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RESEARCH ARTICLE

ULTRASONOGRAPHY EVALUATION OF PEDIATRIC NECK MASSES

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Abstract

Background: Neck masses are a frequent discovery in children and pose challenges in diagnosis. These masses can stem from congenital, inflammatory, neoplastic, or vascular origins. Understanding the cervical anatomy and compartments is crucial for differential diagnosis. There are different cystic lesions like ranula, thyroglossal cyst, brachial cyst, lymphangioma and vascular malformation and solid lesions like reactive lymph nodes,thyroid lesions,ectopic thymus etc.Rare lesions like teratoma,rhabdomyosarcoma,neurofibroma also exists.

Aims: To assess congenital and acquired neck masses in children using ultrasonography (USG) and correlate imaging findings with pathology.

Materials and Methods: This prospective observational study involved 30 pediatric patients with clinically palpable neck swellings referred for USG. Imaging was followed by necessary USG-guided procedures, and radiological findings were compared with histopathology.

Results: Among 30 patients, 68% were male and 32% female. Most patients (53%) were aged 1-10 years. Right-sided lesions were most common (41.15%), with bilateral (17.25%) and midline (11.5%) presentations noted. Inflammatory causes were predominant (76.1%), followed by congenital (16.3%) and neoplastic (7.5%). USG revealed features such as reactive lymphadenitis (14 cases), TB lymphadenitis (6 cases), abscesses (2 cases, confirmed by aspiration), thyroglossal cysts (3 cases), lipomas (2 cases, confirmed by histopathology), malignancies (2 cases, confirmed by biopsy), and a branchial cyst (1 case).

Conclusion: Pediatric neck masses are common and diagnostically challenging. Detailed clinical history, physical examination, and knowledge of cervical anatomy are crucial for accurate diagnosis. Utilizing neck compartments and multimodality imaging aids in precise diagnosis and appropriate management.

Introduction:-

- Neck masses are a common finding in children and can present a difficult diagnostic challenge.
- These masses may represent a variety of conditions having a congenital, acquired inflammatory, neoplastic, or vascular origin.

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- The fascial spaces and compartments of the neck provide an approach to differential diagnosis, and extensive knowledge of the anatomy and contents of each cervical compartment is mandatory in the diagnosis of pediatric neck lesions.

Aims & Objectives:-

To evaluate congenital & acquired masses of the neck in pediatric age group with ultrasonography (USG) & to correlate imaging findings with pathological findings, wherever applicable.

Materials and Methods:-

Source Of Data –

The present study was conducted in department of radiology at Basaweshwar teaching and general hospital attached to Mahadevappa Rampure Medical College, Kalaburagi.

Method of collection of data

- Study Design –Prospective cross sectional study
- Place of Study- Basaweshwara Teaching and General Hospital, Mahadevappa Rampure Medical college Kalaburagi
- Sample Size: 30
- Sampling procedure: Study subjects were selected after applying inclusion and exclusion criteria. Information was collected through prepared proforma from each case.

Inclusion Criteria:

- Patients under 10 years of age.
- Patients with swelling in neck.
- Patients who have not had prior imaging.
- Patients who gave consent.

Exclusion Criteria:

- Patients who did not give consent.
- Patients above 10 years of age.
- Patients with no visible or palpable swelling in neck.
- Patients with history of previous neck surgery.
- Patients with open wounds and burns.

Research Methodolgy:-

- Prospective cross sectional study of 30 paediatric patients clinically diagnosed to have palpable neck swelling and were referred for USG to the Department of Radiology.
- Evaluated with ultrasound, followed by USG guided procedures wherever necessary over a period of 6 months & radiological diagnosis was then compared with histopathology.

Observation & Results:-

- In this study of 30 pediatric patients with palpable swelling of neck there are 21 (68%) males and 9(32%) females giving male preponderance.
- Most of the patients (53%) were between 1 to 10 years.
- Most of the lesions were observed on the right side (41.15%) while bilateral lesions were observed in 17.25% of the cases. Midline lesions were observed in 11.5% cases.
- Inflammatory swelling was most common aetiology (76.1%) followed by congenital (16.3%) and neoplastic (7.5%).
- On USG imaging, features of reactive lymphadenitis(14),TB lymphadenitis(6), abscess(2) – on aspiration pus came out, Thyroglossal cyst(3), Lipoma(2) – histopathology proven, Malignant(2) – biopsy proven & Branchial cyst(1).

Figure 1:- Sex Distribution of the patients.

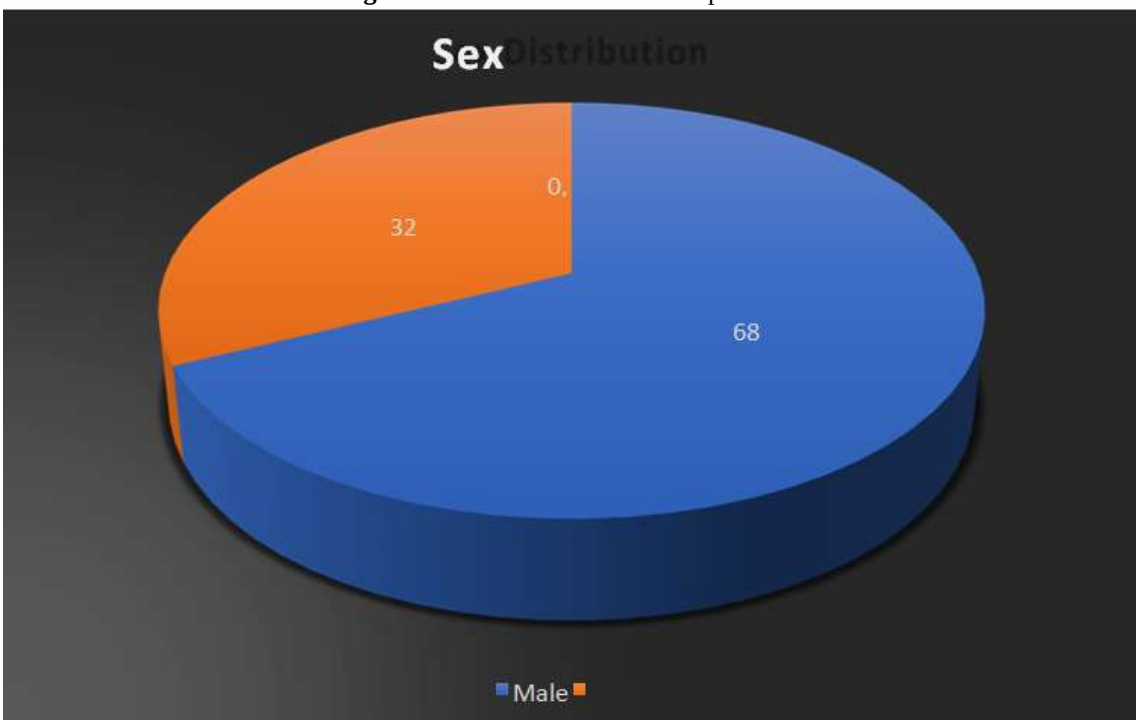


Figure 2:- Age Distribution of the Patients.

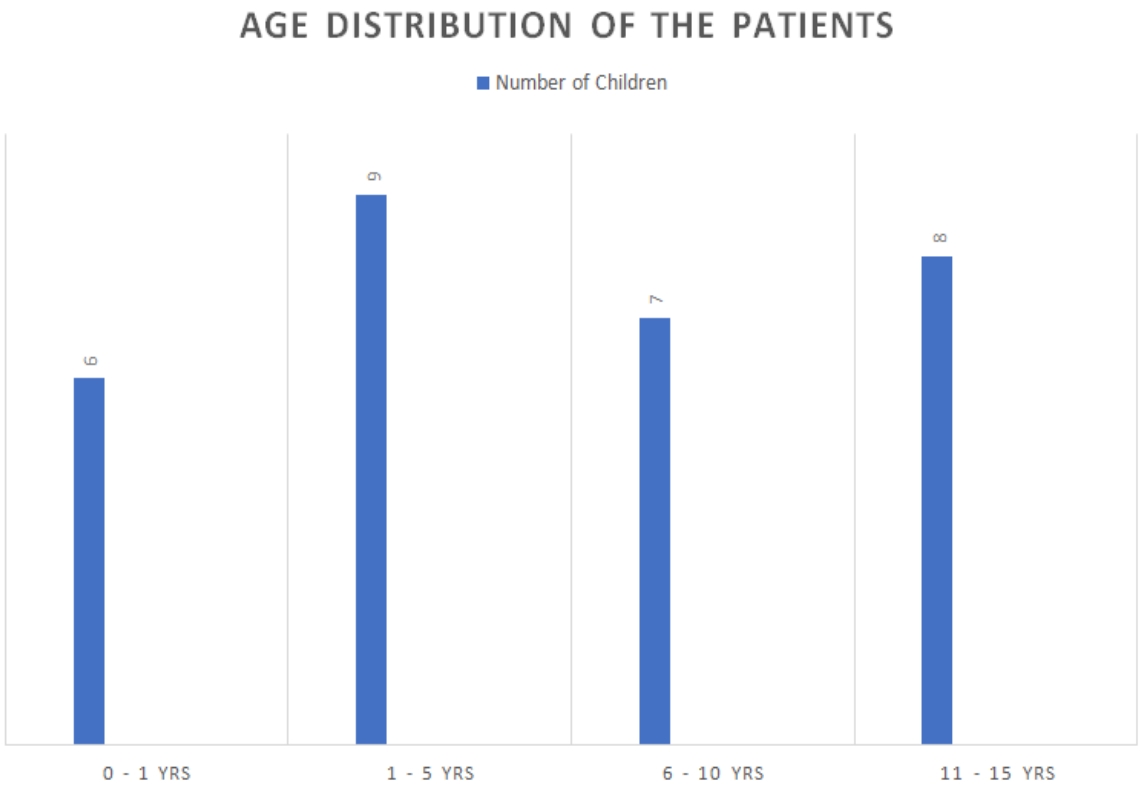


Figure 3:- Laterality of Neck Swellings.

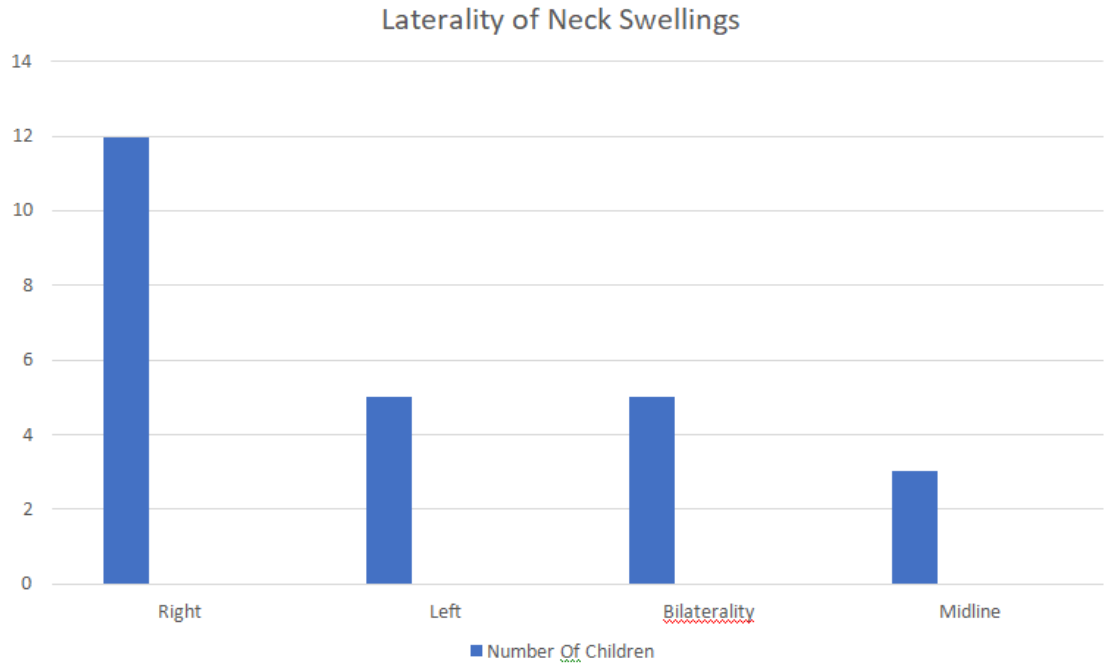


Figure 4:- Etiologies of Neck Swellings.

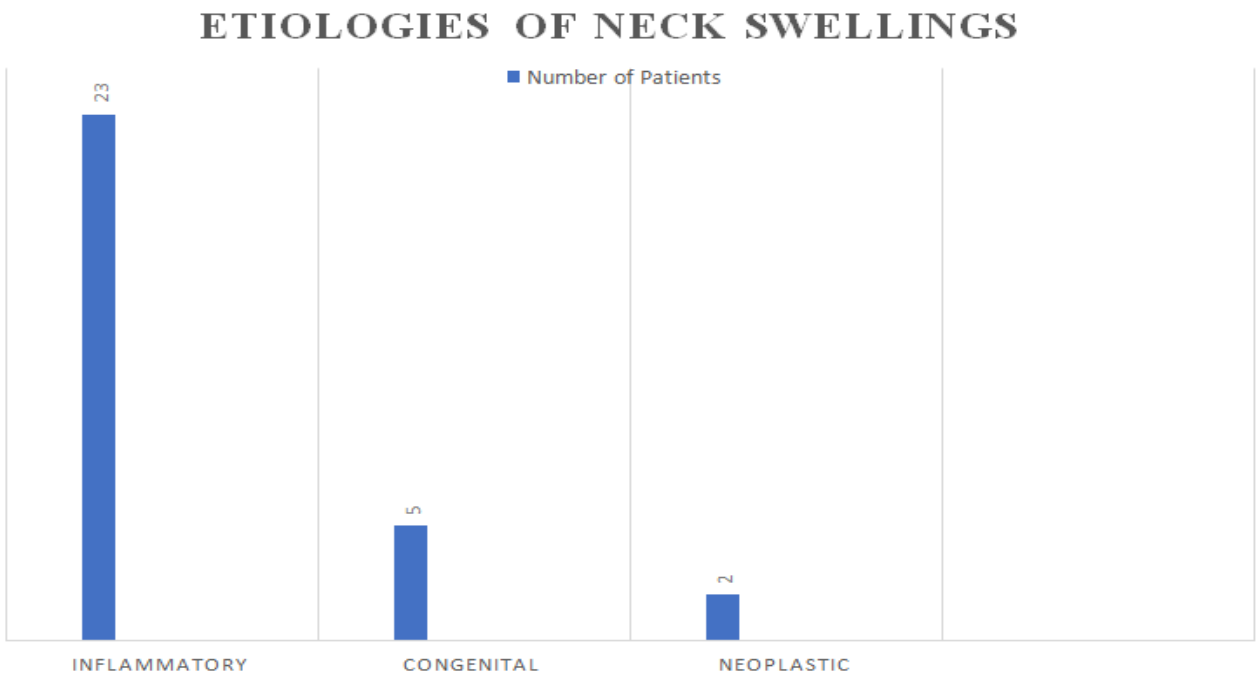
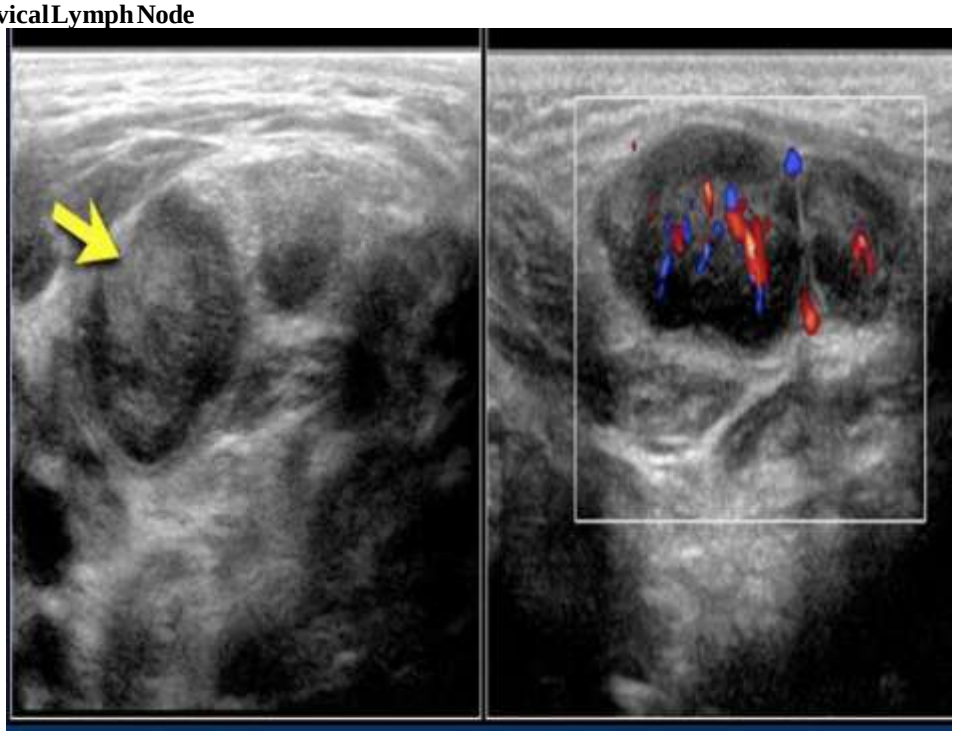


Table 1:- Break-up of the etiology of neck swelling.

Aetiology	No. of Children	%
Reactive Lymphadenitis	14	46.66
TB Lymphadenitis	6	20.00
Abscess	2	6.66
Thyroglossal Cyst	3	10.00

Lipoma	2	6.66
Malignant	2	6.66
Branchial Cyst	1	3.33

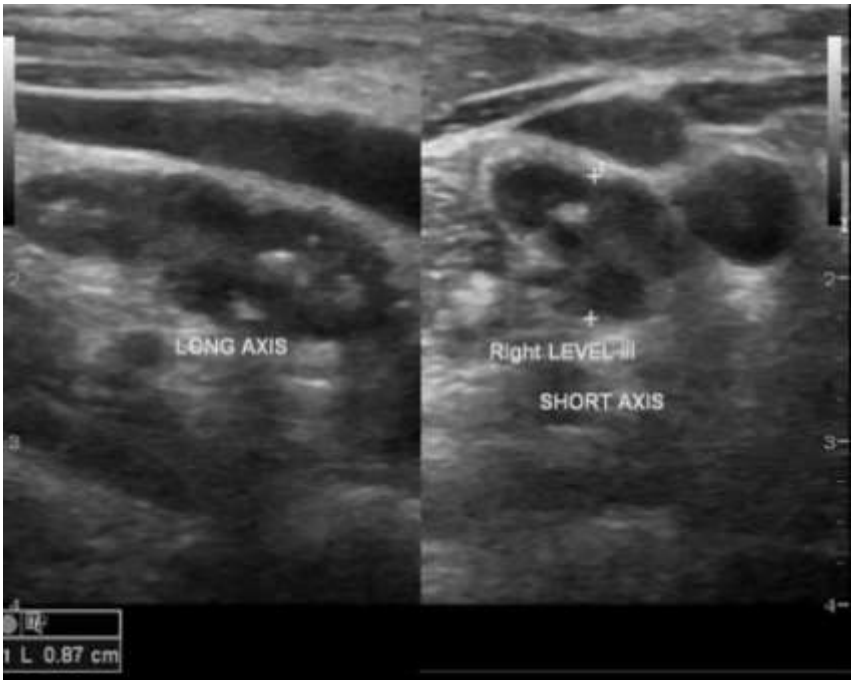
Reactive Cervical Lymph Node



The lymph nodes are enlarged with preservation of the echogenic hilus and normal perfusion.

They are slightly enlarged and more hypoechoic than normal with a broader echogenic center.

TB Lymphadenitis



Few hypoechoic round / ovoid nodes (upto 1 cm) with loss of hilar fat are noted at right level III.
E /o internal calcifications are noted within the lesions.

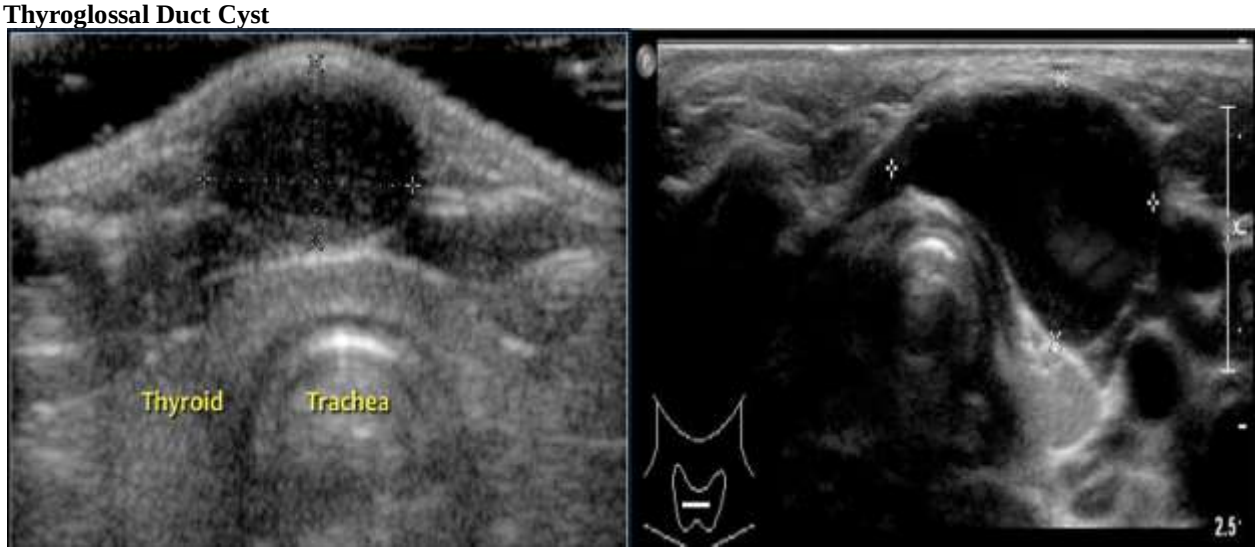
LIPOMA

The lesion is isoechoic to adjacent muscle. It shows linear internal striations. No calcification or cystic changes are noted. It is compressible. No internal flow is noted in the lesion.

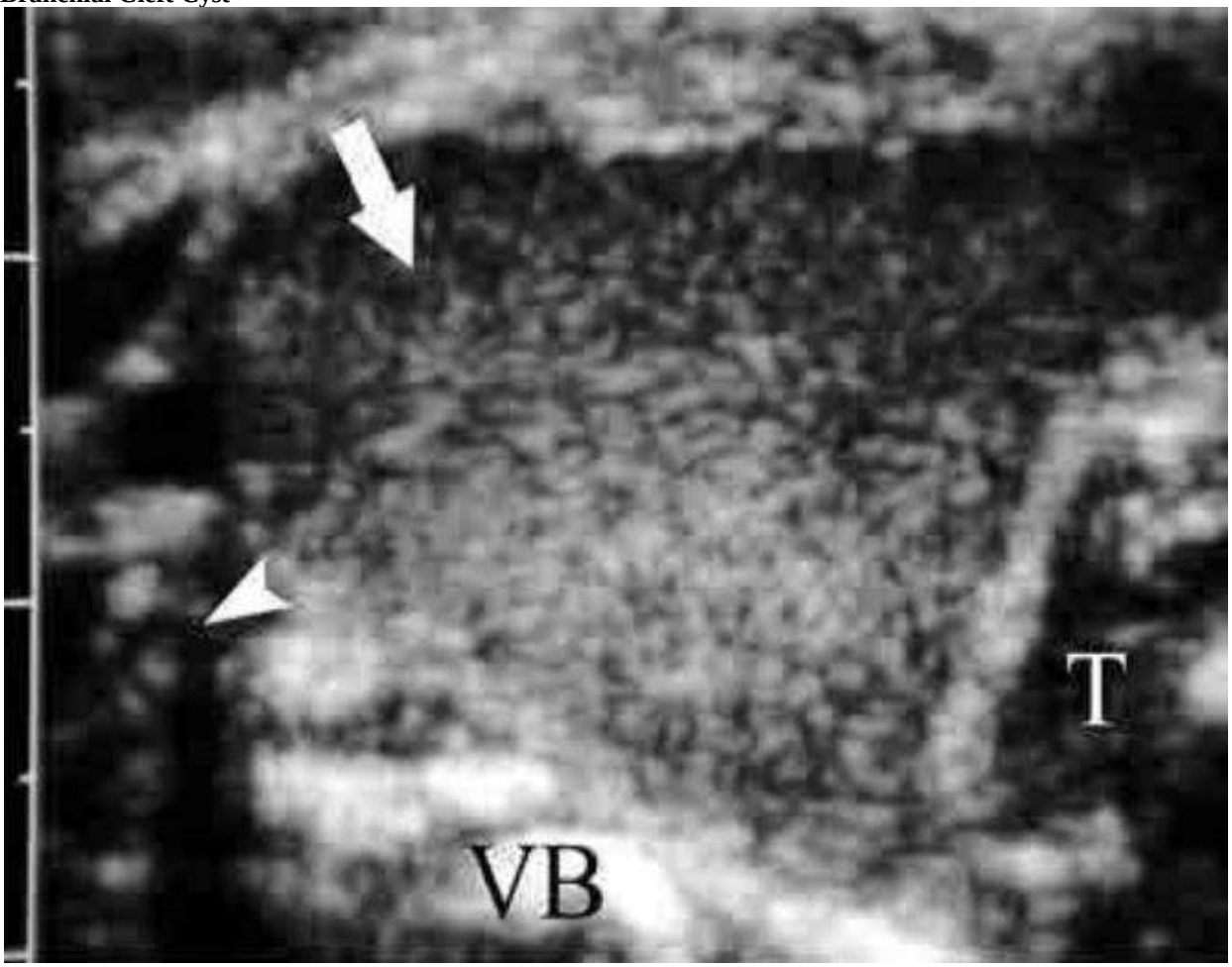
Malignant Neck Lesion

The affected nodes are round, homogeneously hypoechoic and the normal echogenic hilum is absent.

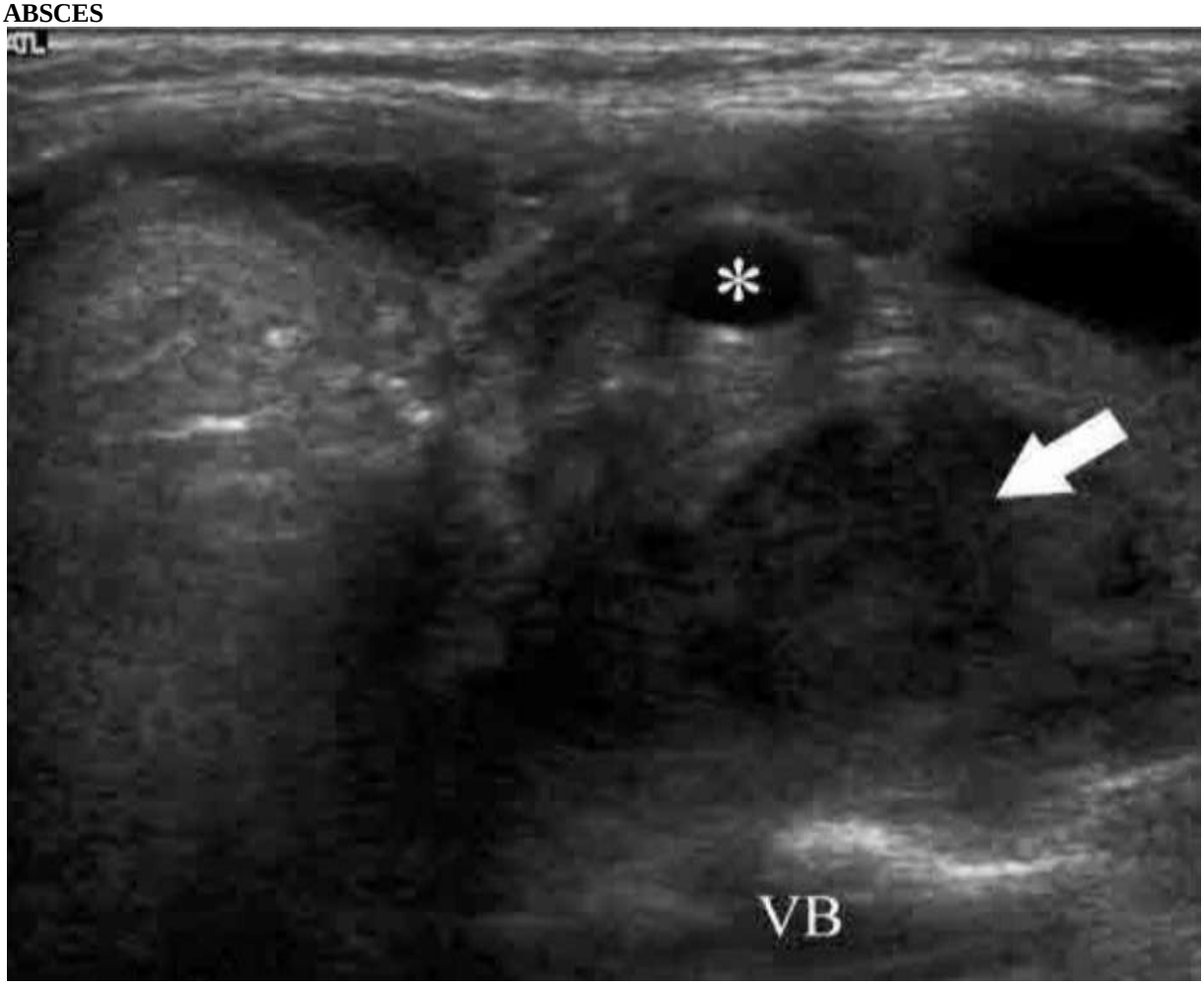
Thyroglossal Duct Cyst



Branchial Cleft Cyst



ABSCES



Axial US image depicts a hypoechoic lesion containing some slightly echogenic debris (arrow).

The lesion is located anterior to the vertebral body (VB) and anteromedial to the carotid sheath space (arrowhead). T trachea.

Transverse US image shows a hypoechogenic mass (arrow) between the carotid sheath (*) and the vertebral body (VB), a finding that represents a retropharyngeal abscess.

Conclusion:-

Pediatric neck masses are a common finding and a challenging diagnostic dilemma. Careful attention to clinical history and physical examination, as well as knowledge of the embryologic features and anatomy of the cervical region, can provide clues for accurate diagnosis. Combined use of the fascial spaces and compartments of the neck with a multimodality imaging approach is very helpful in making a correct diagnosis that allows appropriate management.

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