

How to do an “Adelaide Tension Suture”

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Abstract

The ‘Adelaide Tension Suture’ technique results a more even distribution of tension through all strands of the suture, thereby minimizing pressure exerted on the skin surface. This helps to prevent the common side-effect of skin scarring and results in a better cosmetic effect.

INTRODUCTION

Tension sutures are most often used after emergency midline laparotomy where the nature of the intra-abdominal pathology can lead to gut oedema with resultant difficulty in closure of the wound. They are primarily used for wounds thought to have an increased risk of dehiscence. The sutures are placed 3-5cm apart and are inserted to encompass a large amount of fascial tissue. Their use is controversial as they can be uncomfortable for the patient and often result in a poor cosmetic effect (Figure 1, 2).

Figure 1

Figure 1, 2



Vertical or horizontal mattress sutures have historically been used as they have the advantage of producing good skin edge eversion but the combination of normal wound healing and excessive tension on the knot can result in necrosis beneath the externalised skin loops and skin scarring.

Herein, we detail an alternative tension suture that has been pioneered in Adelaide. This suture was pioneered and advocated by Dr. Marie Coombs and Dr. Ravi Mahajani,

who have propagated its use throughout the state.

THE “ADELAIDE TENSION SUTURE” TECHNIQUE

This technique is based on the ‘far-far, near-near’ technique of inserting a vertical mattress suture. It is a larger, deeper version of the ‘Pulley Suture’ previously documented for use in smaller wounds [1].

The ‘far-far’ portion of the suture consists of a wide, deep bite that is taken an appropriate distance from the wound edge (Figure 3).

Figure 2

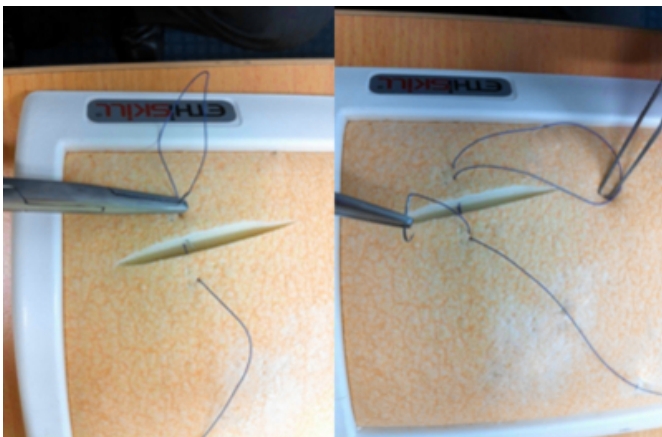
Figure 3



The distance is proportional to the amount of tension in the wound. The needle is advanced through the wound and then reversed in the needle driver for a second ‘near-near’ pass at a shallower depth in the opposite direction (Figure 4, 5).

Figure 3

Figure 4, 5

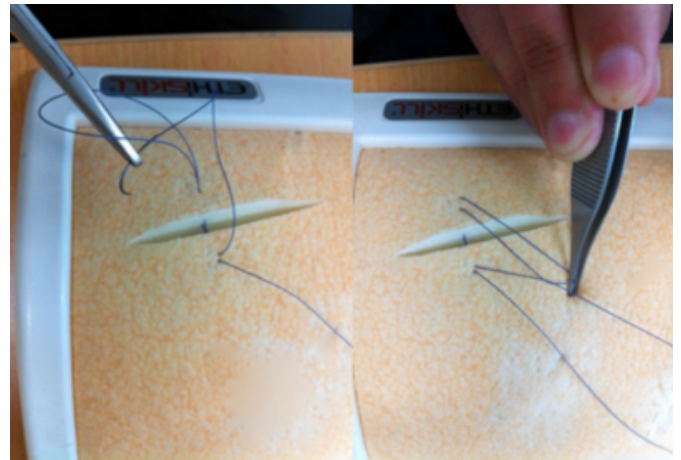


A loop of suture is left redundant between the far-far and the first near suture as seen above in figure 3. This redundant loop of suture is left long to facilitate needle passage as seen

in Figure 6, 7.

Figure 4

Figure 6, 7



Once the needle has been passed through the loop of suture material, the knot is then tied (Figure 8).

Figure 5

Figure 8.



CONCLUSION

The ‘Adelaide Tension Suture’ technique results a more

even distribution of tension through all strands of the suture, thereby minimizing pressure exerted on the skin surface. This helps to prevent the common side-effect of skin scarring and results in a better cosmetic effect.

A Horizontal mattress suture achieves a poorer cosmetic result compared with the 'Adelaide Tension Suture'. This results from inferior skin eversion and the horizontal mattress suture results in ischemia of the skin between the suture points as the suture is constrictive by design.

The Adelaide Tension Suture can also be used as a

superficial skin suture where strength is desirable. When the tissue planes are closed in layers and the 'Adelaide Tension Suture' is used for the cutaneous layer only it everts the edges of the incision to a greater extent than a standard vertical mattress. In this situation the 'Adelaide Tension Suture' can be removed early. This results in a superior aesthetic result. Thus there is no need for any other type of mattress suture.

References

1. <http://emedicine.medscape.com/article/1824895-overview>

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