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TECHNICAL MEMORANDA.

On a Suprapubic Transverse Fascial Incision in Gynæcological Cœliotomy.*

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SOME years ago one of the most frequently discussed gynæcological subjects was abdominal versus vaginal cœliotomy. In a paper which I read before this Society on the latter operation the general opinion expressed was that, although vaginal cœliotomy had the advantage over the abdominal route in the avoidance of a scar with the possibility of a subsequent hernia, yet the limited space to work in more than counterbalanced the advantage in favour of the abdominal route. The linea alba, although the weakest part of the abdominal wall to support the abdominal viscera, is still the favourite line of incision, doubtless on account of its sparse vascular and nerve supply. Many express themselves as being quite satisfied with the results. Howard Kelly, for example, says he has used the ordinary median abdominal incision through the linea alba in over 2,000 cœliotomies, and has no reason to distrust it on the ground advocated by some surgeons that the cicatricial union is less firm and secure than in those cases where the incision is lateral to the median line. Doubtless, with the improved technique in the preparation of the suture material, and in the manner of closing the wound, the number of cases of hernia following incision through the linea alba has greatly diminished. Abel, at the International Gynæcological Congress, held in Vienna in 1895, stated that in following up the after results of cases where through and through sutures had been employed, he found that the number of cases of hernia was 30 per cent. On the other hand, the percentage had fallen to 8 per cent. in cases where the suturing in layers had been used. To improve upon those figures other operators have employed an extra median incision along the linea semilunaris. But Mickuliez has shown that such an incision, dividing as it may the terminal branches of intercostal nerves, may result in paralysis and atrophy of the corresponding rectus muscle—a condition favouring the development of subsequent hernia.

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For an efficient cicatrix, fascia, weakened by incision, should be supported by intact muscle, and such a cicatrix must permit of freedom of movement of each separate layer of the parietes. Such requirements demand care in the method of *opening* the abdomen. To meet those demands Lenander, in 1893, divided the anterior sheath of the rectus, which was pushed aside so as to permit of the posterior sheath and peritoneum being opened. By restoring the rectus to its original position and leaving the linea alba intact, direct muscular support was thereby given to the anterior fascial cicatrix. This incision has been advocated and carried out by Wallace, of Liverpool, who reports excellent results from this method. In 1896 Rappin, of Lausanne, reported, at the Geneva Gynæcological Congress, that he had used a transverse incision corresponding in direction to the natural folds of the skin above the symphysis pubis. About the same time Küstner advocated a similar transverse incision through the skin and subcutaneous tissues exposing the fascial layer, which was incised along with the other layers in a vertical direction. Both Rappin and Küstner suggested this incision merely for cosmetic purposes, the transverse cicatrix appearing as a white line frequently covered with pubic hair. Neither of them claimed for this incision any protection against subsequent hernia. Lange has shown that the skin fibres of the anterior abdominal wall run a course chiefly transverse in direction. When those fibres are divided at right angles, as they must be in all vertical incisions, their retraction leads to gaping of the wound, and the resulting cicatrix must tend to broaden. On the other hand, a transverse skin incision leads to very slight gaping of the wound, and the cicatrix resulting tends to broaden to a much less extent. Pfannenstiel, taking advantage of this anatomical fact, adopted a modification of Küstner's incision, in that he divided the anterior sheath of both recti muscles transversely. Pfannenstiel proceeded as follows:—About 6 cm. above the pubes a slightly curved transverse incision, 6–8 cm. long, was made through skin, sub-cutaneous tissues and anterior sheath of both recti muscles. The anterior sheaths were then bluntly dissected up from their attachments to the recti muscles. The attachment to the linea alba, which now appeared as a prominent ridge, was divided with scissors. The linea alba was then divided vertically and the abdomen opened in the usual way. In closing the wound the peritoneum, recti, fascia and skin layers were united with continuous sutures, although latterly Pfannenstiel closed the skin and fascial layer by a figure-of-8 silkworm gut suture. The result of such an incision is that the transverse fascial wound is protected by intact muscle. By this incision the conditions for an efficient cicactrix are fulfilled. The dragging asunder influence of the skin and muscular fibres is avoided so that the edges of the skin and fascial layer fall naturally together, a fine linear almost imperceptible cicatrix resulting. It has the

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advantage over extra-median incisions that no nerves are divided, and consequently no muscular atrophy can occur, so that unimpaired muscle protects the divided fascia. A hernia is only possible at one point, namely, where the fascial transverse incision is crossed by the vertical incision between the recti; and this can, in great part, be avoided by suturing together the muscles at this point. In employing this method of opening the abdomen it is essential that every bleeding vessel should be most carefully ligatured, forci-pressure not being sufficiently reliable to prevent the formation of a subfascial or subcutaneous hæmatoma—cases of which have been reported where this precaution has not been employed. As a further precaution against oozing Pfannenstiel recommended the application of a flat sandbag, varying in weight from 6–9 lbs., to be applied over the dressings for a period of 12 to 24 hours.

The advantages claimed for a transverse fascial incision are:—

1. Chiefly, the avoidance of post-operative hernia. The reports of Pfannenstiel, Döderlein, Menge and others are very favourable regarding the absence of subsequent hernia.

2. The field of operation, especially the lateral and anterior part of the pelvis, is very accessible. This is due to the low position of the incision and to the muscles being separated from the anterior sheath, which permits of their being widely drawn asunder by retractors. As Döderlein has said, the muscles are now like "weiche gummibänder."

3. Patients can rise sooner than when the ordinary vertical incision is employed, as the intra-abdominal pressure does not, to any extent, effect the skin and fascial incision. In elderly patients with a tendency to hypostatic congestion of the lungs it is advantageous to sit up on the third or fourth day after operation.

4. It is unnecessary for patients to wear abdominal belts after operation.

Pfannenstiel at first limited the indications to cases which, previous to his incision, were favourable for vaginal cœliotomy—an operation he thought it might to a great extent displace. Such cases are ovarian cysts of moderate size, non-suppurative disease of the appendages, small fibroid tumours, ventro-fixation of the uterus and the early stages of ectopic pregnancy. Cases suspected to be infective are unsuitable.

For the past five years I have employed Pfannenstiel's incision in the above class of cases, having seen it first carried out in his klinik in Giessen. With few exceptions, it is the method of opening the abdomen most frequently employed in German gynæcological kliniks, and in many it is not limited to the cases already mentioned, but is used in the removal of very large pelveo-abdominal tumours. I have deviated a little from Pfannenstiel's description, in so far as I endeavour to avoid wounding the linea alba by separating one or

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other recti muscle from its edge, then drawing it externally so as to permit of the peritoneum being opened, the displaced rectus being then fixed by a suture to the linea alba.

In 20 cases that I have been able to follow up for a period of at least two years after operation the results have been so satisfactory that I consider this method of opening the abdomen in suitable cases an improvement on the usual vertical incision through the linea alba.

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