

Now pull (↕) the suture tails taut (Fig. 101.1) and again wind the suture around the needle holder in the opposite direction (Fig. 101.2). Then grasp the short suture tail (↘) again and pull this half hitch taut (↕ in Fig. 101.3) as well; this knot is superimposed on the first knot. Usually you will tie three or four half hitches, sometimes five.



Fig. 101.1 Pull suture taut.



Fig. 101.2 Wind in opposite direction.



Fig. 101.3 ... and pull taut.



Fig. 101.4 Cut suture tails.



Fig. 101.5 Next mattress suture ...



Fig. 101.6 ... until you are finished.

Hold both ends taut so that an assistant or you yourself can cut them off with scissors (Fig. 101.4). Using the remaining suture material, place the next mattress suture in the same manner, beginning only a few millimeters from the first knot (Fig. 101.5). Continue until the entire length of the wound has been closed (Fig. 101.6). Next, the wound is cleaned, the skin disinfected, and a sterile compression bandage applied (Fig. 101.7).

Initially, the dressing should be changed at least once a day to allow you to promptly detect and treat any bleeding or wound infection that may occur. Depending on mechanical stresses, location, and course of wound healing, sutures are usually removed after 9-14 days (see p. 104).



Fig. 101.7 Sterile dressing

Special Cases

In the event of serious bleeding, it may be necessary to coagulate or even ligate the ruptured vessel. If you place sutures to close a wound near a joint, the joint should then be immobilized or splinted. In smaller wounds in tissue not subject to tension, it may be sufficient to approximate the edges of the wound with Steri-Strips once the wound has been sufficiently irrigated and cleaned (see p. 104). Where an edge of the wound is torn or frayed, it is then debrided. The edge of the wound is straightened with a scalpel to simplify subsequent wound healing and achieve an acceptable cosmetic result. The technique described in the following section is also used to improve cosmesis.

However if you are placing a drain to relieve pneumothorax, insert the drain in such a manner that it points anteriorly (➤, Fig. 140.1). Here, too, you advance the drain with the aid of a curved hemostatic forceps (Fig. 140.2) until about 10 cm past the last perforation (Fig. 140.3). Palpate with your finger to verify that the drain is not kinked but is positioned properly within the pleural cavity (Fig. 140.4).



Fig. 140.1 Pneumothorax? Anteriorly!



Fig. 140.2 Advance ...



Fig. 140.3 ... 10 cm past perforation.



Fig. 140.4 Exclude kinking

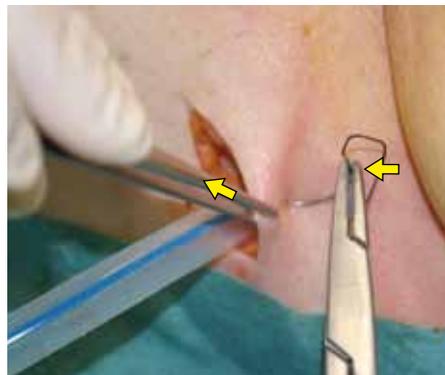


Fig. 140.5 Insert 5-6 mm

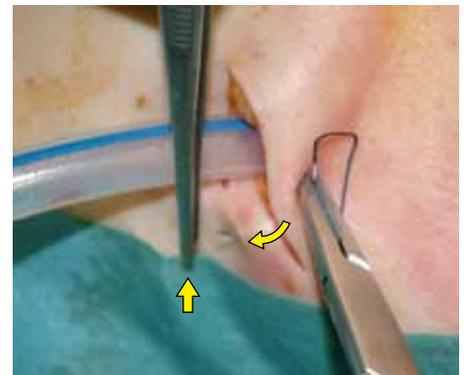


Fig. 140.6 Through both edges.

Then grasp the curved needle with the needle holder not in the middle but at its shank end (↵) and insert it through the skin at about 4-5 mm from the edge of the incision (Fig. 140.5). Use the tissue forceps to place slight tension (↘) on the skin at the edge of the incision. This makes it easier to penetrate the skin. Then pass the needle through the soft tissue in an arc (↷) and out on the other side of the incision. Grasp its tip with the forceps (↑) and pull it through (Fig. 140.6). This would not have worked if you had grasped the middle of the needle with the needle holder.

Then grasp the shank of the curved needle again and pass it back (↶) through the tissue, but this time entering and exiting closer (1-2 mm) to each edge of the incision (Fig. 140.7). Again grasp the emerging needle point (↓) with the forceps (↘) and pull the needle out (Fig. 140.8) as shown in the diagram in Fig. 140.9.

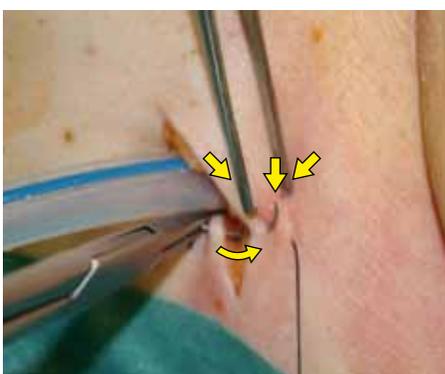


Fig. 140.7 Return stitch 1-2 mm from edge.

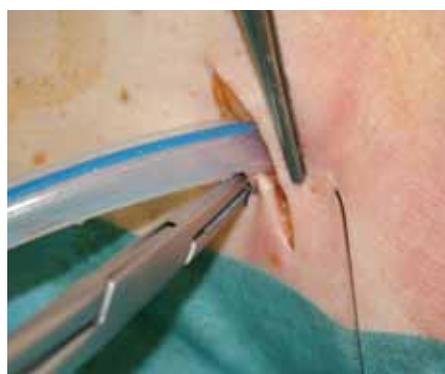


Fig. 140.8 Pull through

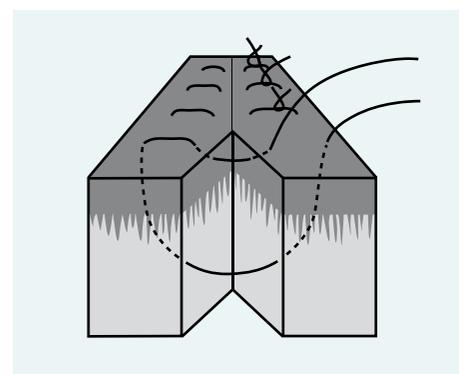


Fig. 140.9 Vertical mattress suture.

Now that you have raised the right suture tail to a higher level in this manner, keep it taut against the ulnar aspect of your little finger (at the proximal interphalangeal joint, **Fig. 188.1**). This difference in height is important as it will now allow you to pass the yellow suture through this triangle. Then rotate your right hand counterclockwise (to the left) around its longitudinal axis (↺) so that you can more easily pull the yellow suture taut over the middle of the distal phalanx of your right middle finger (↻ in **Fig. 188.2**).

A common error among inexperienced persons is to pass the yellow suture tail not over the middle of the distal phalanx of the middle finger but over the crease of the distal interphalangeal (DIP) joint as shown in **Fig. 188.3**. This makes it significantly more difficult to pull the yellow suture tail through the triangle in the next step.

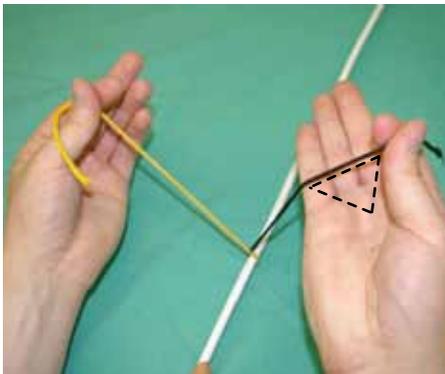


Fig. 188.1 Pull suture tails taut.

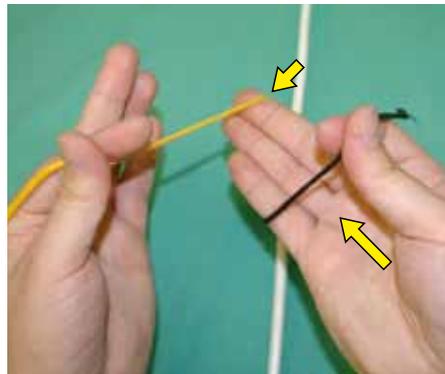


Fig. 188.2 Yellow on middle finger.

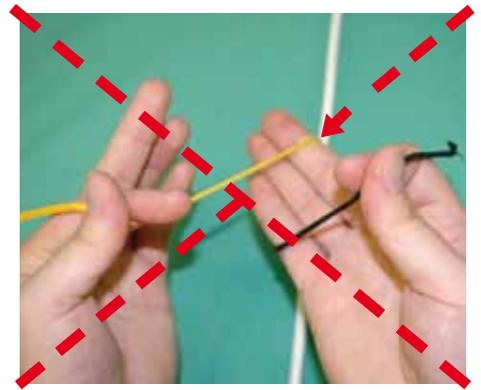


Fig. 188.3 Not on DIP joint!

In the next step, you flex only your right middle finger (↵) to pull the yellow suture tail through the triangle (⚡) from below (**Fig. 188.4**) and then immediately extend it again (↶ in **Fig. 188.5**). The middle finger takes the black suture tail with it and clamps it between the middle and ring fingers of the right hand (↔ in **Fig. 188.5**). Now pronate your right hand (↷) to pull the black suture tail through to the right (**Fig. 188.6**), releasing it from between your (↷) right thumb and index finger (**Fig. 188.7**).

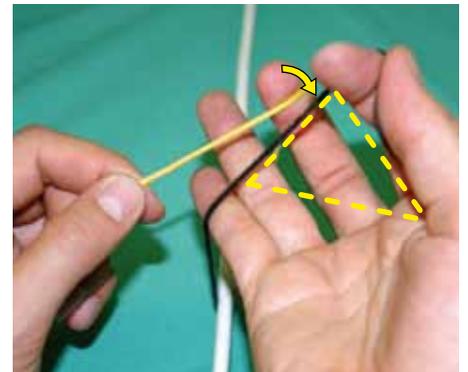


Fig. 188.4 Flex middle finger.

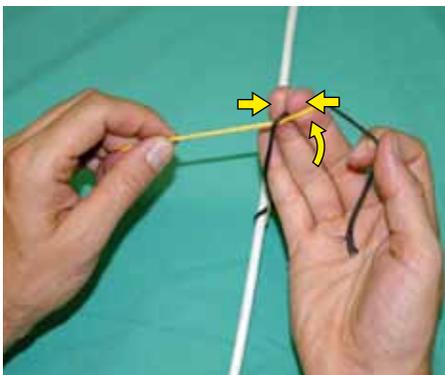


Fig. 188.5 Clamp black suture between middle and ring fingers.

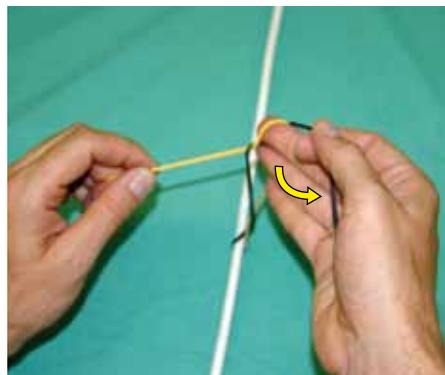


Fig. 188.6 Pronate right hand.

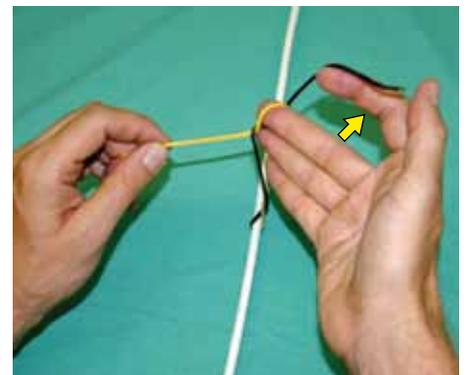


Fig. 188.7 Open right index and thumb.