

Masterclass in Clinical Practice

Implant Dentistry

with

Prof Andre W van Zyl¹



Importance of passive suturing in implant surgery



References

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2. Silver E, Wu R, Grady J, Song L. Knot Security- How is it Affected by Suture Technique, Material, Size, and Number of Throws? *J Oral Maxillofac Surg.* 2016;74(7):1304-12.

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During many years as a lecturer of postgraduates and specifically the training of specialists, one question became the norm "Why do you not have post-surgical complications and we do". There were two main reasons why I did not have complications, on the one hand I did not perform that many surgical procedures (lessening the odds for getting complications) and on the other hand my view of the importance of suturing and spending much time in planning and executing passive wound closure.

There is no doubt in my mind that in the majority of surgical procedures, suturing plays a bigger role than the procedure itself in determining the success.

Reasons, in my opinion, of postoperative complications in suturing are as follows:

1. Suturing is done at the end of what usually is a stressful surgical procedure- most often under local anaesthesia. The surgeon is tired, relieved that the procedure is finished (except for the suturing!) and it is easy to take the eye off the ball and make mistakes. Patients also tend to start fidgeting towards the end of a procedure putting further stress on the clinician.
2. Incorrect choice of suturing material is also important for two reasons, namely knot security (preventing loosening of sutures) and bacterial adherence and ingrowth down the suture and into the wound causing postoperative infections. In a recent study gut sutures were found to have the least adherence of bacteria. Braided sutures have superior knot security, followed by gut.^{1,2}
3. One of most important aspects of successful suturing is to have passive primary wound closure, with no tension in wound closure (Figure 1). Using a suture material that will break before you can damage the soft tissue is also of value. Gut seems to be the best for this in my experience and using gut teaches you to be gentle with the closure force or face the frustration of breakages at regular intervals.

My advice is to take a deep breath at the end of the surgical procedure, refocus all your energy for the suturing stage of the procedure and do not see this as an afterthought- it is the most important aspect. Before suturing commences, check wound closure by approximating the wound edges with tissue tweezers. If the wound does not stay closed after placing it together, it indicates non-passive flap design and sutures will probably place too much

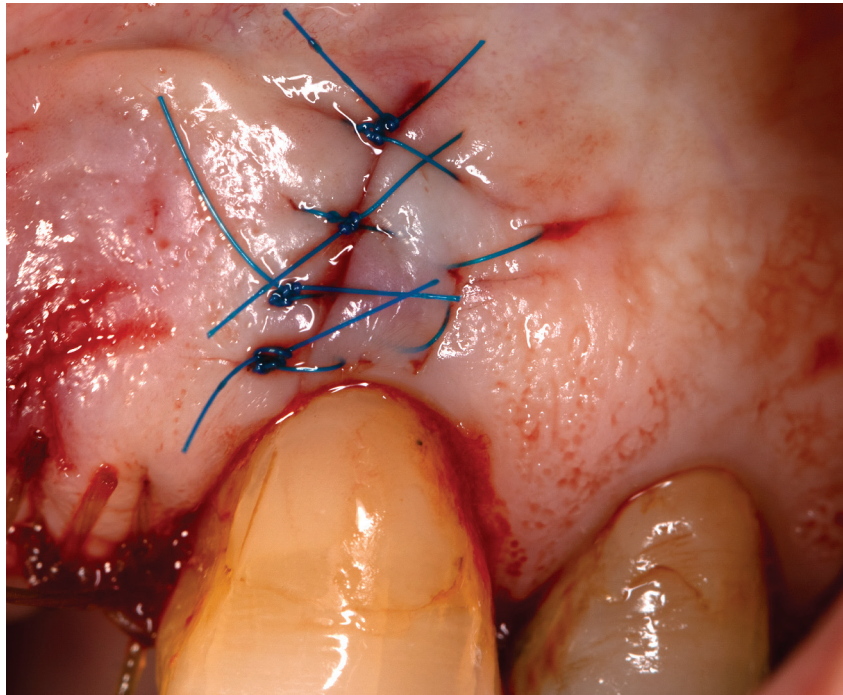


Figure 1: Precise passive closure of releasing incision, showing the loops to the right of incision, emerging again in incision line for the knot. The loop provides a solid anchor as well as allowing emergence of the suture as close as possible to the incision line for the precise primary closure (see video for technique)

tension on edges when you try and pull the wound together with aggressive suturing. The primary function of sutures is to close the wound in a passive manner. Do not use the sutures to pull the wound together with force, as this will lead to necrosis, tearing out of sutures and postoperative pain. The focus of this Master Class is demonstrating a technique for passive closure, especially in the aesthetic zone. I have been using and teaching this technique for many years with great success. It has the following advantages (demonstrated in the video):

1. It creates complete passive closure with no tension on wound edges.
2. It creates a solid anchoring of sutures as you will create a new anchor with the second bite you take (Figure 1).
3. Less postoperative pain due to the wound not being pulled together.
4. Less suture indentations which can leave unsightly marks in the aesthetic zone for weeks.

Conclusion:

These observations and techniques have been formulated over many years of teaching and demonstrating surgical procedures. I recommend you practice the technique on a suitable material such as a sheep's head or silicone surgical pads.

If used correctly, I have no doubt it will improve your wound closures and prevent any postoperative complications. I find it especially helpful in contour augmentations with implant placement, as well as any releasing incisions done within gingiva. The technique is not ideally suited for suturing mobile alveolar mucosa together, but rather for suturing gingiva, or even free grafts, in a precise manner.

The procedure is shown in the video clip.
Click on the QR code to view