

Original research article

Study of fine needle aspiration cytology in head and neck swellings in OPD

¹Dr. Raghendra Singh Gaur, ²Dr. Preeti Nigotia, ³Dr. Swati Chandel

¹Professor, Department of ENT and Head & Neck Surgery, BRLSABVM (GMC) Medical College, Rajnandgaon, Chhattisgarh, India

²Assistant Professor, Department of Medicine, SRVSMC Medical College, Shivpuri, Madhya Pradesh, India

³Consultant at ENT centre Rajnandgaon, Chhattisgarh, India

Corresponding Author:

Dr. Swati Chandel (swatigaurchandel009@gmail.com)

Abstract

Background: Fine needle aspiration cytology is widely practiced minimally invasive technique which is safe, simple, rapid, painless and inexpensive technique and plays an important role in early diagnosis of head and neck lesion. In this study our aim is to access the incidence of diseases at different sites of head and neck region and among sex group with the help of FNAC record.

Methods: This was a retrospective observational study of cases of FNAC done on head and neck swelling at a Rajnandgaon ENT Centre from Jan 2021 to Jain 2022.

Results: The study included 150 cases of the age ranged 1 to 80 years out of which 87 (58%) female and 63 (42%) were male. Among the diagnostic outcome high incidences of lesion are in the neck region than the head regions. The largest numbers of aspirates in this study were from lymph nodes 54, followed by thyroid swelling 42 and soft tissue swelling 42. In 150 cases 136 (90.66%) were benign and 14 (9.33%) were malignant.

Conclusions: FNAC gives us a rapid, convenient outpatient method of diagnosis of accessible lesions especially of the head and neck. No complication is recorded during the study with FNAC so it is relatively safe also. With the help of FNAC we can decide appropriate therapeutic management of the disease, either locally excise a benign tumour or plan more radical surgery or other alternative treatment modalities in case of malignancy. There is one limitation of this study, post-operative histopathology correlation with FNAC report was not done because of unavailability of data.

Keywords: FNAC, benign pathology, malignant pathology

Introduction

Swellings in the head and neck region are very common and their presentation may vary from site to site and according to the age of the patients. Swelling may belong to the inflammatory, benign, malignant, or miscellaneous conditions. Among the most frequently sampled palpable head and neck lesions are lymph nodes, thyroid and major salivary glands along with other rarely encountered lesions like subcutaneous tissue swellings, lumps of skin appendages and oral cavity lesions^[1]. FNAC is the primary tool to evaluate head and neck lesion which was first introduced by martin in 1930 after that this procedure was rapidly gained acceptance due to the easy accessibility of target sites and minimally invasive nature of this method^[2].

In Indian population Cancer is among the ten leading causes of death, and out of that head and neck neoplasia in India accounts for 23% of all cancers in males and 6% of all cancers in females as there are multiple risk factors to which male are getting exposed more than the female^[3]. Because of direct access and visibility, a timely FNAC plays an important role in early diagnosis^[4]. An early differentiation of benign and malignant pathology is beneficial as it greatly influence the planed treatment. In view of its added advantages like inexpensive, safe, outdoor procedure, with rapid reporting and requires minimal equipment it is in widely use^[5] beside this there are certain other advantages FNAC do have like it is repeatable, reduces the rate of exploratory procedure, and provides an early differentiation of benign from malignant pathology^[6].

Material and Method

Present retrospective observational study was undertaken in the ENT centre at Rjnandgaon CG, in which records were analyzed from January 2021 to January 2022. This retrospective observational study included 150 cases of FNAC done on head and neck swellings over period of one year. During procedure the palpable swelling was fixed with one hand and with all aseptic precaution 22 -23 G needle with 10ml

syringe was inserted into the swelling and negative pressure was applied. The aspiration material was smeared on the glass slide and smears made were relevantly stained including Grunwald Giemsa, papanicolaou and haemotoxylin and Eosin (H&E) stains. Lymph nodes swelling with purulent or cheesy material were stained by ZN stain. Records were tabulated according to the age, sex, region of head and neck and benign and malignant conditions.

Results

The study included 150 cases of the age ranged 1 to 80 years out of which 87 (58%) female and 63 (42%) were male. Among the diagnostic outcome high incidences of lesion are in the neck region than the head regions. The largest numbers of aspirates in this study were from lymph nodes 54, followed by thyroid swelling 42 and soft tissue swelling 42 (Table 1).

In 150 cases 136 (90.66%) were benign and 14 (9.33%) were malignant (Table 2).

Lymph node FNAC assessment shows, 54 cases of lymph node lesion 32(59.26%) were having reactive lymphadenitis, 9(16.66%) were having granulomatous lymphadenitis, 5(9.25%) were having tubercular lymphadenitis and 6 (11.11%) were having malignant lesion (Table 3). Malignancy was reported in 25% of cases by Setalet *et al.* and in only 11.11% cases in this study. Similarly, El Hag *et al.* in a study of 225 cases in Saudi Arabia reported reactive lymphadenitis & tubercular lymphadenitis together account for 54% of the cases and malignant neoplasms to constitute only 13% of cases^[6]. At variance is the study by Maniyaret *et al.* in which the authors reporting malignancy in 71.69% cases^[5].

Table 1: Site and gender wise distribution of head and neck lesion

S.No.	Site of lesion	Female	Male	Total
1.	Thyroid swelling	39	3	42
2.	Neck swelling	14	11	25
3.	Cervical lymph node	9	15	24
4.	Submandibular swelling	4	10	14
5.	Parotid swelling	5	3	8
6.	Post auricular	1	7	8
7.	Swelling over face	5	6	11
8.	Infra auricular	1	1	2
9.	Scalp	2	0	2
10.	Submental	1	2	3
11.	Nape of neck	1	1	2
12.	Right border of tongue	1	0	1
13.	Angle of mandible	1	0	1
14.	Occipital	0	1	1
15.	Supraclavicular	2	1	3
16.	Pre auricular	2	1	3

Table 2: Benign and Malignant Head & Neck lesion

S.No.	Benign	Malignant
1.	136 (90.66%)	14 (9.33%)

Table 3: Distribution of cases according to cytological diagnosis of Lymph nodes

Diagnosis	Cases
Reactive Lymphadenitis	32
Granulomatous Lymphadenitis	09
Tubercular Lymphadenitis	05
Non-Hodgkins Lymphoma	01
Malignant	06
Necrotising Lymphadenitis	01

Table 4: Distribution of cases according to cytological diagnosis of thyroid swelling

Colloid goiter	19
Thyroiditis	10
Primary hyperplasia	3
Follicular neoplasia	4
Papillary carcinoma	4
Lymphoma	1
Granulomatous abscess	1

Table 5: Age wise distribution of thyroid swelling

0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
1	2	13	9	10	4	0	2

Table 6: Cytological diagnosis of parotid swelling

Pleomorphic adenoma	3
Sialadenitis	2
Acini cell carcinoma	1
Inflammatory	1
Follicular hyperplasia	1

Discussion

FNAC is the outdoor procedure to evaluate any swelling in the human body visible on surface or seen on imaging investigations like USG, CT, MRI. This should be considered for diagnostic test in the initial assessment of the patients having a mass in the head and neck region for which the patient came to consult the health provider or when treating a surgeon is suspecting a recurrence after previous treatment. In this study, we evaluated various parameters like age distribution, sex predilection, site wise distribution, nature of the lesion and the findings were compared with other studies.

The largest number of aspirates in this study was from lymph nodes 54 followed by thyroid swelling 42 and soft tissue swelling 42. Other studies from the Indian subcontinent have also shown that the most common sites of FNAC of head and neck lesions were the lymph nodes^[1, 5]. However, in a study carried out at a tertiary centre in Southern India the largest numbers of FNACs were from the thyroid gland constituting 56.45% of the cases^[7]. The peak incidence of head and neck mass lesions in this study group was between 21 to 30 years, which is similar to the findings of Setalet *al.* significantly, granulomatous / tubercular lymphadenitis was the most common cytological diagnosis in both the present study & the one by Setalet *al.*^[1]. An important cause of superficial lymphadenopathy in India is tuberculosis. Various types of cytological appearances have been described in tubercular lymphadenitis.

Fine-needle aspiration plays an indispensable role in the evaluation of thyroid patients with a thyroid nodule. It reduces the rate of unnecessary thyroid surgery for patients with benign nodules and appropriately triages patients with malignancy to the required surgery. Additionally, the method may serve a therapeutic function since the aspiration of fluid in cysts may be followed by involution of the lesion⁸. Among benign thyroid lesions, colloid goiter comprising 25 cases was the most common pathology, 18 cases of thyroiditis and 1 case of thyroid hyperplasia were the other benign thyroid etiologies reported, thus highlighting how the cytological diagnosis of benign disease contributes to a reduction in the number of unnecessary surgical procedures in such cases^[4, 5].

Among the salivary gland lesions, pleomorphic adenoma (Table 6) was the commonest lesion with 7 cases, followed by sialadenitis 2 cases and 1 case each of oncocytoma and benign lipomatous lesion. We reported a single case as a high grade malignant epithelial tumor which on excision biopsy was confirmed to be a high grade mucoepidermoid carcinoma. Other Indian authors have also reported pleomorphic adenoma to be the most common benign tumor and mucoepidermoid carcinoma as the commonest malignant tumor in their series^[1, 7].

Conclusion

FNAC is an excellent first line of investigation when used with a proper combination of experience and diligence. It is an economical and convenient alternative to open biopsy. It reduces the rate of unnecessary surgery for patient with benign pathology and appropriately triages patients with malignancy to the required surgery. FNAC gives us a rapid, convenient outpatient method of diagnosis of accessible lesions especially of the head and neck. No complication is recorded during the study with FNAC so it is relatively safe also. With the help of FNAC we can decide appropriate therapeutic management of the disease, either locally excise a benign tumour or plan more radical surgery or other alternative treatment modalities in case of malignancy. There is one limitation of this study, post-operative histopathology correlation with FNAC report was not done because of unavailability of data. To correct this larger number sample and their correlation with histology report is needed in further study.

Declaration

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Conflict of interest: Nil.

Reference

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