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STUDY OF FNAC OF PALPABLE & NONPALPABLE LESIONS IN PEDIATRIC PATIENTS- TERTIARY HOSPITAL BASED RETROSPECTIVE STUDY

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Abstract

Introduction: Among all palpable and nonpalpable masses, enlargement of lymphnodes is a most common clinical presentation in children.[1] There is now increasing application of FNAC in palpable and nonpalpable mass in pediatric cases.[5] Advantages of FNAC over surgical biopsy are rapid, cost-effective, low trauma rate, minimal complications, and morbidity.[5,6]

Methodology: A retrospective cross-sectional study was done for all pediatric patients, who came for FNAC in cytology section of pathology department of GMERS Medical College & General Hospital, Junagadh for 4 years duration from January 2019 to December 2022. FNAC slides were retrieved and reviews and findings were recorded.

Result: Total 80 cases were studied, among that 23 (28.8%) cases were of chronic nonspecific lymphadenitis, 12 (15%) cases were of reactive lymphadenitis, 10 (12.5%) cases were of chronic granulomatous lymphadenitis, 11 (13.8%) cases were of acute suppurative inflammation, 4 (5%) cases were of abscess, 3 (3.8%) cases were of cystic lesion, 2 (2.5%) cases were of acute inflammation, necrotizing lymphadenitis, chronic sialoadenitis, and pleomorphic adenoma, while 1 (1.3%) case of acute sialoadenitis, myoepithelial adenoma, colloid goiter and 12 (15%) cases was unsatisfactory for diagnosis. Most cases were of lymphadenopathy, which is 67 (83.8%) cases.

Conclusion: Most common causes of all palpable and nonpalpable lesion in pediatric patients were chronic nonspecific lymphadenitis (28.8%) followed by reactive lymphadenitis (15%) and chronic granulomatous lymphadenitis (12.5%). Maximum cases among all cases were from cervical (neck) region lesions and between 6-12 years of age group.

Keywords: FNAC, palpable and nonpalpable lesions, pediatric age group, cervical lymphadenopathy

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Introduction

Among all palpable and nonpalpable masses, enlargement of lymphnodes is the most common clinical presentation in children.[1] Causes of lymphnode enlargement in children are classified as benign and malignant diseases, out of which major causes are benign diseases.[2,3] These causes can be evaluated by taking detailed history, physical examination, radiological examination, and laboratory investigations.[2,3] The decision of mass excision in the pediatric age group may be difficult due to its surgical risk, exposure to anesthesia, high cost, and cosmetic issues.[4] For that reason now increasing application of FNAC (fine needle aspiration cytology) in palpable and non palpable mass in pediatric cases.[5] Advantages of FNAC are rapid, cost-effective, low trauma rate, minimal complications, and morbidity.[5,6]

Therefore, this study aimed to find out the common causes of lymphadenopathy in pediatric age group in GMERS Medical College & General Hospital, Junagadh by FNAC.

Methodology

- A retrospective cross-sectional study has taken all pediatric patients, who came for FNAC in the cytology section of pathology department of GMERS Medical College & General Hospital, Junagadh for 4 years duration from January 2019 to December 2022.
- Sample Size: Number of pediatric patients studied during 4 years for FNAC.
    - Inclusion criteria: All pediatric patients who came for FNAC in cytology section of pathology department of GMERS Medical College & General Hospital, Junagadh from January 2019 to December 2022.
    - Exclusion criteria: Not any
- Sampling Method- FNAC was done with a 23-gauge needle following standard procedure under aseptic precautions, slides were air dried, fixed with ethyl alcohol, and stained by hematoxylin & eosin, and Giemsa.
- FNAC slides retrieved and reviewed. All the slides are observed and findings are recorded.
- Then data will be classified according to diagnosis and tabulated in excel sheet.

Result

Table 1: Table showing the distribution of cases according to FNAC diagnosis

FNAC diagnosis	No. of cases	Percentage (%)
Abscess	2	2.5
Acute suppurative inflammation	1	1.3
Acute suppurative inflammation of lymphnode	10	12.5
Reactive lymphadenitis	12	15
Chronic nonspecific lymphadenitis	23	28.8
Chronic granulomatous lymphadenitis	10	12.5

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Acute sialoadenitis	1	1.3
Chronic sialoadenitis	2	2.5
Myoepithelial adenoma	1	1.3
Pleomorphic adenoma	2	2.5
Colloid goiter	1	1.3
Cystic lesion	3	3.8
Unsatisfactory	12	15
Total	80	100

Total of 80 cases was studied, among that 23 (28.8%) cases were of chronic nonspecific lymphadenitis, 12 (15%) cases were of reactive lymphadenitis, 10 (12.5%) cases were of chronic granulomatous lymphadenitis, 11 (13.8%) cases were of acute suppurative inflammation, 4 (5%) cases were of abscess, 3 (3.8%) cases were of cystic lesion, 2 (2.5%) cases were of acute inflammation, necrotizing lymphadenitis, chronic sialoadenitis, and pleomorphic adenoma, while 1 (1.3%) case of acute sialoadenitis, myoepithelial adenoma, colloid goiter, and 12 (15%) cases was unsatisfactory for diagnosis.

Among 80 cases studied, most cases were of lymphadenopathy, which is 67 (83.8%) cases.

Table 2: Table showing the distribution of lymphadenopathy cases according to FNAC diagnosis

Lesions	No. of cases	Percentage (%)
Acute suppurative inflammation	10	15
Reactive lymphadenitis	12	17.9
Chronic nonspecific lymphadenitis	23	34.3
Chronic granulomatous lymphadenitis	10	14.9
Unsatisfactory	12	17.9
Total	67	100

Among 67 cases of lymphadenopathy, most cases were of chronic nonspecific lymphadenitis (34.3%) followed by reactive lymphadenitis (17.9%) and chronic granulomatous lymphadenitis (14.9%).

Table 3: Table showing the distribution of cases according to site

Site of lesions	No. of cases	Percentage (%)
Axillary	4	5
Anterior triangle of the neck	3	3.8
Lateral Cervical	32	40
Posterior triangle of the neck	10	12.5
Post auricular	1	1.3
Submandibular	15	18.8
Supraclavicular	3	3.8
Midline neck	3	3.8
The upper triangle of the neck	1	1.3
Inguinal	3	3.8
Nose	1	1.3
Thigh	2	2.5
Hand	1	1.3
Scalp	1	1.3

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Total	80	100

Among 80 cases, the maximum cases were from cervical (neck) region lesions.

M: F were 39:41 almost equal gender distribution.

Table 4: Table showing the distribution of cases according to age group

Age group in years	No. of cases	Percentage (%)
0-1	3	3.8
2-6	23	28.8
6-12	54	67.5
Total	80	100

Most cases (67.5%) were of 6-12 years of age group. The mean age was 8 years and the median was 12 years.

Discussion

Among 80 cases studied, most cases were of lymphadenopathy, which is 67 (83.8%) cases.

Most studies have taken lymphadenopathy cases in their studies, so here we have discussed lymphnode lesions of various studies in pediatric age groups.

Table 5: Table showing a comparison of different studies on lymphnode FNAC in the pediatric age group.

	Parikh S et.al.[7]	Bhatia Gunjan & Bhatia Ravi.[8]	Komal Sawaimul et.al.[9]	M Jain et.al.[10]	Rizwan A. Khan et.al.[11]	Present study
No. of cases	148	106	312	748	89	67
Age group	0-12years	1-10 years	0-16 years	0-12 years	10 months-12 years	0-12 years
Satisfactory of material			93.26%	94%		82.1
Age preponderance	10-12 years	6-10 years	12-16 years			6-12 years
Sex preponderance	M:F ratio 1:1.7		Male (51.28%)		M: F ratio 1:1.2	M: F ratio 1:1.1
Cervical lymphadenopathy cases	Only cervical cases taken	Only cervical cases were taken	89.74%	81%	Only cervical cases were taken	97%
Benign lesions	96.62%	98.12%	96.80%	98%	94.39%	100%
Malignant lesions	3.38%	1.88%	3.20%	1.5%	5.61%	0

In present study age preponderance for pediatric lesions is age group between 6-12 years, which is almost closer Parikh S et.al.[7], and Bhatia Gunjan & Bhatia Ravi.[8]. Present study

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show slight female preponderance, which is similar to Rizwan A. Khan et.al.[11] and Parikh S et.al.[7].

Among all lymphadenopathy maximum (97%) cases were from cervical lymphadenopathy cases in present study. Komal Sawaimul et.al.[9] and M Jain et.al.[10] also show maximum cases from cervical lymphadenopathy. In present study, all cases were benign (100%). Bhatia Gunjan & Bhatia Ravi.[8] and M Jain et.al.[10] showed 98.12% and 98% cases of benign lesions respectively.

Table 6: Comparison of different studies for cytology diagnosis of lymphadenopathy

Diagnosis	Parikh S et.al.[7]	Bhatia Gunjan & Bhatia Ravi.[8]	Rizwan A. Khan et.al.[11]	Present study
	No. of cases (%)	No. of cases (%)	No. of cases (%)	No. of cases (%)
Reactive lymphadenitis	64 (43.24%)	55 (51.89%)	49 (55.05%)	12 (17.9%)
Acute suppurative lymphadenitis	11 (7.43%)	8 (7.55%)	10 (3.85%)	10 (15%)
Chronic granulomatous lymphadenitis	68 (45.94%)	41 (38.68%)	-	10 (14.9%)
Chronic nonspecific lymphadenitis				23 (34.3%)

Conclusion:

Most common causes of all palpable and nonpalpable lesion in pediatric patients were chronic nonspecific lymphadenitis (28.8%) followed by reactive lymphadenitis (15%) and chronic granulomatous lymphadenitis (12.5%). Maximum cases among all cases were from cervical (neck) region lesions. Most common age group involved was 6-12 years.

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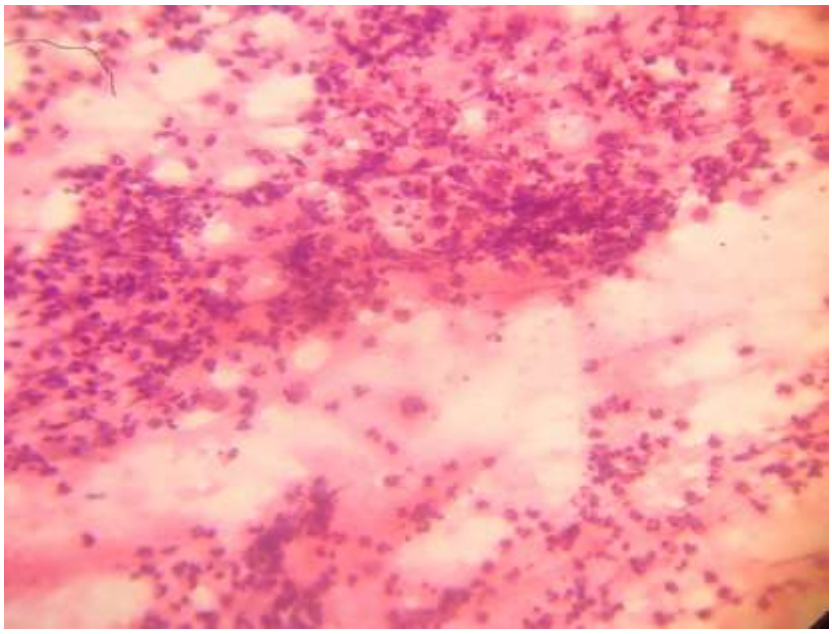

Figure 1: Figure showing acute suppurative inflammation of lymphnodes (H&E stained smear in 40x view)

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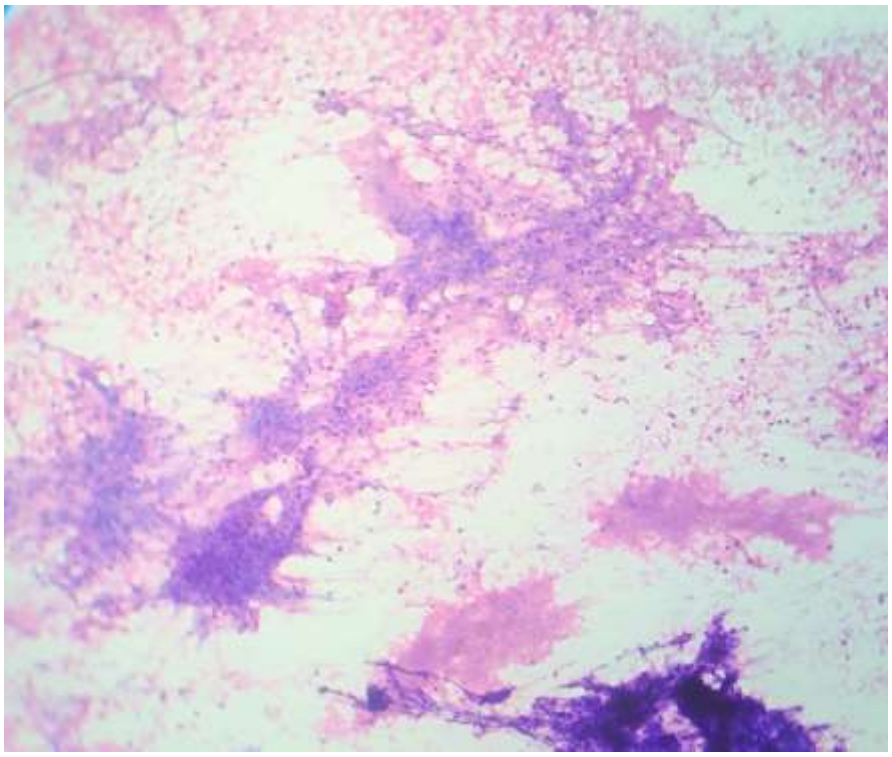

Figure 2: Figure showing cluster of epithelioid cells and fragment of caseous necrosis in chronic granulomatous inflammation of lymphnodes (H&E stained smear in 10x view)

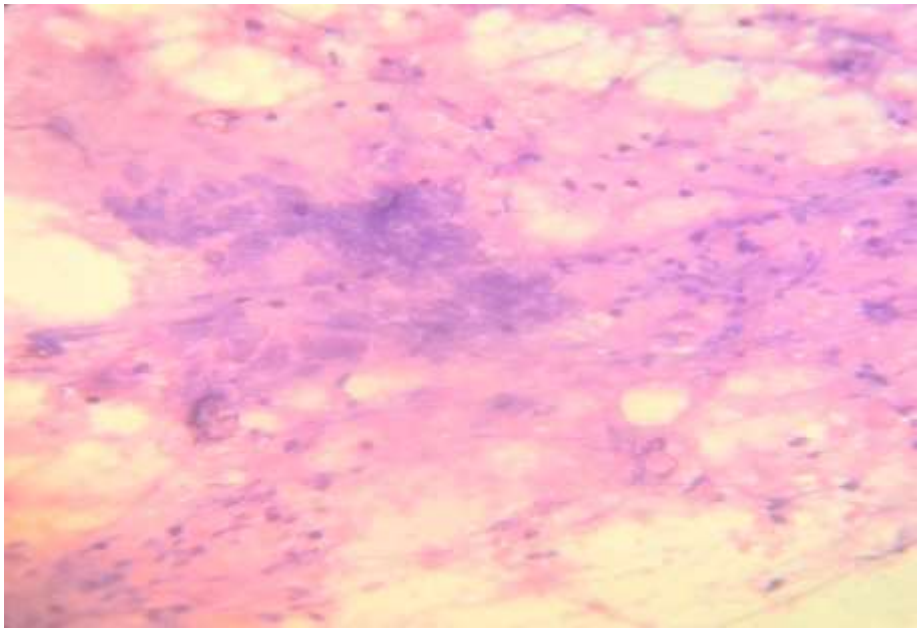

Figure 3: Figure showing cluster of epithelioid cells in chronic granulomatous inflammation of lymphnodes (H&E stained smear in 40x view)

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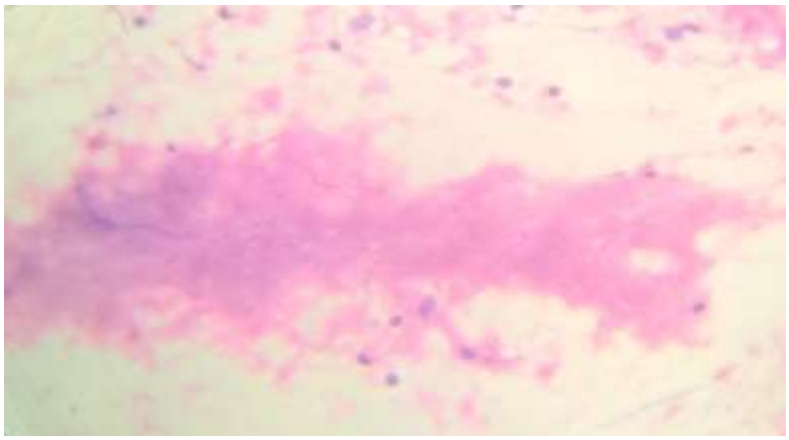

Figure 4: Figure showing fragment of caseous necrosis in chronic granulomatous inflammation of lymphnodes (H&E stained smear in 40x view)

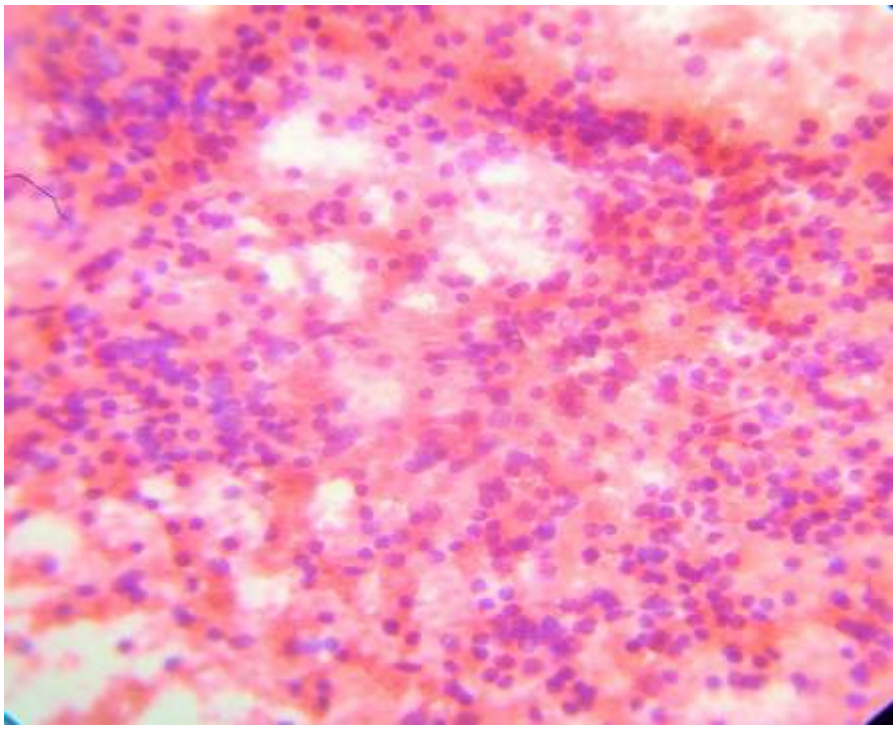

Figure 5: Figure showing polymorphous population of lymphocytes in reactive lymphoid hyperplasia (H&E stained smear in 40x view)