Lymph Node Biopsy in Infants and Children

A New Bedside Method

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Bhandari, B., and Jain, A. M. (1970). *Archives of Disease in Childhood*, **45**, 510. **Lymph node biopsy in infants and children: a new bedside method.** 134 needle biopsies of lymph nodes were carried out in 125 children using the Menghini needle. Biopsy was successful in 84% of cases. The method is practicable at the bedside and in the out-patient department. There were no significant complications. Histopathological findings were consistent with the diagnosis of tuberculosis in about 50% of the biopsies. In others chronic lymphadenitis, acute pyogenic lymphadenitis, and Hodgkin's disease were diagnosed. This is a simple, safe, quick, and minimally traumatic diagnostic method in lymphadenopathies, and is advocated for routine use before submitting the patient for surgical excision of a gland.

Lymph nodes, which are involved in various diseases, offer an excellent and easily accessible tissue for diagnostic purposes. There have been reports of aspiration biopsy of lymph nodes by hypodermic injection needle (Bernhard *et al.*, 1956; Dajani, Garcia, and Wolinsky, 1963; Stich, 1962) and by the Vim-Silverman biopsy needle (Crile and Vickery, 1952; Chandalia, 1960). Since Menghini's biopsy needle is claimed to be safer for biopsy purposes, and cut biopsy is more useful than aspiration biopsy (Chandalia, 1960), we extended the use of this liver biopsy needle to lymph nodes.

Patients and Methods

One hundred and twenty-five patients (7 months to 15 years) with lymph node enlargement of varied aetiology attending the paediatric services of the General Hospital, Udaipur, were subjected to lymph node biopsy by the Menghini needle, at the bedside or in the out-patient department.

The technique is modified from that used for liver biopsy (Menghini, 1958; Hong and Schubert, 1960).

Biopsy tray. The contents of the biopsy tray are as follows. Menghini biopsy needle 1.4 mm.; rubber tube 6-8 mm. diameter, 35 cm. long, preferably collapsible; 2.5 cm., 23-gauge hypodermic needle; 2 ml. luer lock syringe; 10 ml. all glass syringe; Bard Parker scalpel curved blade No. 12, gauze pieces, towel, iodine, and spirit swabs.

Premedication. Usually no premedication was given except in a very hyperreactive child, where intramuscular chlorpromazine 2 mg./kg. was given half an hour before.

Selection of gland. The gland selected should preferably be larger than 1 cm. in diameter, superficial, and easy to grasp between fingers and thumb. A very large gland with a soft, pulpy centre is not a good choice, as this will often contain caseous material or pus, making histological diagnosis difficult. In such a situation a peripheral gland from a group of nodes is preferred. Glands near large superficial veins may be carefully biopsied.

Preparation of equipment. The 2 ml. syringe is filled with 1% procaine, and the 10 ml. syringe with isotonic saline. One end of the rubber tube is connected to the 10 ml. syringe, and the other to the Menghini needle, keeping the obturator in the needle. Saline is pushed till it spurts out of the needle. A vial containing formosaline is kept ready for receiving the biopsy piece.

Taking biopsy. The skin is prepared and a small procaine wheal is raised over the gland to be biopsied. A nick about 3 mm. long is made in the skin. The operator takes the Menghini needle in one hand and holds the node firmly between the finger and thumb of the other. The assistant handles the syringe. The operator inserts the needle through the incision into the subcutaneous tissue till he reaches the capsule of the gland. The assistant now pushes 0.5 ml. saline to clear

the needle of any skin or tissue plugs, and then creates negative pressure by withdrawing the plunger by 2-3 ml., or till the rubber tube collapses due to vacuum. The needle is now inserted into the firmly held gland and withdrawn. Negative pressure is maintained until the biopsy needle is dipped into the surface of formosaline in the vial so that the biopsy piece will not fall out. The pressure is now released and a few drops of saline expelled to push the piece of node into the vial. If no piece is obtained the procedure can be repeated.

Results

One hundred and thirty-four lymph node biopsies were performed on 125 children. The group of lymph nodes biopsied was cervical in 115, axillary in 8, and inguinal in 2 children. The size of the lymph nodes biopsied ranged from 1 to 5 cm. The length of the lymph node tissue obtained varied from 4 to 15 mm. Out of the 134 biopsies performed, pieces good enough for histopathological study to arrive at a definite diagnosis were obtained on 94 children at the first attempt, on 14 children at the second, and on 5 at the third attempt. Biopsy pieces obtained were inadequate to make any definite diagnosis on 2 children, and on another 9 necrosed caseated material was aspirated. No lymph node tissue could be obtained on 10 occasions. Thus the success rate was 84%.

None of these children required heavy sedation. The time spent on the procedure was only a few seconds. None of them had severe pain during or after the procedure. The post-biopsy period and recovery were uneventful. None of them developed any serious complications. Only one child had bleeding from the biopsy site which lasted for about 15 minutes and then stopped; another two developed cellulitis which was controlled by appropriate antibiotics. None of them developed a sinus tract, though in many biopsy was taken from caseating nodes.

The Table shows the results of histopathological examination of the biopsy material.

Discussion

In search of a simpler, safer, and quicker procedure than excision biopsy of the lymph nodes, workers in the past have tried aspiration of lymph nodes with hypodermic needles (Bernhard *et al.*, 1956; Stich, 1962; Dajani *et al.*, 1963). But when aspirated material is smeared and examined, it loses its original architecture, and histological interpretation is difficult. Bernhard *et al.* (1956) failed to aspirate any material in about 40% of the cases.

TABLE
Results of Histopathological Examination

Histopathological Diagnosis	No. of Cases
Tuberculous lymphadenitis	64
Chronic lymphadenitis	35
Caseated and necrosed material	9
Acute pyogenic lymphadenitis	8
Normal lymph node tissue	4
Hodgkin's disease	2
Tissue inadequate for diagnosis	2
No lymph node tissue in piece	10
Total	134

Hence, a piece of lymph node tissue is required. The Menghini biopsy needle, which is claimed to be better than the Vim-Silverman needle (Menghini, 1958; Hong and Schubert, 1960; Sherlock, 1963), was used in this study. This method preserves the architecture of the lymph node for histological examination.

The results of the present study with a success rate of 84%, and without significant complication, are certainly encouraging. The procedure appears to be simple, safe, and does not require strong sedation or general anaesthesia. It can be performed at the bedside and in the out-patient department quickly and with a minimum of trauma to the lymph node, the child, and the parents.

The absolute failures in the present study were mainly because of the small size of the node. The partial failures were mainly due to aspiration of caseated and necrosed material. However, this drawback can be overcome by avoiding biopsy from large soft glands, and by selecting peripheral glands if a group of nodes is enlarged. Even when necrosed and caseated material is obtained in spite of these precautions, it should be submitted for histopathological examination, special staining, and culture.

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