

Suture Materials in Oral Surgery

Mucoperiosteal flaps, small or large, are ironed back into position with the index finger upon completion of the operation, and they are held in position by the insertion of sutures.

Reasons for suturing.

Suturing of mucoperiosteal flaps is done for:

1. It holds the soft tissues in apposition with bone and the soft tissues, thus aiding healing.
2. It prevents postoperative bleeding, particularly that most frequent type, post-extraction capillary type.
3. Holding the soft tissue over the sockets after extraction aids in the formation and maintenance of a good clot.
4. Good clot formation means less postoperative pain, especially that which originates from exposed bone tissue.
5. The entrance of food debris into the wound is prevented.

The armamentarium include:

1-suture material

2- needle

3-needle holder

4-scissor

5-tissue forceps

The suture materials

There are two types of suture material

A-Absorbable

B-None-absorbable

A-Absorbable sutures materials

There are three types of absorbable sutures are present for use in oral and maxillofacial surgery.

1- catgut

It is fabricated from sub-mucosa of sheep intestine. Catgut suture either plain or chromic.

Plain catgut:

It is susceptible to rapid digestion by the proteolytic enzymes produced by inflammatory cells and it retain its strength for about 5 days . It is stiff and could be loss the knot.

Chromic catgut:

It is prepared by treating the catgut sutures with the basic chromium salts. It is more resistant to the proteolytic enzymes and it maintain its strength for about 7-9 days.

2-Vicryl (polygalactin)

Good for deep and intraoral sutures, it cause minimal inflammatory reaction intra- orally, but long resorption period.

3-Dexon

Has the same properties of vicryl.

4-Polydioxanone (PDS)

Its prepared from polyester , used for wound support for up to 6 weeks.

B-None-absorbable sutures

1- Silk

2-Nylon

3-Prolene

4-Metal (wire) suture

For buried sutures (deep and subcuticular), an absorbable suture is indicated. Vicryl (polygalactin 910) is preferred suture for deep closure.

For oral mucosa the best suture is either silk or vicryl, with silk being my preferred material. Vicryl placed intra-orally will not fall out for about 4 to 5 weeks, and I've seen it present for up to 5 weeks. It has been my observation that it tends to collect more debris than silk, and if left in for total absorption will only irritate the oral mucosa. Vicryl causes far less of an inflammatory reaction than silk, however. This would give Vicryl the advantage in situations where the patient is in maxillo-mandibular fixation (MMF), and accessing the suture to remove it will be difficult.

Silk has the advantages of familiarity, user friendliness, and is "softer" intra-orally. 4-0 or 3-0 silk can routinely be used to close the lacerated oral mucosa. .

For skin closure 5-0 nylon is suture of choice. Nylon has a low coefficient of friction and will easily slide through the tissue, it elicits almost no tissue response, nor does it allow in growth of fibrous tissue into the space created by passing the needle through the tissue.

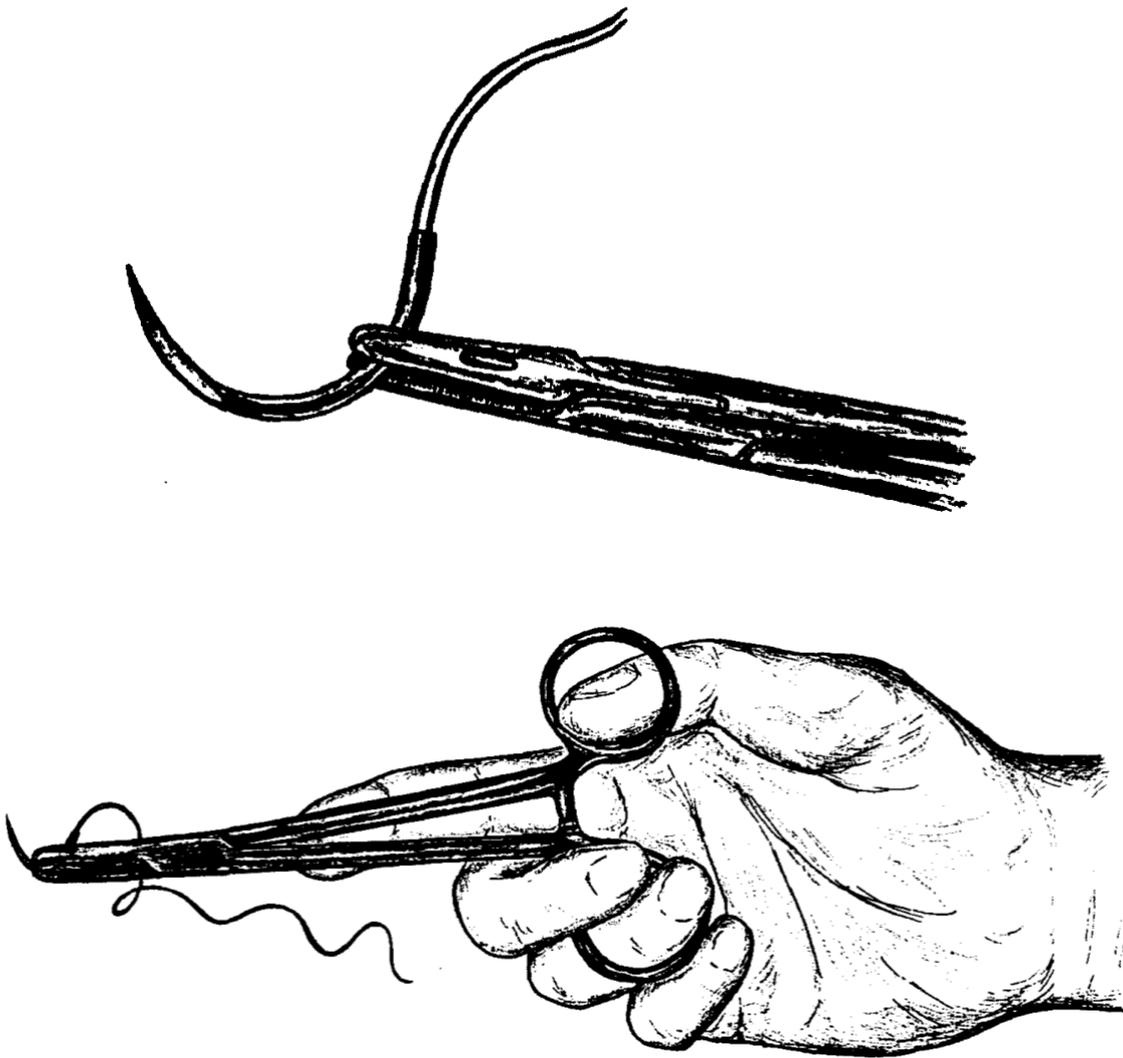
Selection of needles

Needles and sutures should be selected for the required task. Large needles are contra- indicated on the face. Cutting needles should always be used to sew the skin, whereas round (tapered) needles should be used for friable mucosa, and subcutaneous tissue.

Proper use of the suture needle

The needle should be grasped in the upper third of the needle . This position gives the surgeon the maximum shaft of the needle to engage the tissue being sutured. In placing the initial bite, the tip of the needle should be perpendicular to the tissue as it penetrates the tissue .

(The needle holder may also be held without placing the fingers into the finger rings.)



**The needle should be grasped in the upper third of the needle ,
note the method of grasping of the needle holder**

Intra-oral suturing

Oral mucosa should be handled very delicately. Closure is done with 4-0 or 3-0 vicryl or silk. In young children, chromic gut will be advantageous because it will fall out faster than vicryl. Debridement should be very minimal.

Tongue suturing

Tongue lacerations tend to bleed significantly and this makes them appear worse than they really are bleeding is easily controllable by placing gauze around the tongue and then biting on the tongue to apply pressure with the teeth. The bleeding will be fully controlled by closing the wound. In minor traumatic occurrences swelling rarely gets to the point where it affects the airway. Keeping an ice cube in the mouth will aid to decrease the swelling, but is usually unnecessary. In significant trauma with inflammation of the tongue, the patient should be in a hospital and should be intubated small lacerations from the teeth need not be closed because they heal rapidly and infection is rare. A bland diet and frequent rinses with normal saline are all that will be required. Burns may be protected with orabase, for example. The dentist, however, should make sure that pieces of tooth enamel, restorative materials, or other foreign bodies do not remain in the tongue. If in doubt a lower occlusal soft tissue radiograph should be done.

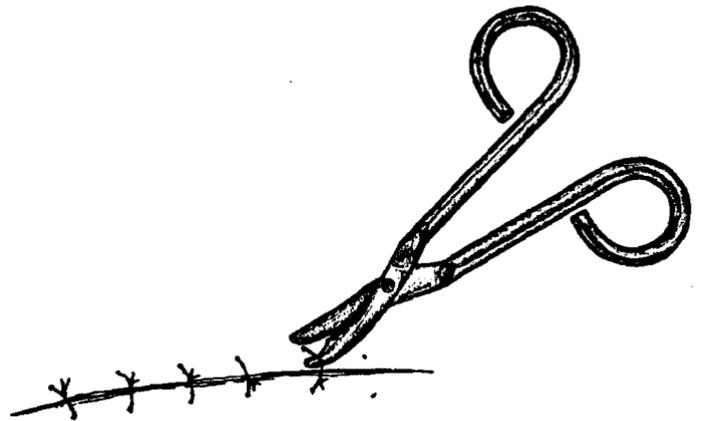
Large lacerations on the dorsum or lateral border, and through and through lacerations of the tongue will require suturing. These wounds are sutured with 3-0 vicryl or with 4-0 chromic catgut in the young child. Deep sutures should be placed if needed.

Suture removal

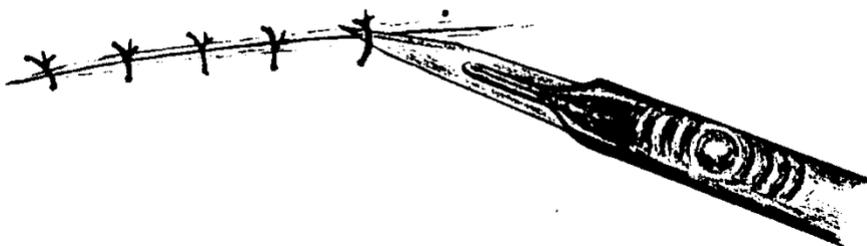
Suture removal should be as painless as possible. The operator should not pull on the suture until the loop has been divided.

If the suture bites are small and the tip of the scissors cannot painlessly get below the loop, then a #11 blade is used to divide the loop. Hydrogen peroxide can be used to remove crusts from the sutures, and the area should be lightly washed before the sutures are removed.

Patients with diabetes, HIV, taking chemotherapy or steroids, or alcoholics may exhibit delayed wound healing. Because of this, I leave the skin sutures in for a full week before removing them. These patients will also be given antibiotics for 7 to 10 days (to cover for up to 3 days after suture removal).



Suture removed by scissor



Suture removed
by using blade
no. 11