

# FINE NEEDLE ASPIRATION BIOPSY OF LYMPH NODES

Pages with reference to book, From 267 To 269

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## Abstract

Fine needle aspiration biopsy of lymph nodes using a 19 gauge needle and Luer Lok syringe was performed in 59 cases. This was compared with histological diagnosis and an accuracy of 93.2% was achieved. This method is simple and is highly acceptable among patients. It is a very useful technique where a biopsy of lymph node is not possible (JPMA 30:267, 1980).

## Introduction

Fine needle aspiration biopsy can be defined as the procedure in which a negative pressure is created in a syringe and as a result of pressure gradient cellular material is dislodged and drawn into the needle. This material can then be smeared over a slide, fixed and stained quickly. By cytological study of this aspirate a tentative diagnosis can be made, thus saving the need of open surgical biopsy. A small trial was carried out in this study to find out the usefulness of aspiration biopsy as a diagnostic aid.

## Material and Methods

The clinical material was procured from the surgical department of JPMC and other hospitals in 59 cases. Patients with chronic lymphadenitis in whom a biopsy was indicated were included in this study. Age, sex and location were not taken into account.

In every case relevant information and history were obtained. The lymph nodes to be aspirated were examined and aspiration biopsy was performed by one of us (ML).

A 19 gauge needle attached to a 20 cc Luer Lok syringe was used. The area of skin over the lymph node to be aspirated was disinfected. The lymph node was fixed in left hand between index finger and thumb. The needle was introduced into the skin and lymph node entered by puncturing the capsule. A vacuum was created in the syringe by pulling back the plunger. The needle was carefully moved in different directions to dislodge material. Before removing the needle, the plunger was slowly released to equalise the pressure. This prevented sucking of aspirated material into the barrel of syringe splashed against the walls and thus lost for cytological examination.

The aspirated material was expressed on several glass slides and -smeared into a film. If solid bits of tissue were present on the slide, then they- were gently crushed between two slides and smears were prepared by moving away the slides in opposite directions. One or two slides were fixed in 95% ethyl alcohol. One slide was air dried. Four stains were employed side by side, i.e. Papanicolaou's stain, Giemsa stain, Methyl green thionine stain and Kinyoun acid fast stain, Histologic sections were available in all cases for comparison,

## Results and Observations

Fifty nine patients were studied. The ages ranged between 5 months to 70 years. Most of the enlarged lymph nodes (57) were located in neck. In one case the axillary and in another the inguinal lymph node were aspirated. Majority of the lymph nodes were more than 3 cm in diameter (24 out of 57).

Results of aspiration cytology of lymph node are given in Table I.

Table I: Results of Aspiration Cytology of Lymph Nodes

<i>Total cases</i>	<i>MALIGNANCY</i>								
	<i>Final Dx</i>	<i>His. Dx</i>	<i>CYTOLOGICAL Dx</i>				<i>Accuracy of Cytological Dx</i>		
			<i>Total</i>	<i>True positive</i>	<i>False No.</i>	<i>Pos. %</i>	<i>False No.</i>	<i>Neg. %</i>	
59	17	16	17	15	2/42	4.8	2/17	11.8	93.2%

Sensitivity: 88.2%

Specificity: 95.2%

Abbreviations: Dx: Diagnosis, His: Histological, Neg: Negative, No: Number, Pos: Positive.

Out of 59 cases, carcinoma was detected in 16 cases on histology. In one case carcinoma was detected first on aspiration and later on repeat histology. There were 2 false positive and 2 false negative cases. The overall accuracy of cytological diagnosis was 93.2%. The sensitivity of diagnosis by aspiration cytology was 88.2%.

The correlation of aspiration cytology and histological diagnosis is given in table II.

**Table II: Correlation of Aspiration Cytology and Histological Diagnosis**

<i>Cytological Diagnosis</i>	<i>HISTOLOGICAL DIAGNOSIS</i>				
	<i>Non-specific Inflam- mation</i>	<i>Tuber- culosis</i>	<i>Non- Hodgkin Lymph- homa</i>	<i>Hodg- kin's Dis- ease</i>	<i>Metas- tatic Car- cinoma</i>
Scanty Material	—	—	—	1	—
Normal	13	11	—	1	—
Necrosis	6	10	—	—	—
Non-Hodgkin's Lymphoma	—	—	5	—	—
Hodgkin's disease	—	—	—	3	—
Metastatic Carcinoma	3	—	—	—	6
<b>Total:</b>	<b>22</b>	<b>21</b>	<b>5</b>	<b>5</b>	<b>6</b>
<b>Grand Total:</b>	<b>59</b>				

The subtyping of benign lesions of lymph node was not attempted in this study. In all cases of lymphomas (5 cases) cytological diagnosis was confirmed by histology. In 3 out of 5 cases Hodgkin's disease was diagnosed on aspiration cytology. In one case scanty material was obtained on aspiration for cytology. This case turned out to be nodular sclerosis type of Hodgkin's disease on histology. The other false negative case showed mixed cell population and no Stern-berg-Reed cells. The subtyping of Hodgkin's disease was not attempted.

Metastatic carcinoma was confirmed in 6 cases on histology while one false positive case later showed carcinoma of posterior 1/3 of tongue on histology. So only two false positive cases are seen.

### **Discussion**

Although this series is small but the results tabulated amply show that fine needle aspiration biopsy is a

useful diagnostic adjunct to conventional method of diagnosis e.g., surgery.

In medical practice where histopathology facilities are not available or the surgical work load is so much that biopsies get delayed this simple procedure can help to establish a morphological diagnosis. This is however, the preferable method of establishing a morphological diagnosis in cases with a known histologically confirmed malignancy where lymph nodes metastasis are suspected. For example, after radical mastectomy if lymph nodes appear in the neck then it is preferable to do aspiration biopsy rather than surgery.

The diagnosis of Non-Hodgkin's lymphomas when well-differentiated can pose problems of diagnosis because many mature looking lymphocytes are seen. The diagnosis of less well differentiated lymphomas is comparatively easy. The subtyping of lymphomas according to WHO classification was also possible in all cases. To differentiate between nodular and diffuse type is however, not possible from aspiration biopsy.

The diagnosis of Hodgkin's disease is simple when Sternberg-Reed cells are present on smear. In their absence the diagnosis of Hodgkin's disease becomes impossible as other cells are present in chronic inflammation also.

Aspiration biopsy is a simple procedure which can be carried out in minimum period of time in an office or outpatient department. No elaborate arrangements are required. It causes least discomfort and patient acceptability is excellent.

Complications of this procedure like bleeding and haematoma formation are rare. In rare instances the extension of infection along needle tract or general dissemination has been reported (Bangle, 1961). The extension of tumour along needle tract or general dissemination has mostly been reported after a thick bore needle biopsy e.g. Vim-Silverman needle (Crile and Hazard, 1951; Ackerman and Wheat, 1955; Clarke et al., 1953).

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It is thus, suggested that in all cases of suspected malignant involvement of lymph node, aspiration biopsy should be considered as a preliminary diagnostic method before resorting to more aggressive methods like surgery.

## References

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