

Pre-embedding subcutaneous suture for chest-tube insertion in uniportal video-assisted thoracoscopic surgery

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In this era of minimally invasive thoracic surgeries and the prosperous development of uniportal video-assisted thoracoscopic surgery (VATS), postoperative chest tube placement is still mandatory in most thoracic surgeries despite some inspiring reports of tubeless VATS that have been performed (1-3). We read with great interest the article by Yokoyama *et al.* (4), who described their novel experience of chest tube wound closure using a two-layer method with triclosan-coated sutures. By the same logic, we have recently developed a modified technique for wound closure with an indwelling chest tube after uniportal VATS.

After interrupted suturing of the muscle layer, we perform pre-embedded suturing with 3-0 Polydioxanone II (Ethicon, Somerville, NJ, USA) by starting a subcuticular running suture parallel to the incision from one end of the wound following an initial anchoring suture. Once the running suture nears the opposite end of the wound, we ensure that the last four bites of the suture are kept loose before reaching the end of the wound through a traction force

with Kelly forceps. Then, the needle exits about 1-cm away from the incision without tightening the suture (*Figure 1A*), followed by the insertion of a chest tube (*Figure 1B*) and then a 3-mm needlescope, which helps to confirm the intrathoracic tube position (*Figure 1C*) (See *Figure S1*). Furthermore, three embedded subcutaneous sutures were applied tightly to prevent slippage and reinforce the anchoring effect after adequate tube placement (*Figure 1D*). Additional anchoring Nylon sutures are placed last. The tube is removed in a similar manner as demonstrated by the author.

A bit different from that mentioned in other literature (5), our method involves pre-embedding subcutaneous suture before the chest tube insertion, which has not been described before.

Our method enhances the operating ease of the surgeon and eliminates the concern of accidentally withdrawing the chest tube during suturing. In our preliminary experience, this alternative method yields comparable cosmetic result and patient satisfaction (*Figure 2*).

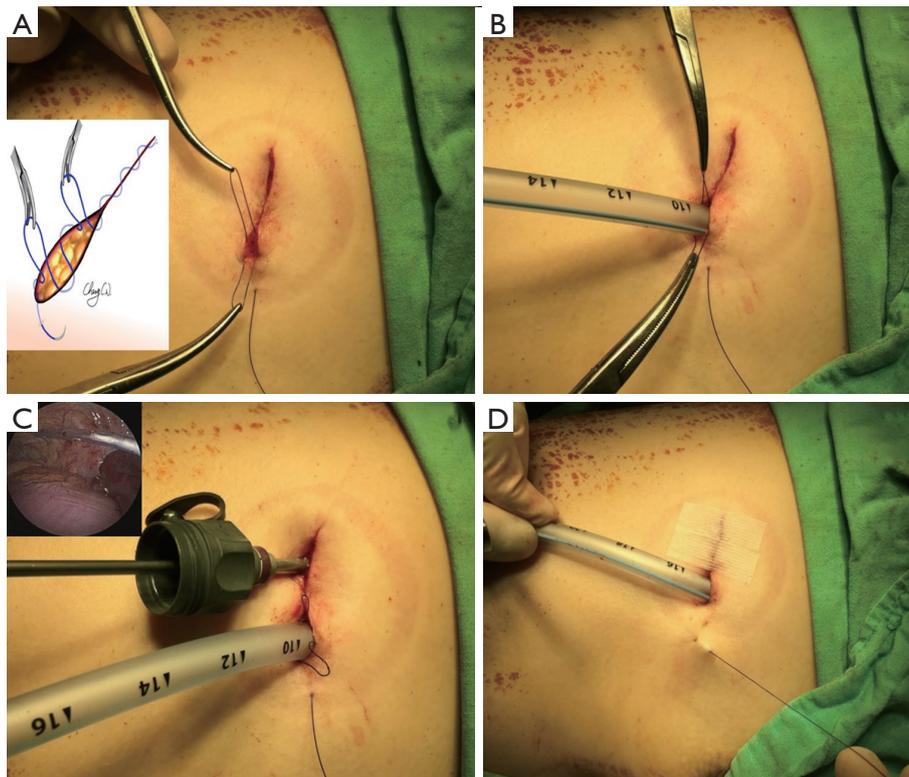


Figure 1 Pre-embedding subcutaneous suture technique for chest-tube insertion. (A) Traction of pre-embedded continuous subcuticular sutures at the first and second last, third and fourth last stitches by two Kelly forceps to make an opening for chest tube insertion; (B) chest tube insertion into the opening; (C) adequate intrathoracic tube positioning confirmed by 3-mm needlescope; (D) three embedded subcutaneous sutures were applied tightly to prevent slippage and reinforce the anchoring effect.



Figure 2 Postoperative wound after chest-tube removal.

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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Supplementary



Video 1. Pre-embedding subcutaneous suture technique for chest-tube insertion



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Figure S1 Pre-embedding subcutaneous suture technique for chest-tube insertion (6).

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