

Ultrasound evaluation of neck masses in Pediatric rural population

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Abstract

Background: A total of fifty Pediatric patients with neck swellings were evaluated ultrasonographically in general Pediatric rural population. Cervical Lymphadenopathy(80%) was found to be the most common finding which includes non-specific and tubercular Inflammatory lesions appear to be more common in pediatric population followed by congenital lesions of neck(20%). Ultrasound examination plays a very important part in evaluation of neck masses. This procedure is economical, non-invasive and free from ionizing radiation.

Key words: Ultrasound, Pediatric neck masses, thyroid gland, lymph node.

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INTRODUCTION

High resolution B-mode sonography has rapidly evolved in the past few years and has become a valuable tool in evaluation of head and neck lesions.^{1,6} Though newer modalities like spiral CT scan and magnetic resonance imaging have added advantage, ultrasonography is commonly the first imaging modality undertaken after clinical examination.^{1,6} The neck is a cylindrical structure in which the vertebral column with surrounding musculature occupies the posterior half, whereas the cervical viscera (pharynx, larynx, oesophagus, trachea, thyroid and parathyroid glands) lie in the anterior half. The neck is divided into various triangles and various masses have varied predilection for them. Fine needle aspiration cytology (FNAC), especially ultrasound guided ones, together with tissue biopsy help in finalizing diagnosis. Neck masses are classified according to etiology as follows-

Congenital e.g. Fibromatosis Coli, cystic hygroma. Inflammatory e.g. Tuberculosis, viral infections. Neoplastic e.g. lymphomas and carcinomas of the thyroid gland. Miscellaneous e.g. lingual thyroid.

Ultrasound imaging allows evaluation of the size and extent, relationship to adjacent structures like carotid vessels and also to distinguishing solid from cystic lesions. It serves as a valuable tool for site selection with regard to FNAC. Benign lesions like lipomas, carotid body tumors and hyperplastic lymph nodes have characteristic ultrasound appearance. Combined with FNAC it has high sensitivity (98%) and specificity (95%).²

AIM

To study ultrasound appearance of head and neck masses in paediatric patients and correlate them with FNAC diagnosis.

MATERIAL AND METHODS

Fifty cases of neck masses below 18 years of age, irrespective of sex, attending out patient department of our institution were evaluated. A 7.5-9 MHz high frequency array transducer together with Philips HD 11 machine was used for ultrasound examinations. Patients were examined in the supine position. The entire neck was examined in both the longitudinal and transverse planes. FNAC was performed on all 50 cases. Ultrasound and FNAC diagnosis were correlated.

TABLE 1: THYROID BENIGN LESIONS

DIAGNOSIS	NO.OF CASES	USG/FNAC CORR.
THYROGLOSSAL CYST	06	100%
LINGUAL THYROID	01	0%

DIAGNOSIS NO.OF CASES USG/FNAC CORR

THYROGLOSSAL CYST	06	100%
LINGUAL THYROID	01	0%

TABLE 2: LYMPH NODE-MALIGNANT LESIONS

DIAGNOSIS	NO.OF CASES	USG/FNAC CORR.
BURKITT'S LYMPHOMA	01	0%

DIAGNOSIS NO.OF CASES USG/FNAC CORR

BURKITT'S LYMPHOMA	01	0%
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TABLE 3: LYMPH NODE-BENIGN LESIONS

DIAGNOSIS	NO.OF CASES	USG/FNAC CORR.
NON SPECIFIC LYMPHADENITIS	35	100%
TUBERCULAR LYMPHADENITIS	05	100%

DIAGNOSIS NO.OF CASES USG/FNAC CORR

NON SPECIFIC LYMPHADENITIS	35	100%
TUBERCULAR LYMPHADENITIS	05	100%

TABLE 4: MISC BENIGN LESIONS

DIAGNOSIS	NO.OF CASES	USG/FNAC CORR.
CYSTIC HYGROMA	01	100%
FIBROMATOSIS COLLI	01	0%

DIAGNOSIS NO.OF CASES USG/FNAC CORR

CYSTIC HYGROMA	01	100%
FIBROMATOSIS COLLI	01	0%

DISCUSSION

Fifty cases of pediatric neck swellings were studied. Cervical Lymphadenopathy was found to be most common which includes non-specific Inflammatory lesions and tubercular lesions appear to be more common in pediatric population followed by congenital lesions of neck. Correlation with FNAC had 100% sensitivity and 100% specificity.

Non specific lymphadenitis appears as well defined round to oval lesions of variable length. Normal lymph nodes are not visualised on sonography.

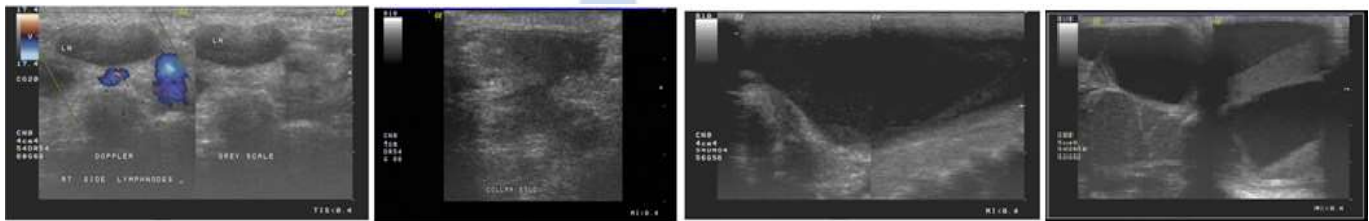


Figure 1

Figure 1: Tubercular lymphadenitis(collar stud abscess)is seen as hypoechoic lesion with swirling movement.

Figure 2

Figure 2: Thyroglossal cyst- This lesion is anechoic with posterior acoustic enhancement and moves with deglutition up to lobe of thyroid gland (Ahuja *et al.* Somo ne *et al.* and Rumack *et al.*)^{4,6,7,10}.

Figure 3

Figure 3: Cystic hygroma-appears as an anechoic lesion with septations.

Figure 4

Figure 4: Fibromatosis colli- appears as a hypoechoic lesion in the sternocleidomastoid muscle in patients having history of birth trauma.¹⁰

Burkitts lymphoma- appear as heterogenous lesions and cannot be diagnosed on sonography.

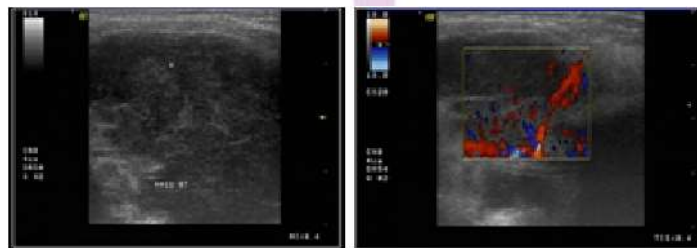


Figure 5 and 6: Lingual thyroid-appears as hypoechoic lesion.

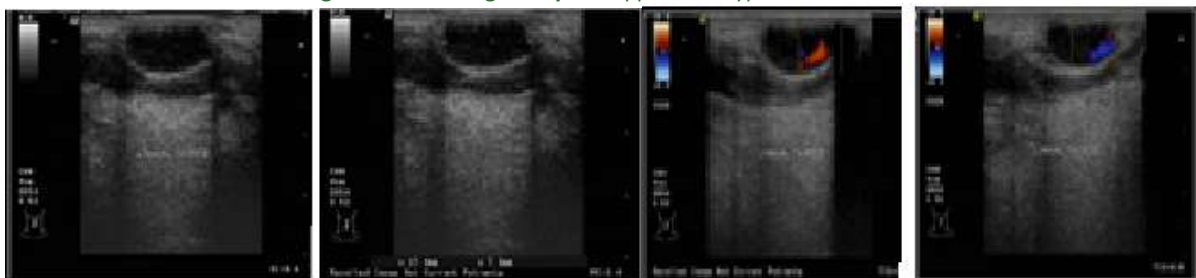


Figure 7

CONCLUSION

In our institution ultrasonography is used as a screening tool in paediatric patients in differentiating cervical lymphadenopathy from congenital lesions of the neck. Ultrasonographic correlation with FNAC is 100% in diagnosing thyroglossal duct cyst, cystic hygroma, non specific and tubercular lymphadenitis. There is absolutely no correlation in diagnosis of burkitts lymphoma, lingual thyroid and fibromatosis colli. This investigative modality is free from radiation and is economical and non invasive procedure which is well tolerated by the pediatric patients.

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