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Editorial

Evidence-based midline laparotomy closure and evidence of its use[☆]

El cierre de laparotomía media basado en la evidencia y la evidencia de su uso

«Cuiusvis hominis est errare: nullius nisi insipientis, perseverare in errore.»

CICERÓN (Filípicas XII)

Science is advancing rapidly, and it is sometimes difficult to separate “the wheat from the chaff”. On other occasions, the difficulty lies in the technical or technological training necessary to implement changes. This is not the case with midline laparotomy closure, as there is currently scientific evidence of sufficient quality¹⁻³ to justify switching to a preferential closure technique, as recommended by the EHS guidelines.⁴ Its implementation requires ‘tools’ as simple as: a ruler to measure the length of the incision wound and the length of thread used; continuous suture with 2/0 slow-absorbing material on a small needle; and a calculator to check that the suture length:wound length (SL:WL) ratio is greater than 4:1.⁵

Surgeons use laparotomies to be able to directly treat disease. It is not justifiable that a patient may have complications related to a technique that the surgeon should have 100% under control if the recommendations of quality studies are followed. It is even less justifiable when the management of these complications (e.g., incisional hernia [IH]) requires another surgical intervention, which is sometimes more complex than the initial procedure. In the past, when saving the life of the patient was paramount despite possible complications, the appearance of IH may have been considered a ‘lesser evil’. Today, however, this is insufficient. It is not reasonable to ‘trade’ an illness for an alternate condition of IH.

Although the implementation of the evidence is slow and may depend on various factors,⁶ it is striking that the use of this technique has not become generalized,^{7,8} even despite the publication of two randomized studies^{2,3} that included almost

1300 patients and demonstrated that the ‘short stitch’ or ‘small bites’ technique is effective for the prevention of IH and even surgical site infection (SSI).

Even when learning systems and monitoring measures are established,⁸ a large number of surgeons do not comply with the recommendations (only 31% performed the closure by correctly following the protocol), despite acknowledging sufficient knowledge of the technique and the associated scientific evidence (95% knew the short-stitch technique and 98% knew the importance of the SL:WL ratio, 82% claimed to use the short-stitch technique, but only 53% systematically measured the SL:WL ratio). Interestingly, fewer IH and eviscerations occurred in this study when the recommendations were followed.

In fact, when we compared the results of the patients included in these three studies,^{2,3,8} totaling 1401 patients (719 vs 682), the short-stitch technique was significantly more effective for the prevention of both IH (OR: 2184; 95% CI: 1.530-3.115; $P = .0001$) as well as SSI (OR: 1516; 95% CI: 1109-2072; $P = .009$).

Social networks can be a barometer of opinion amongst the surgical community in this regard. Thus, one can read unexpected comments, such as “When I use 0 or 0 loop I sleep much better,”⁹ or in surveys like the one by the journal *Diseases of Colon and Rectum*,¹⁰ in which 63% of a total of 254 surgeons reported using polydioxanone suture (no 1) with a large needle for closure of a midline laparotomies. Furthermore, it is unbelievable that some surgeons continue to use loop sutures, or have started using barbed sutures for abdominal wall closure, despite the fact that the evidence is at the very least controversial, low-quality or inferior, as shown by comparative studies.¹¹⁻¹³

Opening and closing the abdomen is probably the most frequently performed maneuver throughout the professional

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career of a surgeon treating intra-abdominal pathology (whatever the specialization). Therefore, we can assume that the technique used is the one supported by the greatest scientific evidence, regardless of other parameters like speed or ease of execution. Due to the importance of the associated complications and their repercussions on patients, we do not believe that anyone will be surprised if we state that the closure of a laparotomy should have an equivalent relevance to that of an intestinal suture or that of any system used for hemostasis. Surgeons must be aware that they not only have to cure the patient's disease, but they must also ensure that it occurs with minimal complications related to their actions.

Aware of all this, the Abdominal Wall Division of the Spanish Association of Surgeons (*Sección de Pared Abdominal, Asociación Española de Cirujanos*) has launched theoretical and practical courses for residents for the last six years. Surgeons-in-training are very sensitive to these initiatives, but surveys conducted during these courses have shown that only 35% knew and systematically checked the SL/WL ratio, 12% knew it but were not allowed to use it, 54% stated that the short-stitch technique was used routinely in their hospital, 31% did not know what it was, and 15% knew it but did not use it.

This does not affect digestive surgery alone, so this information should be disseminated and applied in any specialty that uses laparotomy for therapeutic purposes. In our opinion, it is the duty of department heads, scientific societies and healthcare administrators to ensure that surgeons are trained and properly perform laparotomy closure. The technical circumstances should be appropriately recorded on the operating sheets, and even in a national registry in order to audit proper compliance. Surgeons should monitor their results and be willing to change. In the face of solid scientific evidence, it is clear that we must renew our ideas and modify our practice.

«To change is difficult; not to change is fatal.»

William G. Pollard (1911-1989)

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