a high thyroïdal uptake of ^{131}I which remained practically steady during the four days of observation, with a correspondingly low urinary excretion of the tracer. During the first two days the total plasma

Investigations in Clinically Euthyroid Mother of Non-endemic Goitrous Cretins

	Total Plasma ^{131}I (% of Dose l.)	P.B. ^{131}I (% of Dose/l.)	Non-butanol-soluble ^{131}I (% of Dose l.)
24 hr. . .	0.1	0.068	0.033
48 " . .	0.1	0.066	0.021
72 " . .	0.19	0.184	0.054
96 " . .	0.26	0.255	0.066

activity was in the low normal range, but, instead of decreasing further, it rose steadily to abnormally high values during the next two days. The conversion ratio was high normal to high. The percentage of the butanol-insoluble fraction was abnormally high throughout. A

FIG. 2.—Thyroidal ^{131}I uptake curves of mother and son.

paper chromatographic separation of the circulating iodine compounds at 24, 48, 72, and 96 hours, performed by the ascending technique with butanol-dioxane-ammonia (Gross, 1954), gave normal results.

Conclusion and Summary

Tracer studies with ^{131}I revealed in the clinically euthyroid but, on appearances, cretinoid mother of three goitrous cretins the following abnormalities: a high thyroïdal uptake which hardly decreased during two observation periods of four days each, with a correspondingly low urinary excretion, a steady increase of total plasma activity during the same time, a high normal to high conversion ratio, and an abnormally low butanol solubility of the circulating iodine compounds.

These findings are in surprising agreement with the results of corresponding studies in one of her affected offspring performed at six, seven and a half, and nine months of a therapy-free remission which was induced by the short-term administration of unphysiologically large quantities of thyroid substances (Zondek *et al.*, 1961). Although some qualitative and quantitative differences are apparent, the general trend is the same in the permanently and endogenously euthyroid mother and in the son whose severely disordered thyroid function was set in motion by the above-described "stosstherapy."

A similar uptake pattern was also evident in the other two affected and similarly treated sibs during their remissions (Zondek *et al.*, 1958, 1959).

REFERENCES

- Gross, J. (1954). *Brit. med. Bull.*, **10**, 218.
 Zondek, H., Leszynsky, H. E., and Zondek, G. W. (1958). *Acta endocr. (Kbh.)*, **29**, 47.
 ——— (1959). *Brit. med. J.*, **1**, 340.
 ——— (1960a). *Arch. intern. Med.*, **106**, 15.
 ——— and Stein, J. A. (1960b). *Nature (Lond.)*, **187**, 515.
 ——— Zondek, G. W., Stein, J. A., and Guttmann, S. (1961). *Brit. med. J.*, **1**, 97.

PUNCH BIOPSY OF THE PERITONEUM

BY

L. R. SARIN, M.B., M.R.C.P.Ed.
Professor of Clinical Medicine

S. R. MEHTA, M.D.
Lecturer in Medicine

AND

J. C. SARIN, M.D., D.T.M.
Reader in Pathology

*Department of Medicine and Department of Pathology,
 S.M.S. Medical College, Jaipur, India*

DeFrancis *et al.* (1955) described a technique, using the Vim Silverman needle, for obtaining parietal pleural biopsy in pleural effusion. Donohoe *et al.* (1959) applied a similar approach to the study of patients with intra-abdominal disease with ascites. They described a technique, also using Vim Silverman needle, for obtaining peritoneal tissue in cases of ascites.

In our hospital we have used the Harefield pleural punch biopsy needle (Fig. 1), devised by Leon D. Abrams (1958), which enabled us to perform paracentesis of the ascitic fluid and punch biopsy of the

FIG. 1.—Abram's needle. A, Stylet; B, Inner concentric tube; C, Outer concentric tube; D, Notch; E, Back hexagonal grip; F, Knob; G, Trocar point; H, Cutting edge; I, Pin; J, Oblique slot; K, Spring clip to hold pin.

peritoneum in one operation. The technique, its indications and limitations, and the results, together with some case reports, form the basis of this report.

Technique

The patient is placed in the position used for routine paracentesis. The site chosen is prepared in the usual manner. The skin and subcutaneous tissue down to the peritoneum is infiltrated with 1% procaine hydrochloride. A tiny transverse incision is made in the skin, and the punch is introduced with the notch closed and the stylet in position. At this stage the patient is encouraged to increase intra-abdominal pressure further. The stylet is removed after entering the peritoneal cavity and the back hexagonal grip is twisted anticlockwise to open the notch. Ascitic fluid is collected for physical, chemical, cytological, and bacteriological examinations. After the collection of ascitic fluid the punch is slowly withdrawn until the fluid just ceases or just trickles. This theoretically places the edge of the notch at the level of the peritoneum. The punch is then held firmly against the abdominal wall, the back hexagonal grip twisted sharply clockwise, and the punch withdrawn. Finger pressure for two or three minutes stops any bleeding from the puncture. The biopsy specimen is found either in the hollow point or inside the cutting cylinder.

Results

Punch biopsy of the peritoneum was performed in 23 cases. An adequate specimen of the peritoneal tissue could be obtained in 21 out of 25 attempts. Failure to obtain a specimen occurred in patients having minimal ascites, in whom no fluid was obtained during the puncture. The failure in these cases could be ascribed to the difficulty of locating by puncture the level of peritoneum in the absence of fluid. Figs. 2-4 show sections of tissue obtained by punch biopsy of the peritoneum.

No complications were encountered in any patient.

The accompanying Table summarizes the results obtained in all cases.

Provisional Clinical Diagnosis	No. of Cases	No. of Biopsy Attempts	No. of Cases in which Adequate Peritoneal Tissue was Obtained	Results and Remarks
Cirrhosis of liver	7	8	7	4 had congestion of vessels and mesothelial hyperplasia. 1 had congestion of vessels. 1 had normal peritoneal tissue. 1 had A.F.B. lesion
Tuberculous abdomen	8	9	6	Histological confirmation of diagnosis made in 3. Normal in 3. Failure to obtain specimen in 2
Congestive heart failure (cor pulmonale)	3	3	3	All specimens had non-specific changes—viz., dilatation and marked congestion of vessels
Peritoneal metastases	2	2	2	Histological confirmation of metastases in peritoneum obtained in both cases
Budd-Chiari syndrome	1	1	1	Normal peritoneum
Ascites of unknown aetiology	1	1	1	A.F.B. lesion demonstrated in peritoneal tissue, thus enabling diagnosis of tuberculous peritonitis in case presenting with ascites, hepatomegaly, and anaemia
Amyloidosis	1	1	1	Normal peritoneum

Case Reports

Case 1.—A Hindu woman aged 50 was admitted to hospital complaining of abdominal pain and distension, anorexia, and loss of weight for the previous 10 weeks. Her history did not contain anything significant. Physical examination revealed massive ascites, and a firm, non-tender, smooth mass could be palpated in the posterior fornix of the vagina. Nothing abnormal was detected in the rest of the systemic examination. Laboratory examination: the blood, urine, stool, and liver-function tests were within normal limits, except an elevated blood sedimentation

FIG. 2.—Photomicrograph of section of normal peritoneal biopsy showing thin mesothelial lining, underlying connective tissue, and muscle fibres. (H. and E. $\times 80$.)

FIG. 3.—Section showing deeply stained carcinomatous tissue, seen at lower left corner of photomicrograph, obtained by percutaneous peritoneal biopsy. (H. and E. $\times 80$.)

FIG. 4.—Section of tissue obtained by peritoneal biopsy showing tuberculous granulation tissue. Acid-fast bacilli were seen on staining by Ziehl-Neelsen method. (H. and E. $\times 100$.)

rate (90 mm./hour, Westergren). Ascitic fluid was haemorrhagic, having a specific gravity of 1016 and 2.4 g. of protein per 100 ml.; cytological examination by Papanicolaou's technique revealed class I cells. Peritoneal biopsy disclosed an anaplastic malignant growth, some cells showing evidence of mucus secretion.

Case 2.—A Hindu man aged 25 was admitted to hospital complaining of distension of the abdomen and anorexia for two months. His previous history did not reveal anything significant. Liver-function tests were slightly abnormal (T.T. 4 units, T.F. +) and the liver biopsy obtained by Vim Silverman needle confirmed the diagnosis of portal cirrhosis. Ascitic fluid had a specific gravity of 1020, 5.1 g. of protein per 100 ml., and 20 lymphocytes per c.mm. A peritoneal biopsy specimen revealed granulation tissue composed of epithelioid cells, giant cells, and caseation. Acid-fast bacilli were demonstrated in the peritoneal tissue section by Ziehl-Neelsen method of staining.

Case 3.—A Mohammedan woman aged 20 was admitted to hospital complaining of loss of appetite, low-grade pyrexia, and loss of weight for 25 days. Her previous history did not reveal anything significant. Physical examination showed glandular enlargement in the left side of the neck and minimal ascites. A skiagram of the chest was normal. A follow-up barium-meal study revealed ileal stasis, and adherent terminal ileal loops which were tender. The peritoneal biopsy showed an accumulation of epithelioid cells arranged in a follicular pattern and the presence of caseation necrosis. Acid-fast bacilli could be demonstrated in the peritoneal tissue by the Ziehl-Neelsen method of staining.

Case 4.—A Hindu woman aged 30 was admitted to hospital complaining of distension of the abdomen and weakness for two and a half months. Her previous history did not contain anything significant. Physical examination revealed ascites, hepatomegaly, and slight anaemia. Systemic examination did not show any other abnormality. Liver-function tests were normal and liver biopsy did not reveal any specific disease. Ascitic fluid was slightly haemorrhagic and probably exudative. The peritoneal biopsy revealed epithelioid cell follicles, some showing slight caseation, and acid-fast bacilli could be demonstrated by the Ziehl-Neelsen method of staining.

Comments

The procedure of obtaining punch biopsy of the peritoneum by the Harefield needle appears to be simple and safe. However, the potential dangers attending this procedure are similar to those associated with abdominal paracentesis—that is, haemorrhage, perforation of the bowel, infection, and the spread of malignancy. These should be kept in mind while performing the punch biopsy of peritoneum.

Peritoneal biopsy confirmed the diagnosis in three out of six clinically suspected cases of tuberculous abdomen, and it enabled the diagnosis of tuberculous peritonitis to be made in two unsuspected cases presenting with portal cirrhosis (Case 2) and ascites (Case 4). It is felt that peritoneal biopsy may provide an important tool for making a firm diagnosis of tuberculous peritonitis where other conventional methods usually are inadequate.

The procedure was found useful in investigation of the cases presenting with ascites. It is best exemplified in Case 4, where peritoneal biopsy clinched the diagnosis of tuberculous peritonitis when other methods—namely, clinical, ascitic fluid, liver-function, and liver biopsy examinations—failed to establish the diagnosis. The procedure was also found useful in the diagnosis of peritoneal metastases. The limitations of this procedure should, however, be borne in mind. Firstly, as in other punch biopsies, peritoneal biopsy can only reflect the

histological changes demonstrable in the focal area from which the biopsy is obtained, and hence false-negative results may be obtained. Secondly, the serous membranes often reflect no histological changes or those of a non-specific nature when involvement of membrane *per se* either does not exist or is not diffuse.

Our preliminary experience suggests that needle biopsy of the peritoneum often provides a rapid and accurate diagnosis, sometimes when other methods have failed, and in combination with other routine laboratory investigations may allow a firm diagnosis to be made in a larger number of cases presenting with ascites than would otherwise be possible.

Summary and Conclusions

Twenty-three patients with varying disease and ascites were subjected to punch biopsy of the peritoneum, using the Harefield needle.

The procedure is simple and safe. An adequate specimen of the peritoneal tissue could be obtained in 84% of cases. Failure to obtain an adequate tissue was observed in cases having minimal ascites, in which no fluid was obtained during the puncture.

No complications were encountered in any patient.

Our preliminary impressions suggest that the procedure is useful in investigation of ascites and tuberculous abdomen with peritoneal involvement, and in the diagnosis of peritoneal metastases.

REFERENCES

- Abrams, L. D. (1958). *Lancet*, **1**, 30.
DeFrancis, N., Klosk, E., and Albano, E. (1955). *New Engl. J. Med.*, **252**, 948.
Donohoe, R. F., Shnider, B. I., and Gorman, J. (1959). *A.M.A. Arch. intern. Med.*, **103**, 739.

CARDIOMEGALY IN A NEWBORN DUE TO PLACENTAL CHORIOANGIOMA

BY

P. F. BENSON, M.B., B.S., M.R.C.P., D.C.H.
Senior Registrar

AND

M. C. JOSEPH, M.D., M.R.C.P., D.C.H.
Assistant to the Director

Department of Child Health, Guy's Hospital, London

Enlargement of the heart resulting from a high cardiac output may be caused by abnormal arteriovenous communications (Holman, 1923; Cohen *et al.*, 1948; Wood, 1956). We describe the case of a newborn infant in whom cardiac enlargement was probably caused by a vascular shunt through a large placental chorioangioma.

Case Report

The mother was 33 years of age and in good health; she had had four normal full-term infants and two abortions. Routine antenatal care for the present pregnancy began at the nineteenth week of gestation. At this time she had no symptoms, physical examination was negative, the height of the fundus uteri was compatible with 18 weeks' gestation, and her blood-pressure was 100/66. Her haemoglobin was 12.6 g./100 ml. (81%), and her urine was free from albumin and sugar. Foetal movements were first noticed at 22 weeks of pregnancy. She was perfectly well when seen at the 24th and 29th weeks. At 31 weeks and again eight days later