Original Research Paper

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Radiodiagnosis

A RARE CASE OF PARAPHARYNGEAL MASS

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ABSTRACT Parapharyngeal Space (PPS) tumours are very rare and account for only 0.5% of all head and neck tumours . Almost two-third of the tumors are benign, and only one-third are found to be malignant. Approximately 50% of the tumours have a salivary origin, 20% are neurogenic and the remaining 30% are represented by tumours such as benign and malignant lymphoreticular lesions, metastatic lesions and carotid body tumours. Schwannoma (neurilemmoma) is the most common neural tumour next to salivary gland tumour found in the PPS.

Most of them are asymptomatic and some presents late. Neurological deficit is a late finding, and it occurs only when the lesion is very large and compresses adjacent structures. Preoperative CT and magnetic resonance imaging can detect and diagnose it correctly and helps in proper planning and management. .It is important to distinguish these tumors from other head and neck malignancies by detail clinical and radiological examinations. Here we present a rare case of parapharyngeal mass which can be diagnosed on CT and MR findings .The review of literature was taken to assess it's prevalence and diagnostic accuracy.

KEYWORDS :

- **MATERIAL AND METHODS**:

31 year female presented to ENT opd with a swelling in the throat on left side, Difficulty in swallowing since 2 yrs which was progressive in nature and Change in voice was investigated by CT and MRI.

- **Case Findings And Interpretation**:

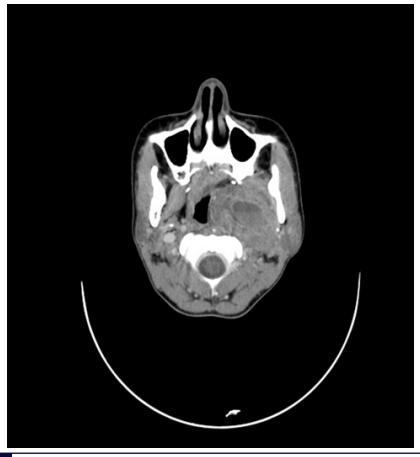
Finding was analysed and differential diagnosis was considered and discussed .Intraoperative finding and histopathological diagnosis proved it to be Schwannoma. Review of literature was taken to know it' incidence and reliability of CT and MRI.

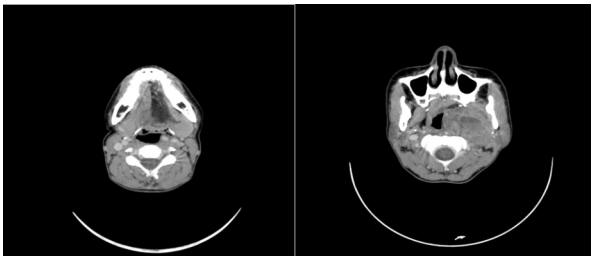
- On CT there is left parapharyngeal mass of size 62x55x42 mm which is seen compressing the hypopharynx, left valleculae, extending up to base of skull and showing peripheral enhancement after i.v contrast . There is splaying of carotid bifurcation and it also shows areas of necrosis.There is loss of plane between carotid vessels and mass. There is compression of left jugular vein and its thrombosis. Incidentally detected Rt sided aortic arch. On mri Lesion is hypointense on T1 weighted sequence with central part is slightly hyperintense on T1W, hyperintense on T2W and STIR with central part is more hyperintense on both and this central part showing cystic degenerative changes within it .Lesion is showing enhancement after i.v contrast except central part.

CASE FINDINGS :

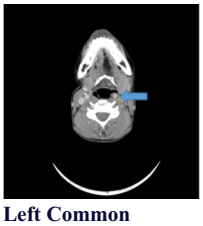
CT NECK PLAIN AND CONTRAST FINDING REVEALS:

- A well defined mass in left parapharyngeal space of size 62x55x42 mm, showing peripheral enhancement, no surrounding infiltration, central areas of necrosis abutting the base of skull without extending into it and seen compressing the hypopharynx, left valleculae, and causing splaying of ICA and ECA.

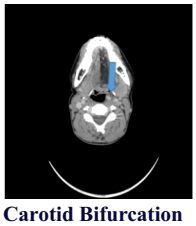




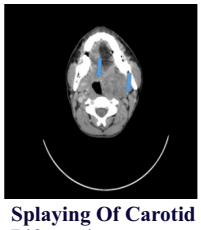
Lesion Is Noted Exending From The Carotid Bifurcation To Base Of The Skull



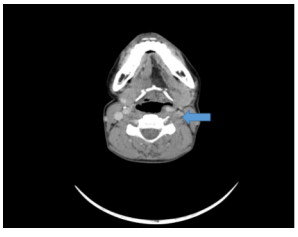
Left Common Carotid Artery

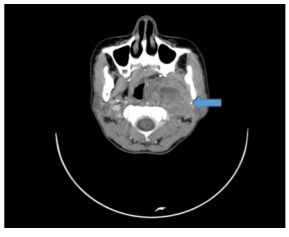


Carotid Bifurcation

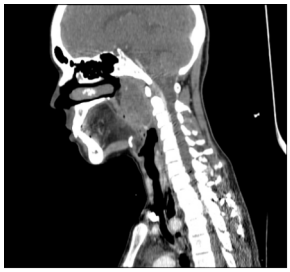


Splaying Of Carotid Bifurcation

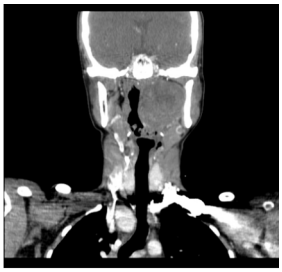




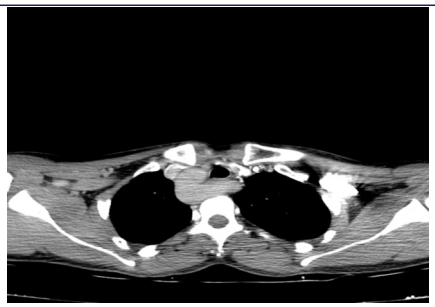
- **Contrast enhance CT shows compressed jugular vein and its thrombosis**



CT Neck Saggital Section

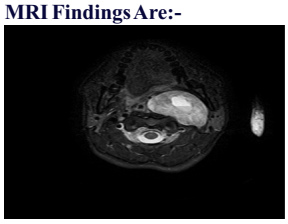


CT Neck Coronal Section

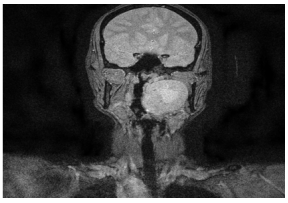


Incidentally Detected Right Sided Aortic ARCH

MRI Findings Are:-

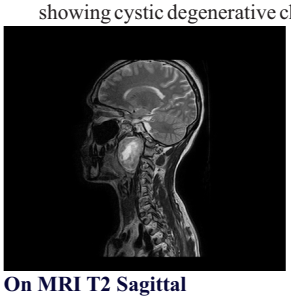


On Stir Axial

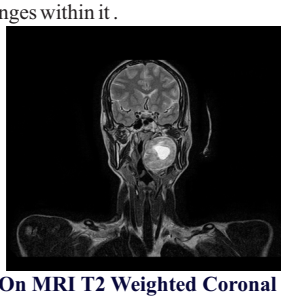


On Coronal Stir

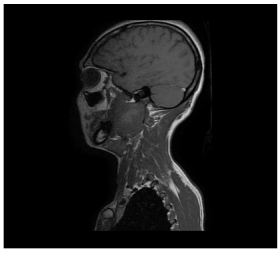
- Lesion is hyperintense with more hyperintense central areas showing cystic degenerative changes within it .



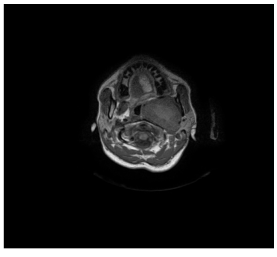
On MRI T2 Sagittal



On MRI T2 Weighted Coronal

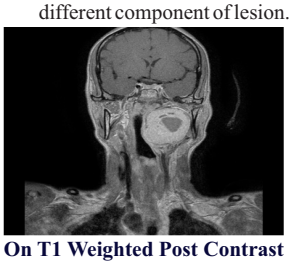


On T1 Weighted Sagittal



On MRI T1 Axial

- Peripherally the lesion is hypo intense with central part slightly hyper intense these two different intensities represents two different component of lesion.



On T1 Weighted Post Contrast Coronal

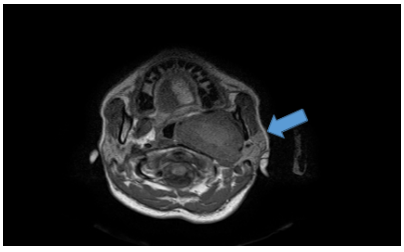
On MRI T1 Post Contrast Sagittal

- **Lesion is showing enhancement except central part**

DISCUSSION

- The parapharyngeal space, also known as the prestyloid parapharyngeal space, is one of the deep compartments of the head and neck. It consists largely of fat and other connective tissue.The parapharyngeal space is shaped like a pyramid, inverted with its base at the skull base, with its apex inferiorly pointing to the greater cornu of the hyoid bone. A lesion arising in the parapharyngeal space will displace the carotid space posteriorly and/or is completely surrounded by parapharyngeal space fat. Parapharyngeal Space (PPS) tumours are very rare and account for only 0.5% of all head and neck tumours.Approximately 50% of the tumours have a salivary origin, 20% are neurogenic and the remaining 30% are represented by tumours such as benign and malignant lymphoreticular lesions, metastatic lesions and carotid body tumours. Schwannoma (neurilemmoma) is the most common neural tumour next to salivary gland tumour found in the PPS. Vagus nerve is reported to be the origin for 50% of parapharyngeal schwannomas and cervical sympathetic chain is the next common source.

- Differential diagnosis of parapharyngeal mass can be neurogenic tumors (Schwannoma most common in neurogenic tumors,Salivary gland tumor (most common tumour of parapharyngeal space)and pleomorphic adenoma is most common among salivay gland tumors,and Carotid body tumor . Pleomorphic adenoma are less common in salivary glands other than the parotid but remain the most common benign tumor of each gland. On all modalities, these tumors typically appear as rounded masses with well-defined, "bosselated" or "polylobulated" borders (many small undulations, not truly lobulated). On ct when small, they have homogeneous attenuation and prominent enhancement. When larger, they can be heterogeneous with less prominent enhancement, foci of necrosis, and possible delayed enhancement. Small regions of calcification are common.They commonly present as well circumscribed rounded masses, most commonly located within the parotid gland. On mri The signal characteristics are homogeneous when the tumor is small may be heterogeneous when it is larger.Tumor appears of low intensity on T1 weighted sequence and Characteristically of very high intensity (especially myxoid type) and Often have a rim of decreased signal intensity on T2-weighted images representing the surrounding fibrous capsule. After T1 C+ (Gd)usually demonstrates homogeneous enhancement.



NOTE THE VISUALIZATION OF PAROTID SEPARATELY FROM LESION

Carotid body tumor also known is a highly vascular glomus tumor that arises from the paraganglion cells of the carotid body.

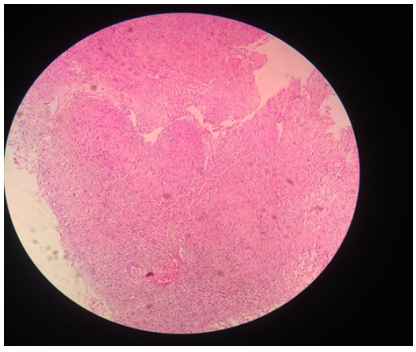
Location : At the carotid bifurcation with characteristic splaying of the ICA and ECA, described as the **'lyre sign'** In all modalities, the dense vascularity of these tumors is manifested as prominent contrast enhancement. Contrast enhanced CT is excellent at depicting these lesions. Clinical presentation is usually with a slow growing rounded neck mass, usually located anterior to the sternocleidomastoid near the angle of the mandible at the level of the hyoid bone. Typical appearances are on ct are Soft tissue density on non-contrast CT (similar to muscle),Bright, rapid and homogeneous intense (faster than schwannoma) enhancement,Splaying of the ICA and ECA.On T1 it is Iso to hypointense compared to muscle,Salt and pepper appearance when larger, representinga combination of punctate regions of hemorrhage or slow flow (salt) and flow voids (pepper)and Intense enhancement following gadolinium. On T2 it is Hyper intense compared to muscle Salt and pepper appearance also seen on T2.Schwannoma is an uncommon benign neurogenic tumour arising from schwann cells or supporting fibroblast of peripheral, cranial or autonomic nerves. Up to 45% of schwannomas are seen in the head and neck region, most commonly seen in young and middle aged and are characterized by slow insidious growth Parapharyngeal schwannomas are rare benign neoplasms. Generally schwannomas are characterized by slow and asymptomatic growth; however, its progressive growth in parapharyngeal region may result in pressure effect manifestations like dysphagia and hoarseness of voice. Surgical excision has been the treatment of choice and recurrence is very rare.Preoperative transoral biopsy is contraindicated as there is risk of tumour rupture.CT Imaging features include low to intermediate attenuation,Intense contrast enhancement,Small tumors typically demonstrate homogeneous enhancement,Larger tumors may show heterogeneous enhancement. On MRI T1 sequence it is Isointense or hypointense and after T1 C+

(Gd) shows Intense enhancement. On T2 heterogeneously hyperintense.Cystic degenerative areas may be present, especially in larger tumors.

CONCLUSION

- The CT & MRI imaging finding, The anatomical location of tumor, Its well defined outlines, Homogenous peripheral enhancement with central areas of cystic degenerative changes, pressure effects over carotid and contrast enhancement pattern, the differential diagnosis of **Parapharyngeal Schwannoma** should be considered and preoperative diagnosis should be made with fair accuracy to plan surgery.
- Finally **operative biopsy & Histopathology** was done and diagnosis of **Schwannoma** was confirmed.

Operative Biopsy Findings :



- Microscopic examination of lesion shows encapsulated, biphasic tumor composed of Hypercellular Antoni A and Hypocellular Antoni B areas.
- The cells are narrow with elongated and wavy nuclei.
- In areas nuclear palisading around fibrillary process (Verocay bodies) seen.
- The above findings confirm the diagnosis.

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