Peripheral Lymphadenopathy in Children, Comparison of Fine Needle Aspiration Cytology with Open Biopsy

M HUSSAIN A S CHISHTI R MUKHTAR *M A H KHAN M H SIDDIQUI H K PASHA*
Department of Paediatric Surgery, Nishtar Medical College, Multan
Correspondence to Dr. Mukhtar Hussain, Associate Professor Paediatric Surgery.

Objective: To compare the results of Fine Needle Aspiration Cytology (FNAC) with open biopsy in cases of Peripheral Lymphadenopathy. **Design:** A comparative study. **Place and duration of study:** Department of Paediatric Surgery & Department of Pathology, Nishtar Medical College & Hospital, Multan from January 2004 to September 2004. **Subjects and methods:** Patients presenting with Peripheral Lymphadenopathy in Paediatric Surgery out patient department were included in study. Relevant history and clinical findings were entered in performa and patients were submitted to investigations like FNAC and open lymphnode biopsy, after getting consent, on OPD basis. **Results:** Results of both FNAC and histopathology in 54 patients were available for comparison at the end of study. FNAC showed tuberculosis in 36 (66.67%), lymphoproliferative process in 16 (29.63%) and poor yield in 2 (3.71%) cases. Whereas open lymphnode biopsy on histopathology confirmed tuberculosis in 42 (77.78%), Hodgkin's lymphoma in 4.(7.42%), Non Hodgkin's in 6 (11.13%) and reactive hyperplasia in 2 (3.71%) cases. Sensitivity of FNAC in tuberculosis was 85.7% with a specificity of 100% in cases of tuberculosis while it was 71.5% in cases of lymphomatous process with an overall sensitivity of 78.5% in peripheral lymphadenopathy. **Conclusion:** In our setup lymphnode biopsy should be performed in all suspected cases to avoid long term morbidity and mortality especially in clinically malignant illnesses.
Key words: Lymphadenopathy, Peripheral, Children, Diagnosis, FNAC, Histopathology.

Cervical lymphadenopathy is a common surgical problem and is frequently encountered in paediatric surgical & medical out patient department. Time and again, we are receiving calls from medical units for lymph node biopsy. The various etiological causes are present all over the world[1] but in Pakistan predominantly tuberculosis is culprit[2,3,4]. Other causes of chronic enlargement include lymphomas, non specific lymphadenitis and secondaries.

The diagnostic modalities generally include CBC, ESR, X-Ray Chest and Augmented BCG or Mantoux test, smear, culture but main diagnostic tool is FNAC or open biopsy of the lymph node[5]. FNAC is a reliable method for all such cases[6] but open lymph node biopsy could be more decisive in all disputed cases in our setup[7,8].

This study is conducted to compare the accuracy of FNAC verses open lymph node histopathlogy in cases of cervical lymphadenopathy in paediatric patients coming to our OPD.

Materials and methods:

A total of 122 cases of peripheral lymphadenopathy were inducted in this study coming in out patient department of Paediatric Surgery and reffered from MINAR, Nishtar Medical College & Hospital Multan. Inclusion criteria includes all fresh cases coming in OPD and willing to undergo investigations like CBC, Chest X-Ray, Augmented BCG Test, FNAC and open lymph node biopsy. Exclusion criteria include all those cases which are already under treatment or not willing for investigations mentioned above. The duration of study was April 2004 to December 2004.

A complete history, relevant clinical examination and findings were recorded on pre-designed Performa.

A total of 122 cases were registered during this period, 22 slipped away form study and 46 came out to be cases of acute lymphadenitis on clinical examination and laboratory investigations. Hence remaining 54 cases were submitted to FNAC and open lymph node biopsy. Cases were sent to pathology department where sample for FNAC and reporting on it was performed by one of the consultant pathologist. After receiving report of cytology same patients were submitted to open lymph node biopsy and histopathology reports were performed by another consultant from Pathology department. Reports of both cytology and histopathology are compared & results are prepared.

Results:

There were 34 males and 20 female children, Age ranges were between 2-12 years with maximum no. of cases (24) of 4-6 years of age (Table-I). Amongst different clinical features, fever was the commonest symptom found in 29(53.71%) cases and haemoptysis was the least common feature seen in only 1(1.86%) patient (Table II). Forty six cases had multiple group enlargements and in only eight cases single group enlargement was seen. However eight cases showed sinus formation as well. Results of FNAC in 54 cases showed unequivocal tuberculosis in 36(66.67%) cases, lymphoproliferative process in 16 (29.63%) cases & poor yield in 2 (3.71%) cases while results of open lymph node biopsy on H/P showed tuberculosis in 42 (77.78%) cases, Hodgkin's lymphoma in 4 (7.42%) cases, Non Hodgkin's lymphoma in 6 (11.13%) cases and reactive Hyperplasia in 2 (3.71%) cases. Table III shows the comparative picture of FNAC with Histopathology. The sensitivity of FNAC is (85.7%) with false-negative results of 14.3% in tuberculosis. While it is 71.5% in cases of

lymphomatus process with a false positive rate of 28.6% and that too is limited whether the process is malignant or benign. Only H/P has further differentiated it into Hodgkin's, or non Hodgkin's lymphoma. Thus over all sensitivity of FNAC in Peripheral lymphadenitis comes out to be 78.5%.

Table I: Age and sex presentation (n=54)

Age	Male	Female
2-4 years	06	05
4-6 years	17	07
6-8 years	08	04
> 8 years	03	04
Total:	24	20

Table II: Associate clinical features

Clinical features	=n	%age
Fever	29	53.71
Weight loss	21	38.89
Anorexia	14	25.93
Cough	15	27.8
Haemoptysis	01	1.86

Table III: Comparison of results of FNAC with histopathology

Disease	FNAC	H/P	F.P.	F.N.	SENST
Tuberculosis	36	42	-	14.3	85.7
Hodgkin's non hodgkin's lymphoma	16	10	28.6	9	71.5

Overall sensitivity FNAC=78.5%

Discussion:

In the present study 36 (66.67%) cases were diagnosed as tuberculosis while 16 cases diagnosed of lymphoproliferative disorders and poor yield in 2 cases on FNAC. The reports on H/P of same cases showed that 42 cases had tuberculosis, 10 had lymphoma and 2 cases were of reactive hyperplasia. Thus sensitivity of FNAC in tuberculosis came out to be 85.7% and sensitivity of 100% which is very much in accordance to study of Hussain M et-al[9] where they had sensitivity of 83% in tuberculosis lymphadenitis. These findings also coincide with the work of other authors who have reported sensitivity of FNAC ranging from 87-100%[10, 11, 12]. There were 6(14.3%) False Negative case of tuberculosis on FNAC resulting in false positive (F.P.) cases of lymphoma were probably due to the fact that aspiration needle was directed to the active germinal follicle with aspirations of monomorphic cells and because necrotic debris, or tangible bodies were not seen[13]. The lymphomas are the next in frequency in this study, the FNAC has given 16 cases of lymphoproliferative process but H/P yielded only 10 cases of lymphoma, 4 of Hodgkin's and 6 of non Hodgkin's type with a F.P of 6 cases. The yield of FNAC is much less in lymphoma[14]. The grading of lymphomas is not possible on FNAC which is essential for proper chemotherapy and prognosis. The excision biopsy is almost always required[15]. Non specific lymphadenitis is next in frequency in our study. Similar results are reported in other studies. The basic principal of examining the drainage area of lymph nodes and asking about minor injuries usually gives clue to the diagnosis[16].

Lymph node biopsy is an OPD procedure, can be performed under L.A and does not cost much to the patient and surgeon, but exact diagnosis can save both of them from lots of mortality and morbidity especially in malignant illnesses.

Conclusion:

1. FNAC has good sensitivity in Tuberculosis.
2. FNAC results are not promising in Lymphoma.
3. Open lymph node biopsy is recommended procedure for clinically doubtful cases.
4. Tuberculosis is leading cause of lymphadenopathy in children.

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