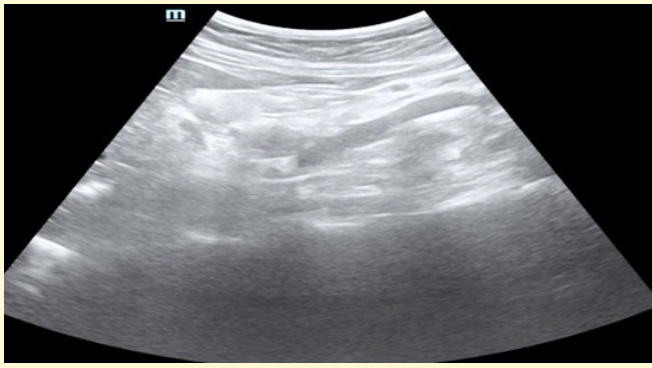


On colour doppler ultrasound there is focal dilatation of splenic artery noted near at its hilum suggesting pseudoaneurysm.



Gray scale Ultrasound image with color doppler showing saccular outpouching of terminal splenic artery near splenic hilum suggesting splenic areteryartery pseudoaneurysm.

There is heteroechoic appearance of head and proximal body of the pancreas noted.



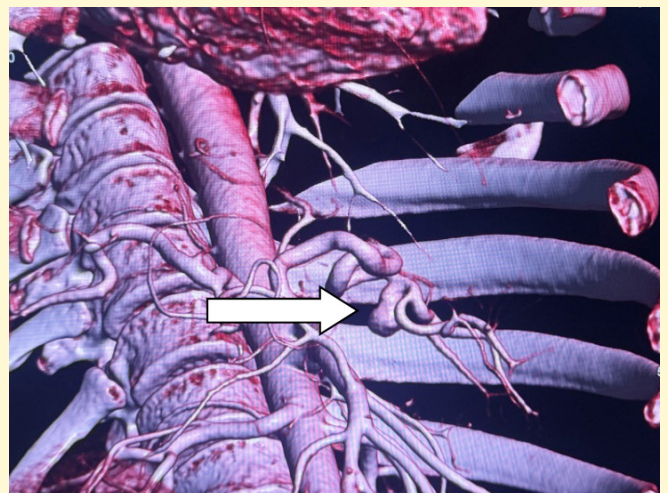
The patient was further evaluated with contrast enhanced computed tomography of whole abdomen which showed

Heterogeneous less avid enhancement of entire pancreatic parenchyma with few non-enhancing areas at the head and proximal body suggesting necrosis.



There is single thick walled heterogeneously hypodense area noted in the postero-superior aspect of the spleen extending anteromedially into the perisplenic region encapsulating the splenic artery likely due to rupture of the splenic artery within the contained collection, however, there is no active contrast extravasation noted.

There is saccular outpouching noted in the terminal splenic artery just before bifurcation near the hilum with wide neck measuring approximately 4 mm. The aneurysm measures approximately 14 x 11 mm. The enhancement pattern of the outpouching is similar to the main blood pool suggesting splenic artery pseudoaneurysm.



Cect abdomen showing saccular outpouching of terminal splenic artery near splenic hilum. VRT image of the same is shown.

DISCUSSION:

Splenic artery pseudoaneurysm is an uncommon complication of chronic pancreatitis which has significant mortality and morbidity. Splenic artery angiography is a confirmatory diagnosis to locate the exact location of aneurysm. The current consensus holds that all these malformation should

be treated at the earliest to prevent the complication of haemorrhage. Transarterial catheterisation with angioembolisation with or without endoscopic stent placement place a crucial role in preventing the complication. Angioembolisation is considered much less invasive procedure than the surgery which and if needed, allows the performance of surgery under optimal conditions. Surgery is considered as a last resort if the above attempts of angioembolisation fail.

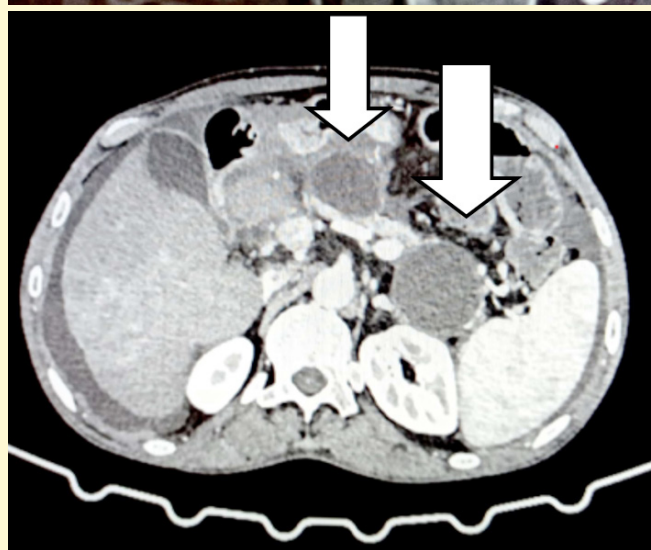
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ANOTHER COMPANION CASE OF PARTIAL THROMBOSED GASTRODUODENAL ARTERY PSEUDOANEURYSM:

This is a case of acute on chronic pancreatitis which is showing two peripancreatic pseudocysts , one in tail and another in body.

There is saccular dilatation of gastroduodenal artery noted with central arterial enhancement (non thrombosed component) and nearly 60%-70% of the pseudoaneurysm appears thrombosed and shows non-enhancement on post-contrast.



TWO PSEUDOCYSTS

Cect abdomen showing saccular outpouching gastroduodenal artery.

ACADEMIC ACTIVITIES OF IRIA TS CHAPTER

10th ANNUAL TELANGANA STATE IRIA CONFERENCE 2024

THEME: INDO US IMAGING UPDATE ON NEUROIMAGING

Dates: 25-27th October, 2024

Venue: Yashoda Hospital, Hi Tech City, Hyderabad.

Organized by IRIA TELANGANA STATE CHAPTER



3rd Advanced Joint Imaging & Interventions Hands On-Cadaver Workshop

Venue: Kamineni Academy of Medical Sciences & Research Centre, LB Nagar, Hyderabad

Organised by: Telangana State Chapter, IRIA

Dates: 16th & 17th November, 2024



8th KAKATIYA ACADEMY OF RADIOLOGY EDUCATION PROGRAM (KARE) -2024

Organized by IRIA Telangana State Chapter
Dates: 30th November & 1st December, 2024
Venue : Apollo Medical College, Jubilee Hills, Hyderabad



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