should be noted, however, that in this type of case the irritant is a different compound of silicon from that present in talc. Even then one was hesitant to accept the present case as being siliceous, in view of the short period of five months between the appendicectomy, when presumably the talc was introduced, and the subsequent discovery of a tubal granuloma. Walker (see below) has now shown that in seven weeks a siliceous granuloma can produce a firm peritoneal adhesion, and Mackey and Gibson (see p. 1077) describe a florid granulomatous lesion developing within two weeks of implantation of talc. Thus in the present case, with its five-months interval, one is justified, I believe, in accepting the anisotropic crystals in the giant-cell granuloma as proof of the siliceous origin. A further argument against the tuberculous nature of the granulomata lies in the fact that there were macroscopically similar nodules in the left tube, which was left *in situ*. If these had been tuberculous or, indeed, neoplastic in nature, it is reasonable to expect that clinical evidence to that effect would have presented itself by now.

Summary

A further case of siliceous granuloma of the Fallopian tube is reported. The patient had undergone appendicectomy five months prior to hysterectomy for carcinoma of uterus. Microscopy reveals the presence in the Fallopian tube of a pseudo-tuberculous granuloma with giant cells containing doubly refractive material, almost certainly surgical talc.

A granuloma similar in histological structure but without discoverable crystals is present in the uterus alongside the carcinoma.

I have pleasure in thanking Dr. Jean Herring for the clinical data, Messrs. Corkhill and Fraser for their technical assistance, and Prof. Lendrum for the photography and his help with this paper.

REFERENCES

- Roberts, G. B. S. (1947). *Brit. J. Surg.*, **34**, 417.
Smith, G. H. (1945). *J. Obstet. Gynaec. Brit. Emp.*, **52**, 189.

SILICEOUS GRANULOMA DUE TO SURGICAL TALC AS A CAUSE OF PERITONEAL ADHESION

BY

WILLIAM WALKER, M.A., M.B.

(From the Department of Pathology, University of St. Andrews
and the Royal Infirmary, Dundee)

[WITH PHOTOGRAPHURE PLATE]

The following case is reported to show that a single small post-operative peritoneal adhesion can follow the use of talc.

Case Report

A woman aged 58 had a strangulated left femoral hernia for which Lotheissen's operation was performed on Dec. 24, 1947. The sac contained strangulated small bowel and omentum. The former was delivered into the peritoneum, and after application of hot packs was considered to be viable. The omentum was excised and the hernial orifice closed. The patient did well until Feb. 6, 1948, when she developed symptoms first of acute obstruction and then of perforation. On admission to hospital on Feb. 10 she was *in extremis* and died within two hours despite restorative therapy.

The necropsy findings were general peritonitis and an obstruction of the small bowel due to adhesion and kinking 5 ft. (1.5 metres) from the ileocaecal valve. The mesenteric border of the ileum was doubled back on itself for some 6 in. (15 cm.) of its length, producing a U-shaped kink, the limbs of the U being firmly adherent to each other. The proximal limb of the U was grossly distended above the obstruction, and perforation had occurred through a gangrenous portion of its wall.

There was no recurrence of the hernia. Histological investigation of the zone of adhesion reveals a fibrous fusion (see Plate, Fig. 1) in which there are giant cells containing anisotropic crystals. In the giant cell shown (Fig. 2) as photographed through partially crossed "Polaroid" screens, the mass of talc enclosed in the cell has been slightly displaced, as so often happens during the cutting of a section.

In view of the history, the impression at necropsy was that the adhesion had probably arisen in the portion of the bowel involved in the earlier hernia. However, the recent interest in talc as a cause of siliceous granuloma (Roberts, 1947) led to the microscopical examination of the adhesion. The fact that in the giant cells in this area there are doubly refractive acicular crystals makes it highly probable that talc introduced at the previous operation was in fact the origin of the adhesion. The lesion is slightly older than that described by Mackey and Gibson (see p. 1077), and differs in being a solitary focus.

Summary

Histological examination of a single peritoneal adhesion, observed seven weeks after a previous laparotomy, shows the reaction of siliceous granuloma with anisotropic crystals in the giant cells, probably surgical talc.

This small circumscribed lesion resulted in death.

I have pleasure in acknowledging the assistance of Prof. Lendrum and Mr. J. W. Corkhill with the photography, and of the former in the preparation of the paper.

REFERENCE

- Roberts, G. B. S. (1947). *Brit. J. Surg.*, **34**, 417.

THE LIVER IN INFECTIVE HEPATITIS*

BY

K. DAMODARAN, M.B., B.S.

Major, R.A.M.C.

[WITH PHOTOGRAPHURE PLATE]

This paper is based on the post-mortem findings on 17 cases of infective hepatitis—15 of them in Indians. The patients were admitted to four different military hospitals during 1943–7. The liver showed acute necrosis in eleven and subacute necrosis in five. The last case was under observation for hepatitis without jaundice during an epidemic of infective hepatitis in Malta.

Acute Necrosis

The onset of acute necrosis is sudden. It usually occurs within ten days after admission. In an average case of infective hepatitis the only warning, perhaps, is the presence of albumin in the urine. Mental irritability, vomiting, and stupor usher in cholaemia. Cheyne-Stokes breathing, coma, and pyrexia supervene, and the patient usually dies in three days. A marked diminution in liver dullness can be made out on percussion and the right lateral thoracic vein may be distended. There may be a significant fall in the serum proteins, especially albumin.

Case History

The patient from whom the specimen for the photomicrograph (Plate, Fig. 1) was taken was an Indian aged 22. He was admitted to hospital as an uncomplicated case of infective hepatitis in February, 1944. On the fourth day after admission he became semiconscious and irritable. The urine contained albumin, bile salts, bile pigments, and tyrosine crystals. Two days later he died. At the post-mortem examination the external appearance was that of deep jaundice. There were a

*A review of 450 cases of infective hepatitis by Damodaran and Hartfall appeared in the *British Medical Journal* dated Nov. 4, 1944 (p. 587). The reader is referred to that article for a better understanding of this paper.

SILICEOUS GRANULOMA DUE TO TALC

W. A. MACKEY AND J. B. GIBSON

FIG. 1.—Section of wall of Meckel's diverticulum ($\times 35$). Dense fibrous tissue has replaced subserous fat. Complex of giant cells surrounds talc particles centrally and at serous surface.

G. HARVEY SMITH

FIG. 1.—Partly crossed "polaroid" screening shows mass of doubly refractive material with cellular reaction under serosal surface of Fallopian tube.

FIG. 2.—Syncytial giant-cell reaction enclosing talc particles ($\times 200$).

FIG. 3.—Same field as Fig. 2 seen through partially crossed "polaroid" screens.

FIG. 2.—Partly crossed "polaroid" screening of granulomatous lesion in wall of Fallopian tube. Note histological similarity to tuberculosis. Two giant cells show doubly refractive masses of talc.

WILLIAM WALKER

FIG. 1.—Adhesion between two loops of small intestine, one obviously hypertrophied. Thin collagenous fusion zone only slightly cellular, but giant cells are present ($\times 8$).

FIG. 2.—Partly crossed "polaroid" screening shows multinucleated giant cell containing doubly refractive material, slightly displaced ($\times 250$).

F. R. MAGAREY AND P. H. DENTON: TORULA
HISTOLYTICA INFECTION OF CENTRAL NERVOUS
SYSTEM

FIG. 1.—*Torula histolytica* in section of meninges ($\times 130$).

FIG. 2.—Torula body in subependymal giant cell ($\times 720$).