Original Research Article

Supraclavicular swelling: A cytomorphological study

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Abstract

Swelling in the supraclavicular region gives rise to various doubts regarding the underlying pathology. As swellings in the supraclavicular fossa are easily palpable, FNAC is considered as the first line of investigation for diagnostic evaluation of swellings at this site. The study aimed at the analysis of distribution of different causes of supraclavicular swelling on the basis of cytomorphology and to study socio-demographic features of different cytomorphological patterns. This was a retrospective study to be conducted in the Department of Pathology covering a period of two and a half year (January 2019 to June 2021). Eighty-one (81) cases of supraclavicular swellings underwent FNAC during the study period were analyzed. For each case, a minimum of two air-dried Giemsa stained smears and one alcohol fixed Papanicolaou (PAP) stained smear were studied.Out of total 81 cases, 38 (46.9%) were non-neoplastic and 43 (53.1%) were neoplastic. Non-neoplastic cases were most commonly found in young age group and neoplastic cases were commonest in 41 – 60 year age group. Males (51 cases) were more commonly affected than females (30 cases). Most common non-neoplastic lesion is reactive lymph node (32% of all cases) followed by non-tubercular granuloma cases, tubercular granuloma, cystic lesion and hemangioma. Among the neoplastic conditions there were 34 cases of metastasis, (adenocarcinoma being the most common metastasis) and 9 cases of Non-Hodkin lymphoma. Non-neoplastic cases were common in tribal population (20 out of 38 cases) and 33 cases, out 43 of neoplastic lesions were found in non-tribal population. This study showed that neoplastic conditions affected the supraclavicular region/lymph node more commonly than the non-neoplastic lesions. The cytological evaluation of such cases will certainly guide the clinician to make an appropriate treatment plan.

Keywords: Supraclavicular swelling, cytomorphology, non-neoplastic lesions, metastasis.

Introduction

Swelling in the supraclavicular region is a commonly encountered clinical presentation. Any swelling in this site gives rise to various doubts regarding the underlying pathology. A wide range of possibilities from extremely benign to as dreadful as metastasis may play the role. Virchow described the possibility of metastasis to the left supraclavicular lymph node from malignancies below diaphragm and from malignancies above the diaphragm, metastasis commonly involve right supraclavicular lymphnode[1,2,3]. However a wide range of non-neoplastic and benign lesions are also commonly found[4,5].

Fine needle aspiration cytology (FNAC) has proven to be very useful diagnostic modality in evaluating superficial and deep-seated lump/swellings (under image guidance) of our body. It is a quick, minimally invasive and inexpensive technique that usually does not cause serious complications[5,6]. The targets of aspiration cytology encompasses all the sites and organs of human body. As swellings in the supraclavicular fossa are easily palpable, FNAC is considered as the first line of investigation for diagnostic evaluation of swellings at this site[4,7,8].

No such study has been reported from this North-Eastern state as yet. The study aimed at the analysis of distribution of different causes of supraclavicular swelling on the basis of cytomorphology and to study socio-demographic features of different cytomorphological patterns.

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Aims & Objectives

The aim of the study was to analyze the distribution of different cytomorphological patterns of supraclavicular swellings and to study the socio-demographic features of different cytomorphological patterns.

Materials and methods

This was a retrospective study to be conducted in the Department of Pathology covering a period of two and a half year (January 2019 to June 2021). Eighty-one (81) cases of supraclavicular swellings underwent FNAC during the study period were analyzed. All the cytology smear samples of patients attended cytology section of Pathology Department for FNAC of supraclavicular swellings, irrespective of age and sex were included in the study. Aspirates with scant material and faded smears were excluded.

Age, sex of the individual, swelling characteristics and relevant clinical findings were retrieved from the records. For each case, a minimum of two air-dried Giemsa stained smears and one alcohol fixed Papanicolaou (PAP) stained smear were studied.

Cytomorphology of all the cases were re-evaluated by two pathologists separately and a final cytodiagnosis was made based on consensus opinion. A correlation with histological findings was done wherever feasible. Cases were categorized into neoplastic and non-neoplastic lesions. Then, the distributions of different types of neoplastic and non-neoplastic lesions were analyzed in relation to age, gender and ethnicity. A conclusion regarding cytomorphological patterns of supraclavicular swellings and their distribution was drawn at the end of the study.

Result

Out of total 81 cases 38 (46.9%) were non-neoplastic and 43 (53.1%) were neoplastic (Table 1). Non-neoplastic cases were most commonly found in < 20 age group (18 cases) and neoplastic cases were commonest in 41 – 60 year age group (23 cases).

Males (51 cases) were more commonly affected than females (30 cases). Most common non-neoplastic lesion is reactive lymph node (32% of all cases) where 18 out of 26 cases were males (Table 2). Other non-neoplastic cases are – 6 non-tubercular granuloma cases, 4 tubercular granuloma, 1 cystic lesion and 1 hemangioma. Among the neoplastic conditions there were 34 cases of metastasis and 9 cases of Non-Hodkin lymphoma (Fig 1).

Among the cases of lymph node metastasis, 20 cases were adenocarcinoma (Fig 2), 5 squamous cell carcinoma, 3 mesothelioma, 1 case of seminoma (Fig 3) and 1 case of anaplastic carcinoma had been found (Table 3).

It was observed that non-neoplastic cases were common in tribal population (20 out of 38 cases) and 33 cases, out 43 of neoplastic lesions were found in non-tribal population (Table 4).

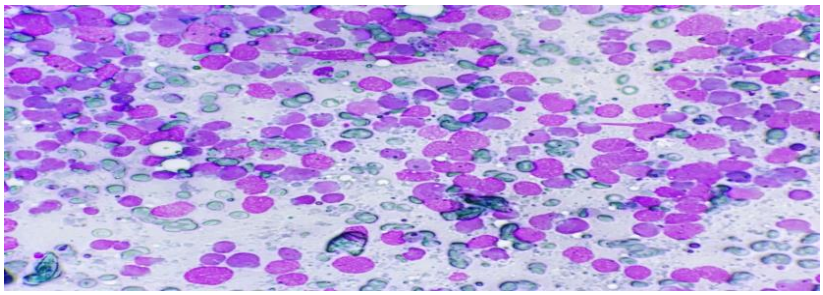

Fig 1: A case of Non-Hodgkin's lymphoma showing dispersed large immature lymphoid cells is seen (x400)

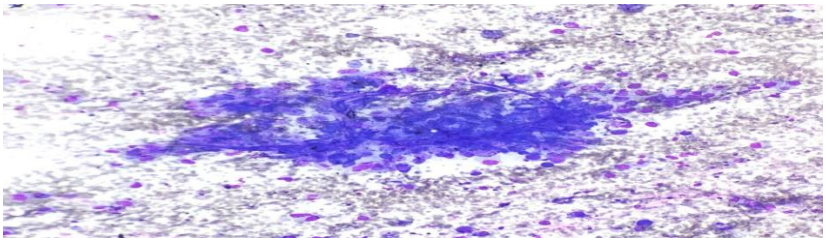

Fig 2: A cases of metastatic adenocarcinoma to the supraclavicular lymph node. A group of large cells and dispersed similar cells are seen (x100)

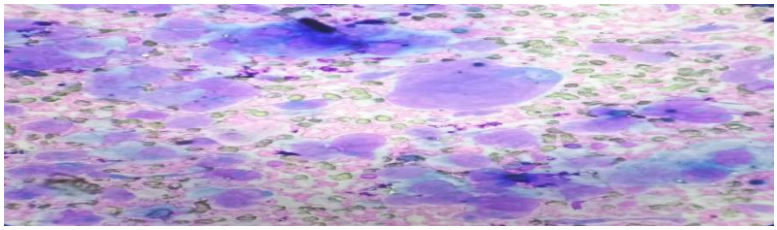

Fig 3: Metastatic deposits of seminoma to the supraclavicular lymph node. Large pleomorphic cells with moderate amount of cytoplasm are seen in a tigroid background (x 400)

Table 1: Age-wise distribution of cases

Age in years	Non-neoplastic cases	Neoplastic cases	Total (%)
0 - 20	18 (90%)	2 (10%)	20
21 - 40	14 (66.6%)	7 (33.4 %)	21
41 - 60	6 (20.6%)	23 (79.4%)	29
> 60	----	11 (100%)	11
Total	38 (46.9%)	43 (53.1%)	81.

Table 2: Sex distribution as per diagnosis

Sl No	Diagnosis	Male	Female	Total
1.	Reactive Lymph node	18	8	26 (32%)
2.	Non-TB granuloma	4	2	6 (7.4%)
3.	TB granuloma	2	2	4 (4.9%)
4.	Cystic lesion	1	--	1 (1.2%)
5.	Hemangioma	--	1	1 (1.2%)
6.	Non-Hodgkin Lymphoma	5	4	9 (11.1%)
7.	Metastasis	21	13	34 (41.9%)
Total		51	30	81

Table 3: Distribution of metastasis cases

Diagnosis	No of cases (%)
Adenocarcinoma	20 (59%)
Squamous cell carcinoma	5 (14.7%)
Small cell carcinoma	4 (11.7%)
Mesothelioma	3 (8.8%)
Seminoma	1 (2.9%)
Anaplastic carcinoma	1 (2.9%)
Total	34

Table 4: Ethnicity-wise distribution of cases

Ethnicity	Non-neoplastic cases	Neoplastic cases
Tribal	20	10
Non-tribal	18	33

Discussion

A variety of pathological conditions underlie the enlargement of supraclavicular lymph nodes. As the site is accessible, FNAC is widely used for the diagnostic evaluation of these lesions. The role of FNAC in such lesions had been discussed in many studies[1,9,10].

In this study 38 cases (46.9%) were non-neoplastic and 43 (53.1%) were neoplastic, which is comparable to the study conducted by Gupta et al[7]. Similar to other studies this study showed a steady rise of neoplastic cases as the age increased[3,4,5].

Males (51 cases) were found to be more commonly presented with supraclavicular lymphadenopathy than females (30 cases) which is in contrast to the observation of Adhikari et al (58.4% cases were female)[5]. Most common non-neoplastic lesion is reactive lymph node (32% of all cases) which was mostly found in males (18 out of 26). Other non-neoplastic cases are – 6 non-tubercular granuloma cases, 4tubercular granuloma, 1 cystic lesion and 1 hemangioma. The distribution of non-neoplastic cases were comparable to the study conducted by Gupta et al and Nasuti et al. whereas Adhikari et al reported predominance of cases of tuberculosis[1,5,7].

The study showed higher number of metastatic malignancies (34 cases) than lymphomas (9 cases). Similar observations were reported in many studies[4,5]. However, all the cases of lymphomas in this study were Non-Hodgkin lymphoma whereas most of the studies reported both Hodgkin and Non-Hodgkin lymphoma involving supraclavicular lymph nodes.

Among the cases of supraclavicular lymph node metastasis, most frequent diagnosis was adenocarcinoma followed by 5 squamous cell carcinoma, 3 mesothelioma, 1 case of seminoma and 1 case of anaplastic carcinoma. This finding is in concordance with the findings by majority of the authors[2,3,11]. But in few studies squamous cell carcinoma was reported as the most common type of metastasis[4,5].

This study revealed that non-neoplastic cases were common in tribal population (20 out of 38 cases) and neoplastic lesions were frequently observed in non-tribal population (33 out of 43 cases). No study had been found reflecting ethnicity-wise distribution of cases with supraclavicular lymph node enlargement.

Conclusion

This study showed that neoplastic conditions affected the supraclavicular region/lymph nodes more commonly than the non-neoplastic lesions. Again, these lymph nodes were more frequently involved by metastasis than lymphoid malignancy. The advantages of FNAC as a diagnostic tool are well documented. The procedure helps us to reach a correct diagnosis as well as gives clue to primary site in cases of metastasis. The cytological evaluation of such cases will certainly guide the clinician to make an appropriate treatment plan.

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