



THE TELL TALE SAGA OF USG GUIDED FINE NEEDLE ASPIRATION CYTOLOGY OF BENIGN LYMPHADENOPATHIES IN ITS TRANSMOGRIFICATION IN A SECONDARY CARE HOSPITAL IN NORTH EASTERN REGION OF INDIA(ONE YEAR STUDY)

Pathology

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ABSTRACT

BACKGROUND: Ultrasonography guided fine needle aspiration cytology has an important role in diagnosing lymphadenopathies. It has an accuracy of 70-90%, depending on the site under evaluation. Lymphadenopathy is one of the commonest clinical presentations of patients. It has a varied presentation, which varies from an inflammatory process to a malignant condition. USG guided Fine Needle Aspiration Cytology (FNAC) is an accurate, simple and an easy diagnostic technique in evaluation of the causes of lymphadenopathy, and the reports can be made available within an hour that will form the basis of treatment, decrease the number of surgical procedures and unnecessary surgical intervention.

OBJECTIVES: Analyzing and studying the cytological features in lymphadenopathy and categorize them with respect to aetiology, age, sex and site of occurrence, and to have a histopathological correlation of USG guided FNAC findings, wherever possible.

METHODS: All patients referred to the Department of Pathology and Radiology of a secondary hospital for FNAC of the north east region, of superficial and deep lymph nodes less than 1 cm were included in the study period, were comprehended for the study. The patients were clinically evaluated and details were analyzed. FNAC was performed and their diagnosis made. The data was analysed.

RESULTS: Out of the total 24 guided cases only 03 aspirates were inadequate for reporting. Most of the cases were in the age group of 19 - 39 years, with a male preponderance. The most commonly involved were cervical group of nodes, with the deep-seated nodes least involved. 81.33% of cases were diagnosed as benign lymphadenopathies, most of which were reactive lymphadenitis (49.44%). ZN stain for AFB was positive in 25.49% of cases with suspected tuberculosis. Maximum number of positive cases (58.75%) was found, when purulent material was aspirated. Microfilaria was found positive in (4.3%) of the lymphadenopathies. Dual presentation of microfilaria with granulomatous lymphadenitis was seen in 4.3% cases. Histopathological data was available for only 2 cases as lymph node biopsy was not done and referred to higher centres. 19 cases correlated well with FNAC. Specificity of FNAC was 90%.

CONCLUSION: USG guided Fine Needle Aspiration Cytology (FNAC) is an accurate diagnostic technique in diagnosing aetiology of lymphadenopathies which is one of the commonest clinical presentations of patients attending a health care centre and which can have an inflammatory to a neoplastic aetiology. FNAC provides a speedy diagnosis which will help the clinician to confirm or exclude the clinical differential diagnosis made at first visit of the patient and helps him to further plan the treatment. With the advent of ultrasound and computerized tomographic machines, the evaluation of deep-seated lymph nodes has also become possible through Guided FNAC's.

KEYWORDS

USG guided FNAC, Lymphadenopathy, Age, symptom, Correlation.

INTRODUCTION: With the increased sophistication of radiologic imaging techniques, the sensitivity of detecting non-palpable, deep-seated lesions has greatly improved. Single or multiple space occupying lesions demonstrated by Ultrasonography (USG), Computed tomography (CT) scan and Magnetic Resonant Imaging (MRI) constitute the main modalities for excavation of the lesions. Imaging techniques do not always distinguish between malignant and benign lesions morphologically. A confirmed tissue diagnosis is essential for both treatment and staging of cancers. FNAC is an easy and cost effective method of diagnosing neoplastic and inflammatory conditions of both the thorax and the abdomen. It is also a suitable procedure when patients are debilitated or have multiple lesions. Fine Needle Aspiration Cytology (FNAC) is an accurate diagnostic technique in diagnosing aetiology of lymphadenopathies, very common clinical presentations of patients. The aetiology varies from an inflammatory process to a malignant condition. In many occasions lymphadenopathy may be the only manifestation of an underlying occult disease. In earlier days, the diagnosis of lymphadenopathies was done after surgical excision followed by histopathological examination. With the help of ultrasound guided or computerized tomographic guided FNAC the evaluation of deep-seated lymph nodes is tenable. Study of usg guided FNAC of Lymphadenopathies" was taken up with objectives of studying the cytological features in lymphadenopathy and categorize them with respect to aetiology, age, sex and site of occurrence and its utility. Histopathological correlation of FNAC findings was done, wherever possible. Complications that have been reported are hemorrhage, septicemia, biliary peritonitis, acute pancreatitis, and pneumothorax. Needle tract tumor implantation after FNAC has been reported but the survival outcome of these patients has not been studied in detail. Another concern is that preoperative FNAC may cause local tissue changes, which could render subsequent histological diagnosis amenable.

MATERIALS AND METHODS:

Source of Data: All patients referred to the department of pathology of a secondary care hospital in the North East region, for usg guided

FNAC of superficial and deep lymph nodes were included in our study (N=63). The patients were clinically evaluated, and the clinical details were obtained from the medical records. All the slides were reviewed and their diagnosis was made. This was an observational study done in the department of Pathology and radiology, of a secondary care hospital (August 2016 - September 2017). All patients who were clinically and radiologically diagnosed with subcentimetric lymphadenopathies were included in the sample population. The aspirations were done by the radiologist in conjunction with a pathologist. A total of (n=24) usg guided aspirations were performed. The aspirates were obtained from various anatomic sites such as the cervical, occipital, axillary, retroperitoneal, inguinal and all other isolated lymphadenopathies.

Inclusion Criteria:

1. All patients referred to the department of pathology for FNAC of lymph nodes in the study period.
2. Both Superficial and deep group of lymph node with the help of USG guided FNAC were included.
3. USG guided FNAC from those lesions which was provisionally thought to be non-lymphoid origin and that which turned out to be from a lymph node.

Exclusion Criteria:

1. The FNAC of the swelling provisionally diagnosed lymph node swelling, later, after the procedure of FNAC turned out not to be a lymph node.
2. All malignant lymphadenopathies

Patients were clinically evaluated. The limitations and complications of Guided FNAC were explained to the patient. An informed consent was obtained for the procedure. Lymph node to be aspirated was first examined thoroughly to determine the site of aspiration. Procedure: Under aseptic precautions the node was held between the left index finger and thumb, followed by insertion of a 22 or 23 - gauge needle fitted to a 10 ml syringe and aspiration done with the help of USG guided probe. Four smears were made, two of them were alcohol fixed

for PAP and H & E staining. The other two were air-dried for staining with MGG. The smears were also air dried for ZN staining wherever necessary. For deep-seated nodes in the abdomen and pelvis, USG guided/CT guided FNAC was done using a 21 or 22 gauge disposable lumbar puncture- needle and syringe Once the position of needle was confirmed by USG/CT, a similar procedure as mentioned above was followed for collection of material. In cases where fluid was aspirated, the smears were made from the centrifuged deposits followed by staining methods as mentioned above.

RESULTS:All 24 cases were studied.Lymph node biopsy was available in 19 cases. Lymph nodes were fixed in formalin, bits were given from entire node for routine processing. After the routine processing and paraffin embedding sections of three to four microns were taken. Clearing of the slides was done, which was followed by H & E staining. Special stains such as Reticulin and PAS were used wherever required. Statistical analysis was done in 24 cases, where FNAC diagnosis was correlated with histopathological diagnosis. The chief complaint in 63% of patients was swelling (localized). Fever was the presenting complaint in 27% of the patients, another 7% of patients presented with undiagnosed weight loss. Aspiration was done in 24 cases, 3 aspirates yielded inadequate sample for cytologic interpretation.

Cervical lymphnodes(18 cases)(78%) were the most commonly involved group of lymph nodes in the study group of 24 patients. Axillary nodes (2), occipital(1),inguinal nodes (1cases) and other nodes (2cases) were involved. Other nodes also included deep nodes mostly the retroperitoneal. In 11 cases lymph nodes were involved at more than one site.

In 77.2% of the cases nodes were firm in consistency. Most of the soft nodes (23.2%) were seen in suppurative lymphadenitis, granulomatous lymphadenitis . In 70.2% of cases only a single node was involved. Multiple nodes at the same site were involved in 5% of the cases. Most of the multiple nodes were either due to granulomatous lymphadenitis.Of the 24 cases 11cases were reactive,10 were granulomatous,2 were suppurative and one nonspecific,

Out of 24 cases , AFB positive aspirates(6), 2 cases showed caseous aspirate, 1 cases showed grayish white aspirate, and 3cases showed frank purulent aspirate.

Table no.1:Distribution of benign lesions

Distribution of benign lymphadenopathies on FNAC	No. Of cases	%
Reactive lymphadenitis	11	45.8%
Granulomatous lymphadenitis	10	41.6%
Suppurative lymphadenopathy	02	8.3%
Dual morphology(microfilaria with tuberculosis)	01	4.1%
Total	24	100%

Table no. 2:Site of distribution:

Site of distribution	No. Of cases	%
Cervical lymph nodes	18	78%
Axillary lymph nodes	02	8.3%
Inguinal lymph node	01	4.1%
Retroperitoneal lymph node	02	8.3%
Occipital lymphnodes	01	4.1%
Total	24	100%

Table no. 3:Age wise distribution

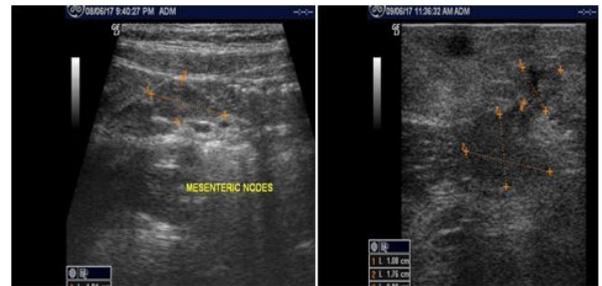
Age	Number	%
Less than 19	4	16.6
19-39	15	62.5
39-59	2	8.3
Greater than 59	3	4.1
Total	24	100%

Table no.4: chief complaints:

Complaints	Number	%
Swelling	15	66%
Fever	6	27%
Weight loss	3	7%
Total	24	100%

Table no.5:Nature of material aspirated in afb positive cases

Nature of aspirates in Afb positive cases	Number	%
Caseous material	2	66.6%
Gray white material	1	16.6%
Frank purulent	3	50 %
Total	6	100%



Reactive node Granulomatous node in axilla

FIG1 and 2:Reactive lymph node and Granulomatous lymph node on USG Scan

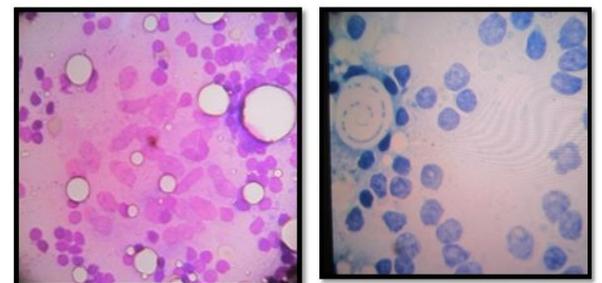


Fig 3:granulomatous lymphadenitis Fig 4:Microfilaria with granulomatous lymphadenitis

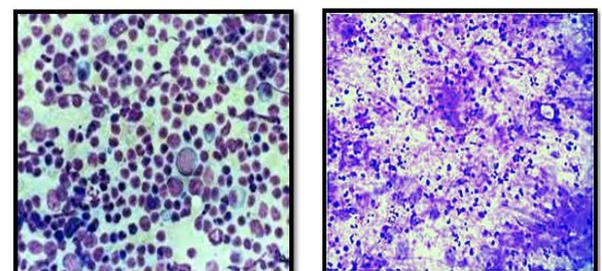


Fig5:Reactive lymphadenitis Fig 6:Granulomatous

DISCUSSION

Image guided FNAC has facilitated easy collection of cellular material with greater accuracy.⁸ Previously inaccessible sites, like the intrathoracic and intra-abdominal lesions can be safely sampled and are now routinely aspirated under image guidance to yield cellular material. FNAC of lymph nodes is one of the routinely used diagnostic procedures in patients presenting with lymphadenopathy.^{9,10,11} In our study of one year duration 24 patients underwent FNAC of the nodes. Age of the patient varied from 6months to 80 years. Maximum number of patients was seen from 20 to 39 years. The ratio of number-of males to females was 5:4 with male preponderance, which correlated with other studies. Swelling was the presenting complaint in 63 % of patients. The other important modes of presentations were fever 27 % of cases, and weight loss in 7% of cases.Consistency of Nodes in Majority of nodes (77.2%) were firm to palpate. Soft nodes were

associated with suppurative lymphadenitis. In only (70%), (5%) there were more than three nodes at the given site. Guided aspiration was done in 24 cases, the modes of presentation were weight loss, swelling, and fever. The symptomatology in guided cases was similar to study by Ibrahim et al. 14 Adequate material was obtained in all the cases. No untoward complications occurred in any of the cases during guided aspiration. Our study correlated with study by Sanjay Gupta et al where adequate material was obtained in 85.2% of case.^{15,16} Maximum cases sanguineous fluid was aspirated, in 3 cases purulent fluid & in 1 case aspirate was grey white in color. The caseous/cheesy material was aspirated in 2 cases and bloody aspirate in few cases.

When the procedure is jointly done by a pathologist and the radiologist, the accuracy rate of obtaining a good sample is very high. The immediate assessment of the specimen by the cytopathologist, along with further passes when necessary, improves the adequacy rate of the technique. Retroperitoneal lymphadenopathies studies done by Sheikh et al²⁰ and Adhikari RC²¹ were in lieu with our study. The most common site of aspiration performed in the abdomen in a study done by J Nobrega et al.⁸

The age range of our patients was 6 months-84 years. In the study by Tan KB et al²², the ages were between 11 and 82 years. In our study, benign and malignant lesions were most common in the age group of 31-40 years and 61-70 years respectively. Mukherjee S et al²³ found the maximum incidence of malignant lesion in the age group of 40-70 years. Study by Sheikh et al²⁵ found concurrence with retroperitoneal lymphadenopathies related to liver, gall bladder and pancreas. Amongst the intra-abdominal and retroperitoneal lymph node aspirates in our study; 10 cases diagnosed as granulomatous lesion in which suggestive of 6 were of tubercular origin. Similar findings were reported by Das and Pant.²⁶ In this study, USG guided FNAC has diagnosed non-neoplastic diseases like reactive, granulomatous, tuberculosis, and abscess formation. Histopathologically, these correlated with primary cytological diagnosis. The study found out that the review of slides by a second and third expert followed by a coherent diagnosis increased the accuracy. Clinico-radiological parameters showed no false positives but 3 false negative results.

CONCLUSION

In this study of non neoplastic lesions of the cervical, axillary, intra-abdominal and intra-thoracic lymphadenopathies, maximum diagnosis by this simple out patient procedure of USG guided FNAC's has concurred to be full proof and non blinded procedure with low cost to the patient as compared to higher cost, morbidity and lengthy hospital stay in surgical biopsies.

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