

submit to "the horrors they experienced." These patients were seen by me at out-patients as well as privately, and had received E.C.T. in many different hospitals all over England. It could thus not be a question of one particular place or technique.

As the electric shock usually suppresses memories immediately connected with the treatment, I had been unable to elicit any clear account of the subjective sensations complained of, until an intelligent man of 41 recently gave me a graphic description. He was given eight shocks for symptoms of depression, and stated that he felt nothing during the first five. During the subsequent ones, however, he failed to respond to the preliminary thiopentone injection, and remained fully conscious during the administration of "scoline" (suxamethonium chloride). He described the sensation of rising heat as the drug penetrated his body, the stiffening of his muscles, and the sensation of suffocation as the musculature of his neck and throat became involved. His mounting panic was then cut short by the application of the current.

As few patients know what to expect from the treatment, most will no doubt accept such failures as part of it, and won't bring them to the notice of the person administering the preliminaries. After the shock they are unable to recall the experience other than in the form of a vague fear. It is extremely difficult to assess the state of consciousness of many of these patients when being anaesthetized, especially when they are unable to co-operate. Nor do I know of any statistical assessment of individual tolerance to thiopentone and allied drugs. I feel confident, however, that means will be found for avoiding such mishaps in future.—I am, etc.,

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W. E. R. MONS.

Abdominal Wound Dehiscence

SIR,—My experience and, I am sure, that of most surgeons supports the conclusion of Mr. Wilfrid Mills (March 25, p. 899) and Mr. H. A. Kidd (July 15, p. 173) that dehiscence of wounds sutured with catgut is usually due to the catgut breaking, and not to the sutures cutting out of the aponeuroses as stated in your annotation (February 25, p. 568). It is not yet generally realized how unreliable catgut is as a suture material. In a lecture at the British Postgraduate Medical School in 1958 I reported the results of tests on the absorption of catgut in 112 median and paramedian wounds. Irrespective of manufacture, thickness, grading (e.g., 40-day), the catgut suture in the aponeurosis frequently gave way within seven days and in the majority of cases by the ninth day. Furthermore, as your annotation points out, the inflammatory response to catgut causes softening of the tissues; it also delays the acquisition of tensile strength by the wound.¹ When this is coupled with the knowledge that aponeurosis heals at best relatively slowly and has little tensile strength 14 days after incision and suture,² it is not surprising that so many catgut-sutured wounds give way and that many surgeons, recognizing the culprit, have changed to non-absorbable sutures.

Since I introduced its use for buried sutures³ nylon has found favour with many surgeons, but it has the disadvantage that knotting or sharp angulation reduces its tensile strength to 20% of normal. As a result breaking of nylon sutures has been a problem, and I have

found that "courlene X," a toughened polythene made by Courtaulds, is more satisfactory. It retains its high tensile strength when knotted, and my histological tests have shown it to be non-irritant in human tissues. Four years' personal experience with this material for many purposes, including the suture of interatrial septal defects and the ligation of major arteries, has convinced me that it is the best all-round suture and ligature material available at present. For the abdominal aponeuroses I favour quite a thick suture (20/1,000 in.), using my continuous, interlocking loop-suture which is easily removed when the wound has healed soundly (usually about 12 days).

A comparison of 200 median and paramedian wounds sutured thus with 509 similar wounds sutured with catgut showed an 82% reduction in the incidence of complete dehiscence, an 88% reduction in that of incisional hernia, and a 75% reduction in that of infected wounds.

There are many similar reports in the literature showing catgut at a disadvantage compared with various non-absorbable suture materials, and one is prompted to ask, Does any surgeon who has thought about this problem and studied the literature really feel that he is doing the best for his patient by subjecting him to the extra hazards which the use of catgut for suturing abdominal aponeuroses entails, and, if so, why?—I am, etc.,

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HERBERT HAXTON.

REFERENCES

- ¹ Localio, S. A., Casale, W., and Hinton, J. W., *Surg. Gynec. Obstet.*, 1943, **77**, 243, 376.
- ² Douglas, D. M., *Brit. J. Surg.*, 1952, **40**, 79.
- ³ Haxton, H., *Brit. med. J.*, 1945, **1**, 12.

SIR,—It is easy enough to blame a certain brand of catgut for the opening up of an abdominal wound, but I doubt if it is quite fair. A letter by Mr. H. A. Kidd (July 15, p. 173) blames Ethicon catgut, but one would need to have a series of similar complaints from a good many reliable sources before being in any way convinced. I for one would certainly not be a contributor, having used Ethicon for many years with complete satisfaction.

A certain number of abdomens will continue to burst open no matter what make of catgut is used, or even wire or nylon for that matter, the stitches simply cutting out because of tension from vomiting, coughing, distension, etc., or because of infection or haematoma formation in the abdominal wall itself. To prevent the latter, diathermy is used a great deal nowadays, to get a dry wound, but the apparatus must not be used too enthusiastically, like a blow-lamp, or healing will certainly be delayed. The same applies to the use of excessive retraction, especially if this is done by a self-retaining retractor and is therefore not intermittent in type, to allow of periodic revascularization of compressed and ischaemic tissue.

The study of the technique of wound suture and of the causes of failure must include a survey primarily of any factors which increase the amount of proteolytic enzyme present in the wound during the initial stages of healing. Incidentally, when catgut is seen to be frayed, I would suggest looking for a defect in the eye of the needle rather than at the maker's name on the box.—I am, etc.,

Stirling.

GEORGE REID.