

LIVER BIOPSY

by

VICTOR CAPTUR M.D., B.Sc.

Demonstrator in Medicine, Royal University of Malta.

Consultant in Cardiology, King George V. Memorial Hospital.

The diagnosis of liver disease is still in many instances more easily made by chemical and simple laboratory methods than by other time-consuming tests because almost no liver function test measures basic function, and because most liver diseases comprise several basic pathological processes which influence the tests in different ways.

It would seem logical, therefore, that the best way to understand the pathological changes brought about directly or indirectly by disease is by visual study under the microscope of the morbid anatomy, whether it is degeneration, inflammation, cirrhosis or secondary changes brought about by systemic diseases.

The first attempt at liver puncture was made by Lucatello in 1895 who published his findings in the *Atti Congresso Società Italiana di Medicina Interna* (Vol. 6 — 327), but it was not before 1939 that the technique was perfected in Sweden by Iversen and Roholm and later by Sheila Sherlock and her associates at the Post-graduate Medical School of London.

In most liver diseases pathological changes are uniform through the whole organ and the histological findings in one small piece of liver tissue are representative of the whole. Aspiration biopsy may be the only way of making a diagnosis when physical and biochemical investigations have failed to establish a diagnosis.

It is neither justifiable nor desirable that liver puncture be performed on every case of liver disease but it should be reserved only for those cases where the diagnosis is obscure e.g. compensated cirrhosis, giving rise to mild symptoms is difficult to diagnose with certainty unless a liver biopsy is done.

In obscure diseases of the blood and in unexplained hepatomegaly liver biopsy can supply valuable information. By this technique it has been possible to establish the diagnosis in cases of Gaucher's disease, von Gierke's disease, reticulosis, sarcoidosis, and secondary metastases in the liver.

TECHNIQUE

Great care in the choice of patients should be taken since liver puncture is not without danger. The technique described is the one most commonly used and which we follow in our wards.

The bleeding, clotting and prothrombin times are estimated and Vitamin K given if the prothrombin time is less than 70%. If the patient is jaundiced 20 mg. are injected i.v. — if not, 10 mg. are given orally t.d.s. for 3 days. The patient's blood group is determined and compatible blood must be at hand. If ascites is present preliminary abdominal paracentesis is done. Nervous patients should be given a sedative and if the patient is absolutely incooperative puncture is not done because of the risk of tearing the liver.

The patient lies flat with his right side as near the edge of the bed as possible. The right hand is placed behind the head. The skin over the ninth intercostal space in the mid-axillary line is cleaned with antiseptic and infiltrated with procaine. The pleura is also infiltrated. A nick is then made in the skin. The patient is instructed to take a deep breath in, to blow it out, and then to hold his breath.

This is practised repeatedly until the patient understands what is required of him.

While the patient holds his breath the Vim-Silverman needle is introduced to

about one cm. in the liver parenchyma and the cutter rotated rapidly to 120 degrees and withdrawn. The fragment of liver tissue is found between the teeth of the cutter. The time taken should not exceed ten seconds.

Absolute rest in bed for 24 hours is necessary and the pulse rate recorded hourly during this time. An increase may indicate bleeding, which if severe, should be treated by blood transfusion. The patient may complain of pain in the hypogastrium, pleural pain, a pain in the right shoulder referred from the diaphragm, which is controlled with analgesics and sedatives.

RISKS OF NEEDLE BIOPSY

These have been summarised by Richard Terry from St. Bartholomew Hospital London on the basis of his own, and over 10,000 other biopsies reported since 1939. In this series the mortality rate was 0.12% (i.e. 13 deaths).

Fatal haemorrhage occurred in eleven patients with a hopeless prognosis. One patient died of biliary peritonitis and another of shock. With regard to complications significant bleeding resulted in 16 patients; laparotomy was necessary in four, transfusion alone in three and expectant treatment in nine.

Pneumothorax appeared five times but does not seem a significant complication.

PRECAUTIONS TO BE TAKEN:

Liver puncture is contraindicated in:—

1. Unresponsive haemorrhagic states.
2. Pyogenic infection of the liver.
3. Severe anaemias.
4. Senile patients.
5. Long-standing obstructive jaundice.
6. Pleural or basal infection.

Given the potential danger of the procedure are we justified in submitting the patient to liver puncture — this being only a diagnostic and not a therapeutic procedure?

We think that it should be resorted to only when clinical and biochemical data fail to help in the diagnosis. Even the most experienced clinician is occasionally faced with a dilemma and it is in such cases that liver biopsy has its greatest value — and unless there are definite contraindications should not be withheld.

It must be noted that tremendous progress in the study of liver pathology has been made since the introduction of biopsy. In fact, American military authorities (medical) have found that needle biopsy was the most reliable single test for the diagnosis of virus hepatitis.

Very recently liver biopsy has opened a new phase in research of liver function, i.e., by means of data obtained by puncture we can estimate the reliability of function tests, and the correlation between laboratory tests and liver damage.

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