

Surgical workshop

Knot-free subcuticular suture

P. H. M. ST. JOHN

Department of Surgery, Llandough Hospital, Penarth, UK
 Correspondence to: Mr P. H. M. St. John, 31 Upper Oldfield Park,
 Bath BA2 3JY, UK

Subcuticular sutures have largely replaced interrupted sutures for skin closure in general surgery. There are, however, a variety of techniques and materials used. Absorbable sutures have been shown to be as effective as non-absorbable sutures in the healing of abdominal wounds¹. The avoidance of removal saves nursing time and discomfort for the patient, which can be distressing in children. Subcuticular knots may cause postoperative symptoms, and a technique to avoid these is described.

Surgical technique

The suture is introduced through the skin 1 cm proximal to the apex of the wound, exiting in the wound at the subcutaneous-dermal junction 4 mm distal to its apex. The needle is reintroduced in the subcuticular plane exactly at the apex, exiting 4 mm from the apex in that plane. The needle is passed through

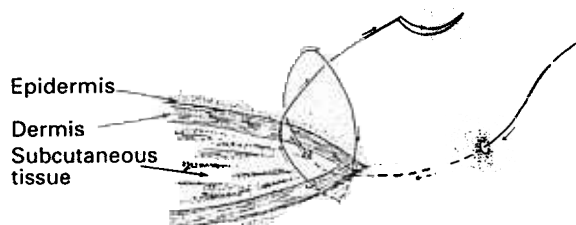


Fig. 1 Locking stitch at the start of the closure.

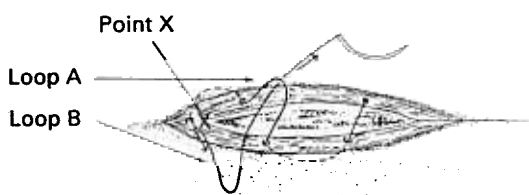


Fig. 2 The penultimate stitch and loops A and B

the loop created (Fig. 1). Sufficient length to complete the closure is pulled through, and the suture is then locked by traction on the needle and countertraction on the distal end of the suture.

The subcuticular suture is continued in the standard way. Locking the distal end is not as simple. The final bite enters 4 mm from the apex and exits exactly at the apex. A short loop is maintained from the penultimate stitch (loop A in Fig. 2) and the needle is passed under this loop. The suture is tightened by firmly pulling the suture between the finger and thumb of the left hand in the direction of the arrow on loop B in Fig. 2. This creates loop B but tightens loop A and closes the wound. Loop B is then pulled tight by traction on the needle in the direction of the second arrow in Fig. 2, to lock the suture. Finally, the needle enters the apex of the wound at the subcutaneous-dermal junction (point X in Fig. 2) and exits the skin 1 cm distal to the apex. Both ends are cut flush with the skin.

For lengthy wounds, two sutures can be used starting from opposite ends of the wound; they are joined at the midpoint with a buried knot.

Discussion

This technique has been effective in the hands of the author for skin closure in the operations commonly performed in a general surgical unit, over a period of 9 months. Other techniques have been described for securing absorbable subcuticular sutures^{2,3}. This alternative method is simple and saves time. The usual suture used is 3/0 polyglactin 910 with a 22-mm curved cutting needle. For incisions less than 3 cm in length, as in laparoscopic port-site incisions, 4/0 polyglactin with a 16-mm needle is easier to use; 3/0 catgut is equally effective and may be used to close scrotal incisions. Polydioxanone sulphate has been found to be unsuitable as it provides insufficient tissue drag.

Acknowledgements

The author thanks Mr J. Mampilly for teaching him the basis of this technique and Julia Hillbourne for the illustrations.

References

- 1 Vipond MN, Higgins AF. Subcuticular Prolene or PDS for skin closure? *J R Coll Surg Edinb* 1991; 36: 97-9.
- 2 DuBois JJ. A technique for subcutaneous knot inversion following running subcuticular closures. *Mil Med* 1992; 157: 255.
- 3 Giddins GE. Experience with a knot-free absorbable subcuticular suture. *Ann R Coll Surg Engl* 1994; 76: 405-6.