

## A Knotless Locking Subcuticular Skin Suture Technique- “Hadlow Suture”

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Surgical skin closure is associated with a risk of ‘stitch abscess’ or suture granuloma. We introduce a new method of self-locking suture which is completely sub-dermal and avoids bulky knots, thereby mitigating the risk of suture granulomas.

**Keywords:** Knotless Locking Suture; Stitch Granuloma; Suture Abscess

**Introduction**

Surgical skin closure is associated with a risk of ‘stitch abscess’ or suture granuloma [1,2].

Whilst this complication does not cause significant morbidity to the patient, it can prove troublesome and provide a less aesthetically pleasing result from a surgical incision.

The Suture granuloma is, usually, diagnosed 3 - 12 months post-operatively and a local treatment such as incision and drainage are suffice to manage it [1].

The suture granuloma can be infected by skin flora germs such as *Staphylococcus aureus* and *Staphylococcus epidermidis*.

Many techniques were developed in order to avoid ‘Stitch Abscesses’ such as the ‘L’ suture by Mahabir, *et al* [3]. In various cases, the ‘Stitch abscess’ can mimic postoperative infections and deep surgical infections such as Periprosthetic joint infections [4,5] which can lead to a false diagnosis and to unnecessary surgical procedures.

Polyglactin 910 (Vicryl) and Poliglecaprone 25 (Monocryl) are routinely used in many institutions for subcuticular skin closure. These lose most of their tensile strength by 21 days [5] meaning a secure skin closure is required. Buried or intradermal knots are routinely utilised for this closure technique [6].

We introduce a new method of self-locking suture which is completely sub-dermal and avoids bulky knots, thereby mitigating the risk of suture granulomas. Anecdotally the authors have not witnessed any suture granulomas in over 3 years of this suture technique. However, if each throw is longer than specified this can cause “dog earing”, so close attention to technique is paramount for success for a cosmetic wound. The above knotless locking suture can be performed with any suture which is not a monofilament suture.

**Technique and Case Report**

The apex of the wound is sub-dermally entered starting from a distance around 1 - 2 cm distal to the incision, with the suture needle exiting in the apex of the wound (Figure 1A).

**Figure 1A**

The second pass begins at the apex of the wound near to the surgeon, with a 5 mm throw (Figure 1B).

The third pass of the needle begins on the opposite skin edge 2.5 mm from the apex of the wound with a 5.0 mm throw (Figure 2).

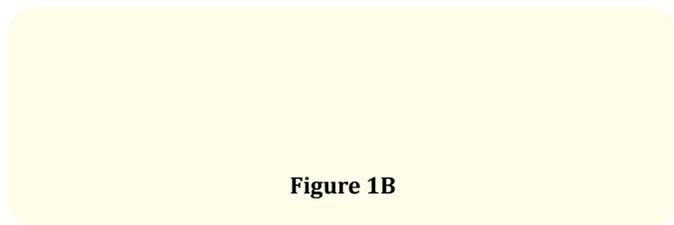


Figure 1B

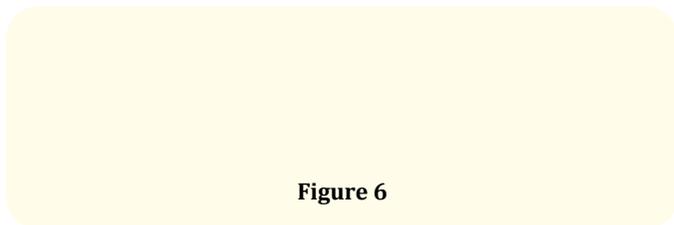


Figure 6

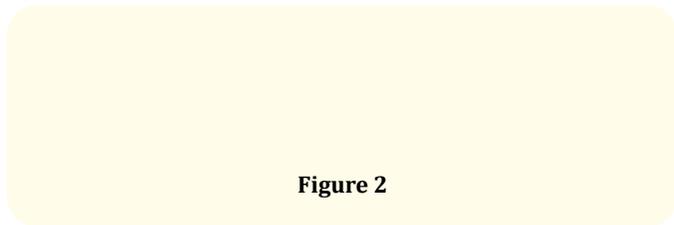


Figure 2

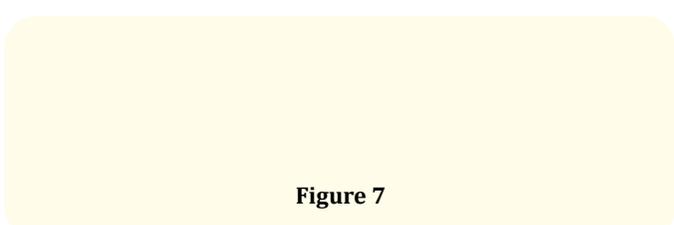


Figure 7

The fourth pass of the needle then begins 2.5 mm behind the exit point of the second pass on the near side of the wound, with again a 5 mm throw (Figure 3 and 4).

A second pass is then made on the opposite side of the wound 5.0mm distal and again exiting the wound's apex (Figure 8).

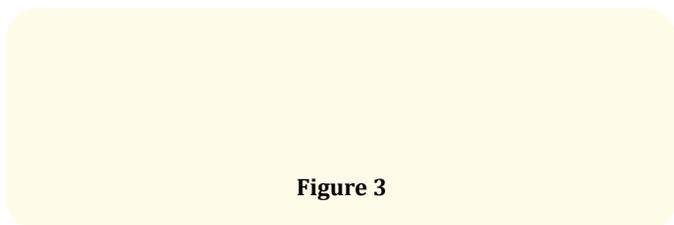


Figure 3

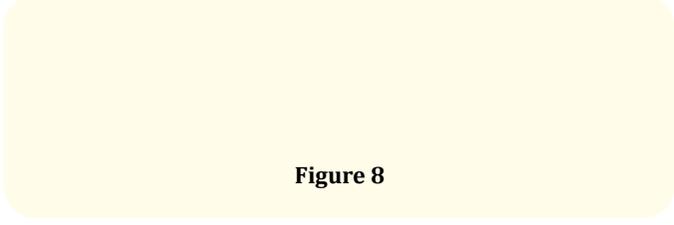


Figure 8

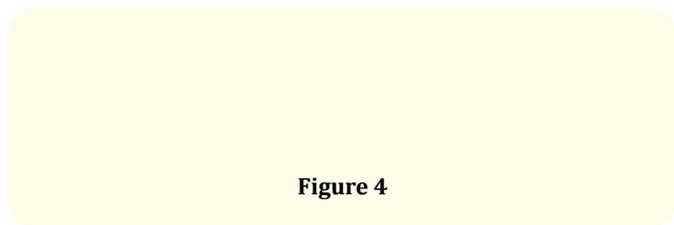


Figure 4

Put some longitudinal traction on the suture then use a final pass on the opposite side of the wound sub-dermally exit needle and cut both ends on the skin (Figure 9).

The suture can then be put under longitudinal tension and will in most instances be secure (Figure 5).

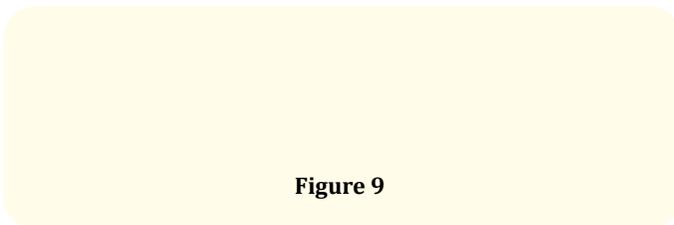


Figure 9

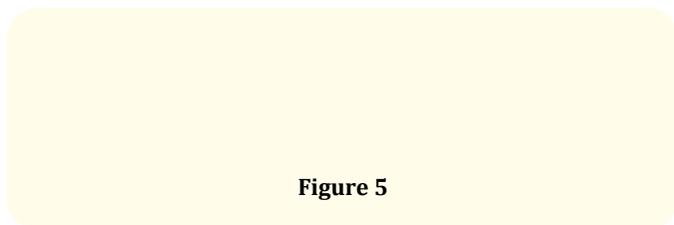


Figure 5

The remaining suture should be cut levelled with the skin (Figure 10).

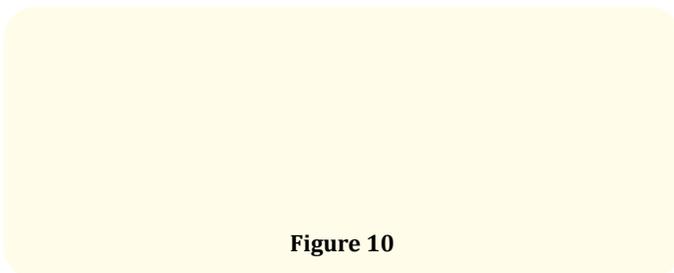


Figure 10

Sometime after two further normal passes the suture is totally secure. Further passes can then be made with your normal throw (Figure 6).

At the distal end of the wound the last pass exits in the apex of the wound (Figure 7).

## Conclusion

The authors have not witnessed any suture granulomas in over 3 years of this suture technique. This technique is based on the authors experience only and further studies and follow up are needed to assess the effectiveness of the above technique.

## Author Contributions

SM, WK, SB and AH do not report any conflict of interest in regard to the content of this manuscript.

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