CLOSURE OF ABDOMINAL INCISIONS.

BY

F. STRONG HEANEY, M.A., M.D., F.R.C.S.I.,
HONORARY SURGEON, LIVERPOOL STANLEY HOSPITAL.

THE high incidence of faulty wound union in abdominal incisions leaves ample scope for improvement in the technique of closing the abdomen.

A recent American writer¹ found that faulty union occurred in 12 per cent. of clean abdominal wounds closed with absorbable sutures. In contaminated wounds, closed in the same manner, the percentage rose to 80 per cent. These figures, he found, could be considerably reduced by using for the fascial layer a continuous suture of twisted silk. The suture was passed through the skin beyond the extremities of the wound, and could thus be removed at a later date. Continuous silk, even though removable, is *prima facie* not the suture of choice in contaminated wounds.

Many surgeons have advocated and used the "figure of 8" silkworm-gut suture for the same purpose. The small deeper loop of the "8" takes in its bight the essential layer—that is, the fascia of the linea alba or other fascial layer concerned—while the larger superficial loop is joined over the skin and encloses all the tissues superficial to the fascia.

This suture has many disadvantages; three may be mentioned:

(1) The smaller deeper loop can only be made effective by tying the suture so tightly as to strangle the bulky tissues in the bight of the superficial loop. For this reason the suture could not be employed for, let us say, a vertical incision in the posterior sheath of the rectus. (2) The hold of the deeper loop on the fascia, wherever situated, rapidly becomes slack owing to the yielding of the tissues enclosed in the large superficial loop. (3) In case of suppuration of the abdominal wall—if the superficial loop is released for drainage purposes the fascial support is sacrificed as well.

These disadvantages can be obviated by tying the ends of the "figure of 8" suture over an oblong wire frame resting on the abdominal wall (Fig. 1). The tension of the

FIG. 1.—Wire frame showing curved cross-bar used when necessary to strengthen sides.

FIG. 2.—Fr.—Cross section of frame.

FIG. 3.—The frame is shown in cross section. For convenience the suture in the anterior and that in the posterior sheath are shown in the same horizontal plane.

suture so tied is approximately constant during the two or three weeks it remains *in situ* (Fig. 2). It can be employed for the posterior sheath of the rectus without damage to the muscle fibres (Fig. 3). In case of suppuration free drainage can usually be achieved by removal of superficial sutures without disturbing the fascial supports which are attached to the frame. The frame, far from

being a discomfort, acts as a splint supporting the abdominal wall in coughing, vomiting, or distension.

For the larger wounds I have found a frame 7 in. by 3 in. made of No. 10 iron wire suitable in size and strength. For smaller wounds 6 in. by 2½ in. in slightly finer wire suffices. (The frames are obtainable from White and Wright, Liverpool.)

For transverse wounds the frame can be moulded by the hand to suit the curve of the abdominal wall. If likely to cause discomfort by pressure on the pubis or rib margin a corner, or the whole end, can be bent away from the bone. The loops at the corners of the frame prevent the terminal sutures slipping off. It may be an advantage in some cases to tie each suture end to its corresponding side of the frame without crossing over the surface.

FIG. 4.

I have sometimes used a modified "figure of 8" suture (Fig. 4) which gives a more secure apposition of the fascia. If this modification is used the silkworm-gut should be severed one or two days before it is actually removed.

I do not know whether the method here described is new; it is certainly helpful, whether ancillary to buried catgut in clean cases or without catgut when the wound has been exposed to contamination.

REFERENCE

¹ Goff: *Surgery, Gynecology and Obstetrics*, December, 1925.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

NEPHRITIS FOLLOWING INFLUENZA.

NOTES ON 100 CONSECUTIVE CASES OF INFLUENZA.

In December, 1926,¹ I reported four cases of acute haemorrhagic nephritis following attacks of influenza, and when the epidemic was at its height, in January, 1927, I examined the urine in 100 consecutive cases as they occurred in practice. They included 10 children up to 14 years of age (Class I in the table); 76 insured patients, mostly tobacco workers (Class II); and 14 patients over 60 years of age (Class III), some working, some at home.

Influenza does not differ from any other acute infection—for example, pneumonia—in its effect on the glomeruli of the kidney; and when the fever is at its height the urine, as a rule, shows a slight haze of albumin, which, however, disappears with the fall of temperature. Four cases in the series, however, were very different.

CASE I.

A man, aged 22, had a severe influenzal cold with sore throat on January 16th (temperature 103.4° F.). On January 17th epistaxis occurred, and on January 18th severe haematuria. He was obviously very ill, restless, temperature 104° F., pallid, and swollen round the ankles and eyes. Albumin was present in the urine in excess, and the deposit showed red blood corpuscles, leucocytes, cell and blood casts, but no pus. He recovered rapidly from the kidney condition, but on January 27th he began to cough up thick jelly-like haemorrhagic sputum and complained of pain in the right chest. This sputum continued until January 30th. Since then he has made uninterrupted recovery and resumed work on March 28th. His previous health had been excellent, there had been no suggestion of a cardiac lesion, and I have no doubt the trouble in the chest was embolic.

CASE II.

A girl, aged 12, developed a severe influenzal attack with tonsillitis on January 6th; this was followed by tenderness over the liver region. Severe vomiting with marked jaundice occurred on January 7th, the urine showing much bile and some albumin. The attack subsided on January 10th, and I was astonished, on examining the urine that day, to find a condition resembling that of Case I—that is, as regards the deposit. This child had a history of rheumatism, and there was well marked mitral disease. She made an excellent recovery.

CASE III.

The mother, aged 48, of Case II contracted influenza a week after (January 13th). She did not complain of tonsillitis, but almost at once developed haematuria. The deposit was similar to, but not so abundant as in Case II, but the albuminuria was more persistent and only cleared up finally on March 22nd.

¹ BRITISH MEDICAL JOURNAL, December 11th, 1926, p. 1118.