Lymph Node Biopsy in Infants and Children

A New Bedside Method

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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
etiology 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 weal 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
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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.

Table: Results of Histopathological Examination

<table>
<thead>
<tr>
<th>Histopathological Diagnosis</th>
<th>No. of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculous lymphadenitis</td>
<td>64</td>
</tr>
<tr>
<td>Chronic lymphadenitis</td>
<td>35</td>
</tr>
<tr>
<td>Caseated and necrosed material</td>
<td>9</td>
</tr>
<tr>
<td>Acute pyogenic lymphadenitis</td>
<td>8</td>
</tr>
<tr>
<td>Normal lymph node tissue</td>
<td>4</td>
</tr>
<tr>
<td>Hodgkin’s disease</td>
<td>2</td>
</tr>
<tr>
<td>Tissue inadequate for diagnosis</td>
<td>2</td>
</tr>
<tr>
<td>No lymph node tissue in piece</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>134</strong></td>
</tr>
</tbody>
</table>

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.

We thank Professor R. P. Chaturvedi, Principal, R.N.T. Medical College, and Professor S. V. Singh, Medical Superintendent, General Hospital, for their permission to carry out and publish this work; Professor O. P. Gupta, for histopathological reports, and Drs. L. N. Shrimali, A. Punjwani, S. K. Kulkshrestha, and R. Upadhayay for their skilled assistance.

References


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