They avoided compression of the upper rib by chest retractor during operative time but they passed sutures under the intercostal muscle flap to reposition it which resulted in compression of the upper intercostal nerve between the two ribs by sutures.

In conclusion, the double edge technique for thoracotomy closure is an easy, rapid, safe and effective procedure in reducing early and late post-thoracotomy pain with a resultant decrease of analgesic usage.

Conflict of interest: none declared.

REFERENCES


eComment. Double edge closure for reducing post-thoracotomy pain: is it the best?

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We read with great interest the article by El-Hag-Aly and Nashy [1]. In order to provide new evidence on the reduction of post-thoracotomy pain, the authors conducted a randomized study: there were 60 patients in the control group, in which the classical technique (pericostal suture) was used and 60 patients in the study group, in which the double edge closure was performed. The design is impeccable, with clear inclusion and exclusion criteria, homogeneous samples, and an extensive and meticulous follow-up of the patients for a year after surgery.

In conclusion, it was established that the pain was less intense during the first six months in the double edge closure group, with this difference disappearing afterwards. Analgesic consumption was significantly lower in the group of the evaluated technique, during the first three months.

Suture technique proposal for thoracotomy closure is, in fact, a variant that combines the caudal edge closure (already described), using the same procedure underneath the cephalic rib edge, to preserve the intercostal bundle of the thoracotomy space (this being the innovation).

In a systematic review published by our group, we analysed the evidence so far, and concluded that in general, the preservation of the intercostal bundle integrity, affected by the opening and closing of the thoracotomy, significantly improves the results of thoracotomy, in terms of pain [2].

Sakakura et al. showed that the edge closure at caudal level of the thoracotomy was more effective than classical pericostal suture [3]. The intracostal closure was proven to be more effective than the pericostal closure in a study by Allama et al. [4].

Bayram et al. showed that the double intracostal closure, with timely detachment of intercostal muscle for the passage of the suture above the intercostal muscle (analogous to the technical variant proposed by El-Hag-Aly and Nashy), was significantly more effective in controlling acute postoperative pain (48 h), than single intracostal closure at the lower level [5]. The study did not provide follow-up results.

As also identified in our systematic review, intercostal bundle preservation by using the intercostal flap, before placing a rib retractor, improved postoperative pain compared to the classical pericostal closure. However, there was no difference as compared with the intracostal closure [2].

In conclusion, we believe that the presented technique variant provides a significant improvement for the thoracotomy closure technique, with the aim of minimizing their impact on pain. However, it is necessary to carry out further studies to compare this technique with intracostal closure. This is because both techniques have proven efficacy on post-thoracotomy pain control, but have not been compared with one another.

Conflict of interest: none declared.

References


eReply re: eComment. Double edge closure for reducing post-thoracotomy pain: is it the best?

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We appreciate your comments [1] regarding our work [2]. And we also read with great interest your article entitled "Suture techniques of the intercostal space in thoracotomy and their relationship with post-thoracotomy pain: A systematic review" [3]. Regarding the technique described in the study by Bayram et al. [4], which protects both the upper and lower intercostal nerve during thoracotomy closure through intracostal sutures applied for both ribs, and timely detachment of intercostal muscle for the passage of the suture above the intercostal muscle, we completely agree that it is analogous to our work except for two points:

(i) The study by Bayram et al. [4] does not provide follow-up results and depends on pain and analgesics consumption early postoperatively (48 h), (ii) Bayram et al. [4] mentioned that the time needed for performing holes in both ribs and partial intercostal muscle flap harvesting was about two minutes. Sapkota et al. [5] reported that the time needed for intracostal sutures was 3.650 ± 0.71 minutes and 5.2 ± 1.56 minutes for intercostal muscle flap detachment.
In conclusion, we believe that the double edge closure technique decreases post-thoracotomy pain without the need for making holes in the ribs or harvesting the intercostal muscle flap, both of which are time-consuming and carry some risk of puncturing the underlying lung.

**Conflict of interest:** none declared.

**References**


