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CYTOMORPHOLOGICAL ANALYSIS OF THE LYMPHADENOPATHY SPECIMENS OF THE TERTIARY HEALTH CARE CENTRE: A RETROSPECTIVE STUDY

Pathology

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ABSTRACT

BACKGROUND: The aim of the study was to analyse the spectrum of pathologies found on FNAC of lymphadenopathy specimens in a tertiary care teaching hospital from January 2019 to December 2021.

MATERIAL AND METHODS: The data of FNAC evaluation of 279 patients with lymphadenopathy was collected retrospectively from January 2019 to December 2021 and was analysed to determine the demographic and cytomorphological variations seen in the FNAC findings of the lymph nodes.

OBSERVATION AND RESULT: Out of 279, 67% patients were females showing female predominance and 55% patients belonged to the age group of 11-30 years. The two most prevalent diagnosis were Reactive hyperplasia of lymph nodes (42%) and tuberculous lymphadenopathy (30.5%) followed by granulomatous lymphadenopathy (11%).

CONCLUSION: For early detection and diagnosis of diseases like TB, malignancy Fine needle aspiration cytology is a safe, simple, cost effective, repeatable, minimally invasive, relatively painless and reliable technique.

KEYWORDS

Fine needle aspiration cytology, Reactive hyperplasia, tuberculous lymphadenopathy.

INTRODUCTION:

Lymph nodes being an important component of our immune system, enlargement of lymph nodes (lymphadenopathy) is most common presentation in many neoplastic, infective and inflammatory diseases. FNAC is a very good clinical technique to access these lymph nodes or masses, sometimes with the help of ultrasound techniques (USG guided), to obtain cells, tissue and/or fluid through a thin needle attached to a disposable syringe to confirm the clinical diagnosis. FNAC is a simple, safe, quick, reliable, repeatable, less invasive and cost-effective method of investigation which helps in establishing the final diagnosis. The spectrum of disease varies from region to region. Thus, this study was undertaken to understand the spectrum of lymph node lesions associated with various disease prevalent in this area.

Material and Methods Place and type of study-

A retrospective study carried out in Department of Pathology of K. J. Somaiya Medical College of central Mumbai from January 2019 to December 2021.

EXCLUSION CRITERIA:

- Any swelling clinically or radiologically considered to be lymph node but turned out to be something else

All lymphadenopathy cases were referred by various out patient departments like General Medicine, Surgery, Paediatric, Orthopaedic, Dermatology, Respiratory medicine and Gynaecology. All the relevant history was taken. The patient was explained the procedure and an informed consent was taken from all the patients who were undergoing FNAC. The procedure was performed with 23-gauge needle attached to 10 cc disposable syringe. Smears were prepared on clean glass slides as per standard technique. The smears were fixed by either a mixture of ether and absolute ethyl alcohol in equal parts or air dried. Air dried smears were stained by giemsa stain. Alcohol fixed smears were stained by PAP stain.

The diagnosis of all the patients were recorded during study along with the age and gender profile of patients.

RESULTS:

A total of 279 FNAC cases of lymphadenopathy were studied. The number of cases were 144, 52 and 83 in the years 2019, 2020 and 2021 respectively, showing a massive impact of covid-19 infection and the subsequent lock down.

The male to female ratio of the patients studied was 1: 2, showing female predominance as shown in Figure 1.

Figure 1: Gender distribution of FNAC cases

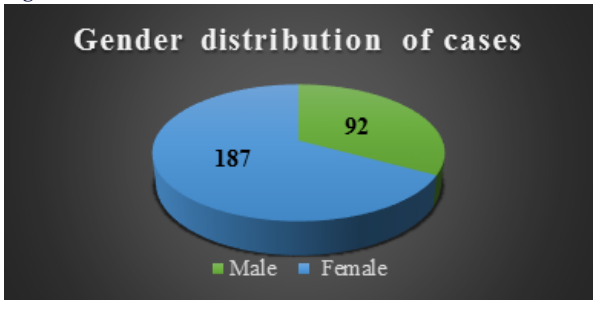

Table 1 depicts the age distribution of the patients. The patients were divided into 8 groups viz, 0- 10, 11-20, 21-30, 31-40, 41-50, 51-60, 61-70, 71 onwards. Approximately 55% patients belonged to 11-30 age groups.

Table 1: Age distribution of cases

Age group	Number of cases	Percentage (%)
≤10	29	10.4
11-20	75	26.9
21-30	83	29.7
31-40	47	16.8
41-50	20	7.2
51-60	9	3.2
61-70	12	4.3
≥ 71	4	1.4

Depending upon site of lymphadenopathy the cases were categorised as follows cervical (includes Supraclavicular), axillary, inguinal and submandibular (includes submental). Majority of cases of lymphadenopathy involved cervical group of lymph nodes (77%), followed by axillary group (10%), submandibular (7.5%) and inguinal (4%). (Table 2)

Table 2: Distribution of cases as per site of involvement

Site	Lymphadenopathy cases	Percentage (%)
Cervical	216	77.4
Axillary	30	10.8
Inguinal	12	4.3
Submandibular	21	7.5

Table 3 shows cytomorphological patterns of the FNAC specimens. The cytomorphological study of the slides showed that in 5% cases the material was not adequate on smear to reach a diagnosis. In the remaining cases, the reactive lymphadenitis 119 cases (42.7%) was commonest cytological diagnosis followed by tuberculosis 85 cases (30%), granulomatous inflammation 31 cases (11.1%), Acute suppurative inflammation 17 cases (6%), lymph node metastasis 12 (4.3%) and lymphoid malignancy 2 (0.7%).

Table 3: Cytomorphological patterns of cases

Cytological diagnosis	No. of cases	Percentage (%)
Reactive hyperplasia	119	42.7
Tuberculous lymphadenopathy	85	30.5
Granulomatous lymphadenopathy	31	11.1
Acute suppurative inflammation	17	6.1
Inconclusive /Inadequate	15	5.4
Metastasis to lymph node	12	4.3
Lymphoid malignancy	2	0.7

Granulomatous inflammation is caused by variety of conditions including infections, autoimmune, allergy to drug and neoplastic conditions. Granulomatous inflammation with caseous necrosis was confirmatory for tuberculous lymphadenopathy.

DISCUSSION:

Lymphadenopathy being a common presentation to many infective and inflammatory conditions, it is a widely used diagnostic procedure. the young, adolescent population formed the major group of the patients requiring FNAC. In other studies, done by Sunil Jagtap and Anil Meena similar picture of age distribution was observed.

The female predominance which was observed in our study was also seen in studies done by Anagha Amle et al and Padia B et al.

Reactive lymphadenopathy was the commonest cause of lymph node enlargement in this study; which is similar to many other studies done by Anil Meena[v] and Mainali N. et al . The frequency of other cytomorphological presentation is also similar.

Tuberculous lymphadenopathy is quite frequent in the adjacent areas of our institute. A similar observation was noted by Ageep Ak et al and Nidhi P[x]. Cervical lymph node enlargement was the commonest site in many other studies done by other researchers (Nidhi P et al, Pandit AA et al, Ahmed N et al)[v]

CONCLUSION:

This study concluded that reactive lymphadenopathy is the commonest condition in lymph node FNACs, followed by tuberculosis, suppurative inflammation and malignancy. It confirms the utility of FNAC as the quick, simple, cost-effective and efficient diagnostic tool for a range of disease from simple infections to neoplastic conditions and metastasis helping in early initiation of treatment of the patients.

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