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Original Research Article

Study of Palpable Head and Neck Lesions by Fine Needle Aspiration Cytology

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Abstract

Introduction: Lesions of the head and neck region are routinely encountered by clinicians, in patients across all age groups with diagnosis ranging from reactive hyperplasia of lymph nodes to malignancies. FNAC of head and neck is a well accepted technique with high specificity. ***Aims & Objective:*** To evaluate the role of FNAC in palpable head and neck lesions and also to study their distribution. To assess the prevalence of different types of palpable head and neck swellings. ***Materials & Methods:*** This study is conducted over a period of 5years (2013-2017) retrospectively. Palpable head and neck lesions in all individuals irrespective of age and sex was considered and cases with scanty material was excluded from the study. ***Results:*** A total of 2598 cases were studied. There were 1649 females (63.5%) and 949 males (36.5%). In the present study age ranged from 1 year to 88 year. Common age group involved was 30 -39years (513 cases) accounting for 19.8% followed by 501 cases in age group of 40-49 years accounting for 19.2%. Most common site was thyroid (979 cases) constituting 37.7% followed by lymph node (960 cases) constituting 36.9%. Among the thyroid lesions predominant lesions were benign accounting for 25 % (245 cases) [TBSRTC system]. ***Conclusion*:** Present study confirmed that FNAC is an excellent first line investigative method, for diagnosis of palpable head and neck swellings.
Keywords: TBSRTC - The Bethesda system of reporting thyroid cytology.

INTRODUCTION

Lesions on the exposed part of the body are cosmetically unacceptable to the patient, especially those of head and neck [1]. Neck swellings are one of the commonest clinical presentations encountered by the practicing physicians [2].

It was in the middle of the nineteenth century when Koss who has worked and devoted his life for FNAC commented- “Thin needle aspiration FNAC is a procedure whose time has come” [3].

Martin introduced this technique in the evaluation of head and neck lesions in 1930 and the procedure has since then become increasingly popular and is being frequently used in the evaluation of swellings of this region [4, 5].

FNAC is a prerequisite for various neck swellings as procedure is non-traumatic, easily accessible, inexpensive, excellent compliance, avoids anaesthetic complications and requirement of open surgical biopsy [6].

AIMS & OBJECTIVES

- To evaluate the role of FNAC in palpable head and neck lesions and also to study their distribution.
- To assess the prevalence of different types of palpable head and neck swellings.

MATERIALS AND METHODS

Cytopathological data of total 2598 patients who attended the Department of Pathology, Hassan Institute of Medical Sciences, Hassan from January 2013 to December 2017 were collected and analysed. Demographic details such as age and gender, cytological findings were retrieved and recorded.

Palpable head and neck lesions in all individuals, irrespective of age and sex was considered and cases with scanty material was excluded from the study.

RESULTS

The present study included 2598 cases of palpable head and neck lesions from various departments as an OPD as well as indoor patients. Age

group of patients range from 1 to 88 years. Maximum number of patients were in the age group of 30-39years (19.7%) followed by 40-49 years (19.3%) (Table-1). Youngest patient was 1year old female with right submandibular swelling diagnosed as suppurative lesion and oldest was a case of chronic sialadenitis in 88year old male with left parotid region swelling. Out of 2598 cases 1649 cases were females (63.5%) and 949 cases were males (36.5%) (Fig-1).

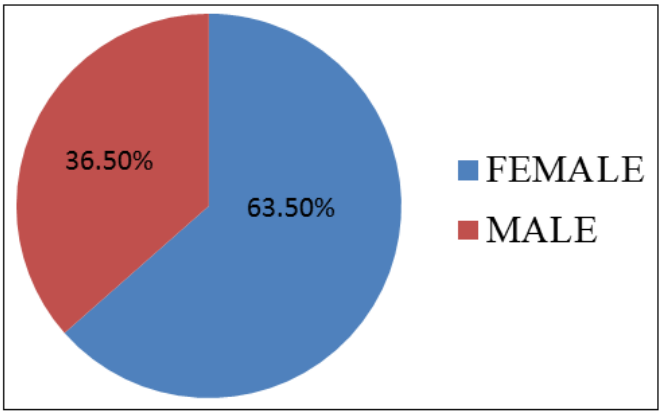

Fig-1: Diagrammatic presentation of Sex-wise distribution of Head and neck lesions

Table-1: Palpable Head and neck lesions in various age groups

Age group		No. of cases	Percentage
First decade	0-9	122	4.7%
Second decade	10 - 19	258	9.9%
Third decade	20 - 29	455	17.5%
Fourth decade	**30 - 39`**	**513**	**19.7%**
Fifth decade	40 - 49	501	19.3%
Sixth decade	50 - 59	320	12.3%
Seventh decade	60 -69	276	10.7%
Eight decade	70 - 79	123	4.8%
Ninth decade	80-89	30	1.1%

Site wise distribution of head and neck FNAC (Table-2) shows thyroid (37.6%) as the most predominant site of FNAC followed by lymph node (36.9%), skin and soft tissue(16.8%), salivary gland (7.4%) and oral cavity (1.3%).

Out of 979 cases of thyroid swellings (Table-3) benign lesions (Category II- TBSRTC) were the most common accounting for 88%, followed by cases which are considered as Non diagnostic (TBSRTC Category I), Suspicioius of follicular neoplasm, malignant lesions and Follicular neoplasm/Suspicious for Follicular Neoplasm and Atypia of Undetermined signinficance.

Among the 960 cases of lymph nodes (Table-4) most common lesion was Reactive lymphadenitis accounting for 41% (396 cases) followed by lesions with metastatic deposits (20%), granulomatous lesions, tubercular lymphadenitis, suppurative lesions, lymphoproliferative lesions, necrotizing lymphadenitis and Non-Hodgkin's lymphoma.

Out of 191 cases of salivary gland lesions (Table-5) most common lesion was the chronic sialadenitis constituting for 34% (65 cases) followed by pleomorphic adenoma, Among 364 cases of skin and soft tissue lesions (Table-6) kerationous cyst was the most common lesion comprising of 48%(175cases) and out of 31 cases of oral cavity and other cystic lesions (Table-7) Thyroglossal cyst was the most common lesion accounting for 42%

Table-2: Distribution of head and neck swellings according to site of pathology

SL.NO	SITE	NUMBER	PECENTAGE
1	Thyroid	979	37.6
2	Lymph node	960	36.9
3	Salivary gland	191	7.4
4	Skin and soft tissue	437	16.8
5	Oral Cavity	31	1.3

Table-3: Cytological distribution of various thyroid lesions

TBSRTC CATEGORY	N = 979	PERCENTAGE
Non Diagnostic/Unsatisfactory	70	7.1
Benign	863	88.1
AUS	3	0.3
FN/SFN	22	2.3
SFM	6	0.6
Malignancy	15	1.6

Table-4: Cytological distribution of various lymphadenopathies

LESIONS	NUMBER	PERCENTAGE
Reactive hyperplastia	396	41.
Granulomatous pathology	177	18.
Necrotizing lymphadenopathy	13	1.3
TB	115	1.2
Suppurative lesion	33	3.4
Metastatic deposits	194	20.2
NHL/HL	4	0.4
Lymphoproliferative lesion	28	2.9
Sinus histiocytosis	1	0.1

Table-5: Cytological distribution of salivary gland lesions

LESIONS	NUMBERS (N-191)	PERCENTAGE
Chronic sialadenitis	65	34
Acute sialadenitis	18	9.5
Sialadenosis	10	5.3
Retention	10	5.3
Pleomorphic adenoma	50	26
Monomorphic adenoma	4	2
Warthins tumour	3	1.5
Lymphoepithelioma	1	0.5
Suppurative lesion	7	3.8
Cystic lesion	16	8.6
Mucoepidermoid carcinoma	2	1
Acinic cell tumour	1	0.5
Granulomatous lesion	2	1
Malignancy	2	1

Table-6: Cytological distribution of skin and soft tissue lesions

LESIONS	NUMBERS	PERCENTAGE
Keratinous cyst	175	48
Lipoma	91	25
Adnexal lesion	13	3.6
Metastatic deposits	1	0.3
Hemangioma	10	2.7
SCC	7	1.9
Suppurative lesion	34	9.3
Benign cystic lesion	23	6.3
Benign spindle cell lesion	3	0.9
Melanocytic lesion	1	0.3
Hematoma	6	1.7

Table-7: Cytological distribution of oral and cystic lesions

LESIONS	NUMBER	PERCENTAGE
Thyroglossal cyst	13	42
Branchial cyst	9	29
SCC	6	19.3
Malignancy	2	6.4
Ameloblastoma	1	3.3

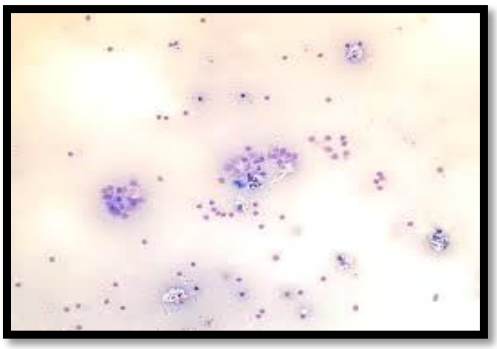

Fig-3: Follicular neoplasm: shows monomorphic follicular cells in follicular pattern and monolayer sheets

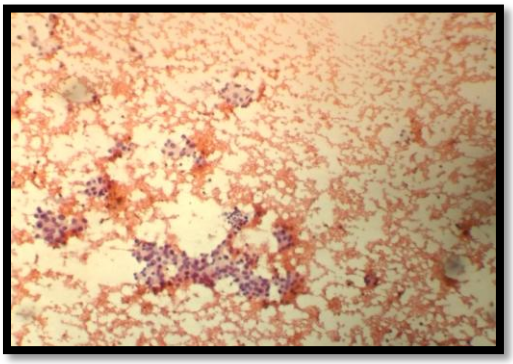

Fig-2: Nodualr goiter: shows cyst macropahges and follicular cells with colloid in the background

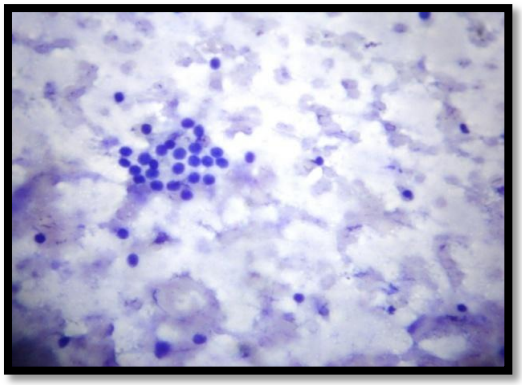

Fig-4: Lymphocytic thyroiditis showing lymphocytes impinging on follicular cells

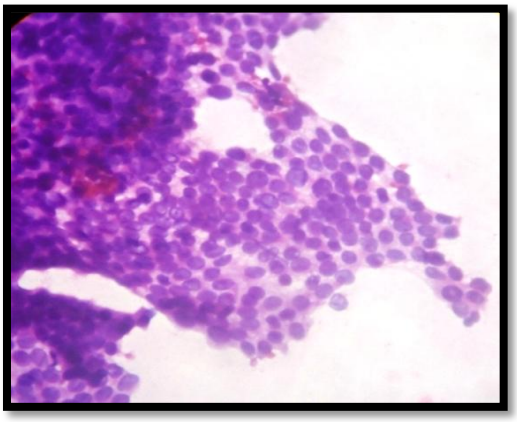

Fig 5: Suspicious of Papillary carcinoma thyroid

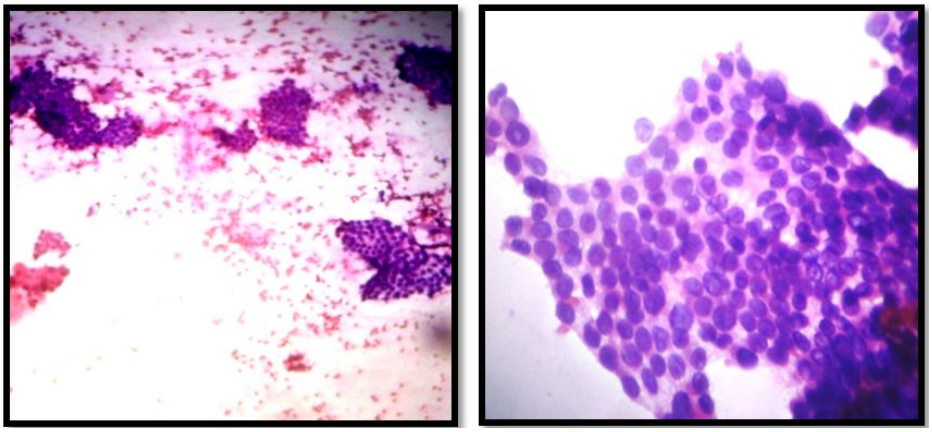

Fig-5: Papillary carcinoma: Follicular cells arranged predomianantly in papillary fronds. These cells show nuclear crowding, nuclear grooving and inclusions

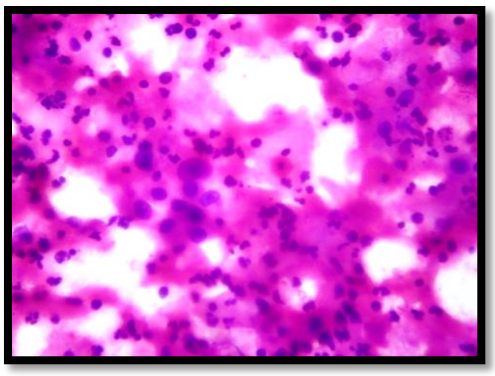

Fig-6: Metastatic Squamous cell carcinoma: Atypical squamoid cells with tumour diathesis

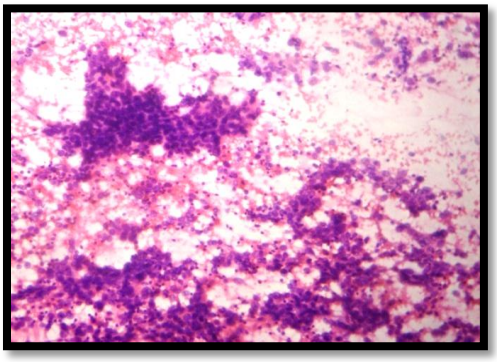

Fig-7: Metastatic Adenocarcinoma: Tumour cells in acinar pattern and dyscohesive clusters

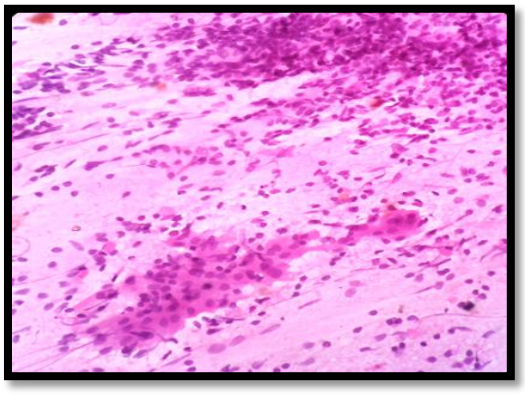

Fig-8: Warthins tumour: Acinar cells with lymphoid population of cells

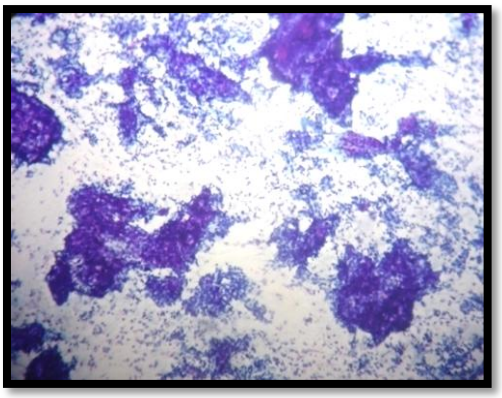

Fig-9: Pleomorphic adenoma: Dual population of cells with chomdromyxoid stroma

DISCUSSION

FNAC is a valuable diagnostic test in the initial assessment of the patients presenting with a mass in the head and neck region or when a recurrence is suspected after previous treatment. Various parameters like age distribution, sex predilection, sitewise distribution, nature of the lesion were evaluated and findings compared with other studies. The largest number of aspirates from headand neck lesions in this study were from thyroid 979 cases (37.6%) followed by lymph node 960 cases (36.9%). This observation is similar with the results of study carried out in one of the tertiary care centre in South India [7].

However majority of the studies showed that the most common sites of FNAC of head and neck lesions were the lymph nodes [8, 9].

The peak incidence of head and neck lesions in this study group was between (30-49years) constituting 19.8%. Youngest age in this study was 1 year old female with right submandibular swelling diagnosed as suppurative lesion and the oldest age was 88 year old male with left parotid region swelling which was diagnosed as chronic sialadenitis. However study done by Borsaikia [10] and Khetrapal S *et al*., [11] showed highest incidence in second decade and third decade respectively. Majority of patients were females with male to female ratio of 1:1.7. Similar results of female preponderance were also reported by Kishor H *et al*., [6], Borsaikia [10] and Khetrapal S *et al*., [11]. Predominant site of FNAC was from thyroid (37.7%) and colloid goiter was the most common lesion, followed by lymph node (36.9%), which is similar to study done by Muddegowda et al [12] which showed similar results where thryoid being the predominant site of involvement and colloid goitre as the most common lesion (44%).

FNAC of lymph node lesions was the next most common site in our study. Reactive hyperplasia (41.2%) was the predominant finding followed by metastaic deposits (20.2%). Studies done by Thakur S *et al*., Borsaikia [10] Savitri *et al*., [14] also showed reactive hyperplasia is the most common finding in lymph node lesions

Among the skin and soft tissue lesions, keratinous cyst (48%) was the common finding followed by lipoma (25%). In salivary gland lesions chronic sialadenitis comprised 34% followed by pleomorphic adenoma in 26% cases. And in oral cavity and other cystic lesions thyroglossal cyst was the most common diagnosis constituting 42%.

It is observed that Fine-needle aspiration plays an indispensable role in the evaluation of euthyroid 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 lesion [15].

CONCLUSION

Though excisional biopsy is the gold standard for diagnosis of head and neck neoplastic lesion FNAC stands as a rapid, convenient and accurate outpatient method of diagnosis of accessible lesions especially of the head and neck, besides being safe and relatively free from complications.

Lastly, there must be a close cooperation between cytopathologists and clinicians for rapid and maximum diagnostic accuracy of palpable head and neck lesions.

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