



VARIABLE PRESENTATION OF HEAD AND NECK SWELLINGS AND THEIR CYTOLOGICAL EVALUATION IN TERTIARY HEALTH CARE CENTRE

Pathology

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ABSTRACT

BACKGROUND: FNAC is very safe, simple, quick, cost-effective, reliable, accurate, minimally invasive and a well accepted established OPD procedure to diagnose a variety of head and neck lesions which are easily accessible.

METHODS: This study was conducted in the Department of Pathology, Autonomous medical college, Firozabad over a period of one year from 2018 to 2019. It included 150 patients with head and neck swellings presenting to outpatient clinics.

RESULTS: In our study, FNAC from variable sites of head and neck swellings were done. Lymph nodes were the commonest lesion found. In our study, age ranged from 1 to 80 years and male to female ratio was 0.75:1. Out of 150 cases in our study, benign cases were 144 and malignant cases were 6. Among benign cases, Tuberculous lymphadenitis was the commonest, and Non neoplastic salivary gland cyst was the least common. Among malignant cases, Metastatic carcinoma was the commonest and least common were Lymphoproliferative disease and Soft tissue Sarcoma.

CONCLUSION: FNAC proved to be the effective technique in the diagnosis of head and neck lesions with some limitations. It could differentiate benign from malignant lesions and helps to avoid unnecessary surgery.

KEYWORDS

Head and neck, FNAC, Cytology.

INTRODUCTION:

Cytopathology is defined as the study of cells that have exfoliated freely from tissue surfaces or that have been collected by brushing, scraping, washing, or needle aspiration. A lump is the most likely clinical problem encountered in the neck. [1] Masses in the head and neck are especially good targets for needle aspiration because many are superficially located. The evaluation of a neck mass is a common clinical dilemma and a condition to which clinicians commonly encounters.[2] Kun first used this technique in 1847. Martin in 1930 introduced this procedure to evaluate the head and neck swellings.[3] These swellings maybe due to various causes. The most common pathologies encountered in the neck presenting as a lump are lymphadenitis (specific and non-specific, acute and chronic), metastatic carcinoma, lymphoma, thyroid swellings(goiter, nodules and cysts) and salivary gland swellings(sialadenitis, cysts, adenoma and carcinomas). The less common pathologies presenting in the neck are carotid body tumour, brachial cyst, thyroglossal cyst, cystic hygroma, pharyngeal pouch, and lumps of skin appendages.[4]

The gold standard procedure for the diagnosis of neck swellings is open biopsy of the swelling with histopathological examination but it leads to a higher incidence of wound complications, regional neck recurrence and distant metastasis than in patients who have no biopsy performed prior to definitive treatment. Fine needle aspiration cytology is a simple, quick, safe and inexpensive method. FNAC has become an important first line of investigation in palpable masses anywhere in the body but especially in the head and neck area. The experience of pathologist or clinician and familiarity of pathologist with clinical findings, clinical history and lab reports play an important role in reporting.

METHODOLOGY:

The present study was conducted in Autonomous medical college Firozabad over a period of one year from 2018 to 2019. Clinical history of all patients having palpable head and neck swellings were taken and noted. Palpable swellings were aspirated in the cytology department. The procedure was once explained to the patient and consent was taken. The clinical findings were used in selection of the swellings, labeled glass and the fixative was kept ready. The material used in performing the FNAC were sterile disposable needles 22-23gauge and 1.5 inches long 10 c.c. plastic disposable syringe. Standard clean grease free dry slides (75 x25 mm) were used along with standard coverslips (22 sq. mm). The fixative was madeup of

equal amount of ether and alcohol. The aspirated material was spread on slide with the help of another slide and then one slide clipped into the fixative immediately, one slide for Giemsa. Minimum three slides were prepared. The smears then stained by Giemsa stain or Papanicolau's stain or by Haematotoxylain and Eosin stain, one was kept aside without fixation.

RESULT:

The present study included 150 patients of head and neck swellings from 1 to 80 years among which 43percent were males and 57 percent were females. Male to female ratio was 0.75:1. Among cases of all ages, we got the youngest patient of age 1 year and the oldest patient of age 75 years.

Mean = 26₋⁺1.6 years.

Tuberculous lymphadenitis(29.3%) was the commonest diagnosis followed by Reactive lymphadenitis(25.3%) and Acute Suppurative lymphadenitis(16.6%). Other pathologies were cystic lesions (8%), malignant lesions(4%), colloid goiter(3.3%), Hashimoto's thyroiditis(3.3%), Primary hyperplasia of thyroid(3.3%), Follicular neoplasm(1.3%),Necrotising lymphadenitis (2.6%), Acute Sialadenitis(1%), and Pleomorphic adenoma(2.6%). Malignancies found were Metastatic Carcinoma (2.6%), Soft tissue sarcoma of forehead (0.6%) and one case (0.6%) of Lymphoproliferative disorder.

Among all head and neck lesions, we got 144 benign cases and 4 cases of malignant lesions. Among all benign lesions, we found Tuberculous lymphadenitis to be the most common lesion and Non-neoplastic salivary gland cyst to be the least common lesion. Four cases of malignancy were found among which Metastatic carcinoma was the most common and the least common cases found were Lymphoproliferative disorder and Soft tissue sarcoma.

Table 1:Results of FNAC of Head and neck swellings showing the relative frequencies of various pathological conditions(n=150)

| Diagnosis | No. of cases | Percentage |
|---------------------------------|--------------|------------|
| Benign lesions | 144 | 96 |
| Reactive hyperplasia | 38 | 25.3 |
| Tuberculous lymphadenitis | 44 | 29.3 |
| Acute Suppurative lymphadenitis | 25 | 16.6 |
| Necrotising lymphadenitis | 04 | 2.6 |

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|------------------------------------|-----------|----------|
| Colloid goiter | 05 | 3.3 |
| Hashimoto's thyroiditis | 05 | 2.0 |
| Primary hyperplasia of Thyroid | 03 | 3.3 |
| Follicular neoplasm | 02 | 1.3 |
| Acute Sialadenitis | 02 | 1.0 |
| Pleomorphic Adenoma | 04 | 2.6 |
| Brachial cyst | 02 | 1.3 |
| Sebaceous cyst | 07 | 4.6 |
| Non-neoplastic salivary gland cyst | 01 | 0.6 |
| Simple cyst | 02 | 1.0 |
| Malignant lesions | 06 | 4 |
| Metastatic carcinoma | 04 | 2.6 |
| Lymphoproliferative disorder | 01 | 0.6 |
| Soft tissue sarcoma(Forehead) | 01 | 0.6 |
| Total cases | 150 | 100 |

Table2 shows The Agewise distribution of patients

| Age (in years) | Patients | Percentage |
|----------------|----------|------------|
| 0-10 | 30 | 20 |
| 11-20 | 28 | 18.6 |
| 21-30 | 22 | 14.6 |
| 31-40 | 24 | 16 |
| 41-50 | 25 | 16.6 |
| 51-60 | 15 | 10 |
| 61-70 | 04 | 2.6 |
| 71-80 | 02 | 1.3 |

Table3 shows the site of involvement of lymphnodes

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|----------------------------|---------------------------|
| Site of lymphnode involved | 116 (Total no. of cases) |
| Sub-mandibular | 15 |
| Sub-mental | 08 |
| Supraclavicular | 08 |
| Cervical | 68 |
| Post-auricular | 17 |

Table 4 shows the demonstration of acidfast bacilli

| Acid fast bacilli | Granulomatous | Acute Suppurative | Necrotising |
|-------------------|---------------|-------------------|-------------|
| AFB +VE | 15 | 07 | 03 |
| AFB-VE | 29 | 18 | 01 |
| Total cases | 44 | 25 | 04 |

DISCUSSION:

FNAC was first used as a diagnostic tool in 1904 by Grieg and Gray.[5] They aspirated trypanosomes from the lymph-node of Patients with sleeping sickness. Over the subsequent 30 years, its role was developed, in particular by Guthrie- who attempted to correlate the results of aspiration with a range of diseases being investigated and by Martin and Ellis who, from the base at Memorial Sloan-Kettering cancer centre in Newyork, developed its use in the diagnosis of malignancy.[6,7]

This study includes 150 patients of head and neck swellings. In the present study lesions were found most common in females than in males. These findings were similar to the study done by FernadesHet,al [8] and Vijay Tilak,et al [9] while studies by SetalChauhan, et al [10] found that there were more lesions in males than in females.

The highest frequency of lesion was seen in 2nd to 6th decade which was similar to studies by Manjunath BS et al, Solanki PK et al and Amatya BB et al. In our study, maximum no. of cases were from lymph-node swellings as seen in studies by Amatya BB et al and Gupta et al.[11, 12-13]

In India, Tuberculosis is the most common cause of lymphadenopathy. On cytology of Tuberculous lymphadenitis, we found various type of morphological appearances eg: epithelioid granulomas with caseous necrosis, epithelioid granulomas without necrosis, necrosis only without epithelioid granulomas and polymorphs with necrosis with or without epithelioid granulomas.[14] FNAC with ZN staining is very necessary to diagnose all these lesions. We were able to demonstrate the presence of acidfast bacilli on ZN staining in 25 cases, ofwhich 11 cases showed classical epithelioid granulomas with caseous necrosis 3 cases showed epithelioid granulomas without necrosis, 4 cases were reported as Necrotising lymphadenitis, and 7 cases showed Acute suppuration with presence of neutrophils.

Significantly, granulomatous/Tubercular lymphadenitis is the most common cytological diagnosis in both the present study and the one by

Setal et al. [10]Setal et al [1]found cases of malignancy (25%) and in our study, 6 of cases of malignancy were found.

Fine needle aspiration plays an important role in the evaluation of euthyroid patients with a thyroid nodule. It decreases the need of unnecessary thyroid surgery for patients with benign nodule and appropriately triages patients with malignancy to the required surgery. Also FNAC serves as therapeutic procedure as the aspiration of fluid in cysts maybe followed by involution of the lesion.[15] Among all benign thyroid lesions,5 cases of colloid goiter was reported ,5 cases of Hashimotos thyroiditis was reported, 3 cases of primary hyperplasia and 2 cases of Follicular neoplasm were reported. We reported all thyroid lesions by using Bethesda category.

Similarly, El Hag et al [16] carried out a similarly study in Saudi Arabia over a period of five years which included 225 patients. This study was published in 2003 and it showed reactive/non-specific lymphadenitis to be the commonest cause of neck masses accounting for 33% of cases. Tuberculous lymphadenitis was found to be the next common pathology constituting 21% of cases followed by malignant swellings found in 13% of cases. Another studies done by Rathod GB, et al[17] and Tariq, et al [18] found Tuberculous lymphadenitis to be the most common pathology of lymph node lesions accounting for 42.12% and 36% of cases respectively followed by reactive /non-specific lymphadenitis constituting 18% and 19.3% of cases and metastatic carcinoma found in 14% and 21.5% of cases. This shows epidemiological variation between developed and developing countries. Tuberculosis is more common in developing countries while malignancies are more common in developed countries.

Cheng[19]in his study carried out in Auk Land, Newzealand included 187 patients, found malignancy to be the cause in 50% of cases. This shows an epidemiological variation between developed and developing countries. Infections like TB are most commonly found in developing countries while malignancies as cause of neck swellings are more common in developed countries.

Similarly, studies done by Schelkun[20]and Schwartz [21] in Chicago(US) and Columbia (Canada), respectively, clearly show that majority of neck masses are malignant(40% and 48%, respectively).

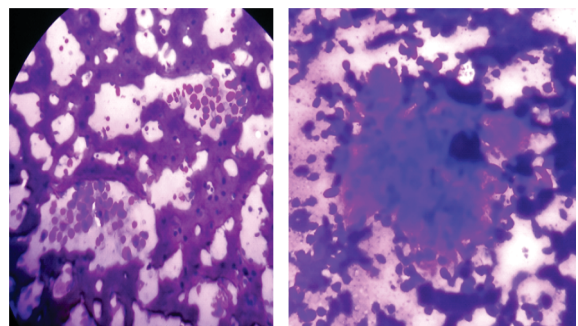
Stevenson[22], in his study of 120 patients carriedout at Christchurch, Newzealand, found that 28% of the swellings are malignant which is similar to the pattern of disease in developed countries. Similarly, studies done in developing countries have consistently shown tuberculosis and reactive(non-specific lymphadenitis to be the more common cause.

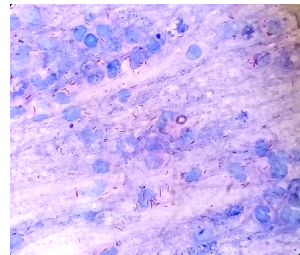
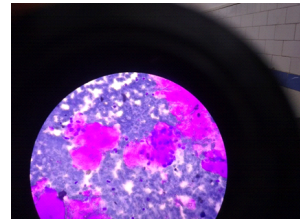
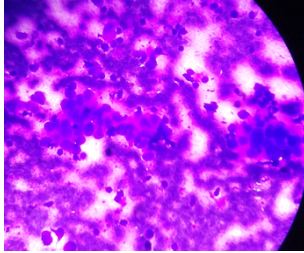
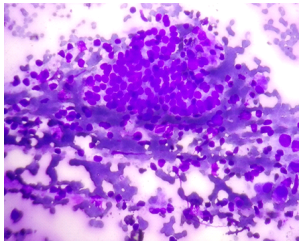
LIMITATIONS OF OUR STUDY:

1. We were unable to take followup of the patients.
2. Histopathology facilities were not available in our centre.

CONCLUSION:

It was concluded from our study FNAC is an excellent preliminary test besides being safe and relatively free from complications to diagnose head and neck swellings, it is very convenient, rapid and accurate outpatient procedure. In the present study, Tuberculous lymphadenitis is the commonest problem in patients presenting with neck swellings followed by Reactive lymphadenitis . Most common malignancy found in our study is Metastatic carcinoma. This procedure may also help the surgeon to select, guide and modify surgical planning in patients requiring surgery. Our study concluded that FNAC can be recommended as a first line of investigation in the diagnosis of head and neck swellings.





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