INSTRUMENTATION FOR BASIC ORAL SURGERY

Dr. Sundus Abdul wadood
O&MFS Department
College of Dentistry
University of basrah

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1. ***INCISING TISSUE***: Many surgical procedures begin with an incision. The primary instrument for making incisions is the ***scalpel***, which is composed of a reusable handle & a disposable, sterile sharp blade. The commonly used handle for oral surgery is No. 3, commonly used ***blade intraoraly is No. 15*** it is similar in shape to the larger No. 10 blade used for large skin incisions, other blade No. 11 sharp-pointed used primarily for making small stab incisions & in gingivactomy & No. 12 it's a h0oked blade useful for mucogingival procedures in which incisions are made on the posterior aspect of teeth or in the maxillary tuberosity area. The blade slid slowly onto the handle along the grooves in the male portion until clicks into position. When using the scalpel to make an incision the surgeon typically holds it in the pen grasp to allow maximal control of the blade. Mobile tissue should be held firmly in place under some tension so that as the incision is made. The scalpel designed for single-patient use, they are dulled easily when they come into contact with hard tissue such as bone or teeth or even keratinized tissue ,the used of dull blade not give a clean, sharp incisions in the soft tissue

Scalpels and blades (10,11,12,&15)

FIGURE 6-4 A, Scalpel is held in pen grasp to allow max control.

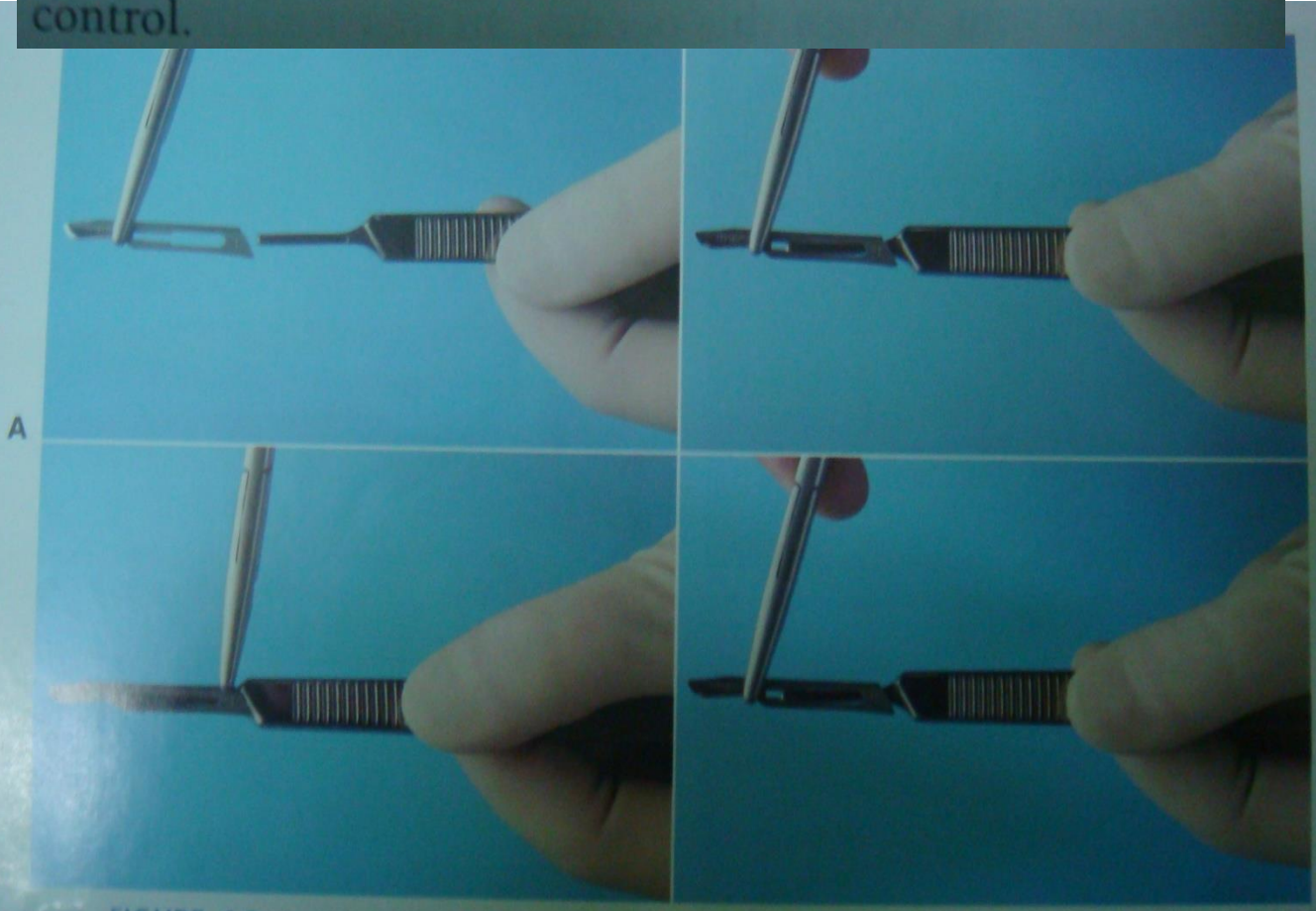


FIGURE 6-3 A, When loading scalpel blade, surgeon holds blade in needle holder and handle, with male portion of fitting pointing upward. B, Surgeon then slides blade into handle until it clicks into place. C, To remove blade, the surgeon uses needle holder to grasp

Sissors: To major types of tissue scissors are (a) Iris scissors which is a small, sharp-pointed, delicate tools used for fine work. (b) metzenbaum scissors are used for undermining soft tissue and cutting, its either sharp or blunt tips.

Scissors for cutting the tissues

2. ***ELEVATING MUCOPERIOSTEUM***: After the incision is made the periosteum should be reflected from the bone cortics in a single layer with periosteal elevator, the most commonly use in oral surgery is **Molt periosteal elevator No. 9**. This elevator has sharp ,pointed end &a broader, rounded end. The pointed end used first to reflect the flap and the dental papillae the other end used to continue the elevation

3-RETRACTING SOFT TISSUE: Good access & vision are essential to performing excellent surgery. A variety of retractors have been designed to retract the cheeks, tongue & the flaps to provide access to visibility during surgery, also help to protect the soft tissue from sharp cutting instruments.

A-Cheek retractors: (1) ***Austin retractor***& (2) ***Broad offset Minnesota retractors***, these retractors also can be used to retract the flaps.

B-Seldin retractor similar to Molt elevator used to retract the soft tissue and the flaps.

C-Tongue retractors: (1) ***mirror.*** (2) ***Weider tongue retractor*** is a broad end retract the tongue medially and anteriorly.

D-Towel clip: used to hold the anterior tongue during biopsy taking.

FIGURE 6-7 Minnesota retractor is an offset retractor used for retraction of cheeks and flaps. A, Front. B, Back.

Austin & Bowdler-Henry rake retractors

Seldin retractors

Tongue retractor

4-GRASPING SOFT TISSUE: Various oral surgical procedures require the surgeon to grasp soft tissue to incise it, stop bleeding or to pass a suture needle. (1) ***Adson pickup forceps*** these are delicate forceps with or without small teeth at the tips, which can be used to hold tissue gently & thereby stabilize it, & not to grasp the tissue too tightly, which will crush the tissue. (2) ***Stillies pickup*** is longer than the adson pickup & is used to handle tissue in the more posterior aspect of the mouth. (3) ***Allis tissue forceps*** are used to hold the tissue by the locking handle allows the forceps to be placed in the proper position & then to be held by an assistant to provide the necessary tension for the proper dissection of the tissue.

Note:. The college pliers are angled forceps that are used for picking up small objects in the mouth like loose fragments of tooth, amalgam, or other foreign material and for placing or removing gauze packs

Adson tissue forceps
Stillies tissue forceps
College tweezers

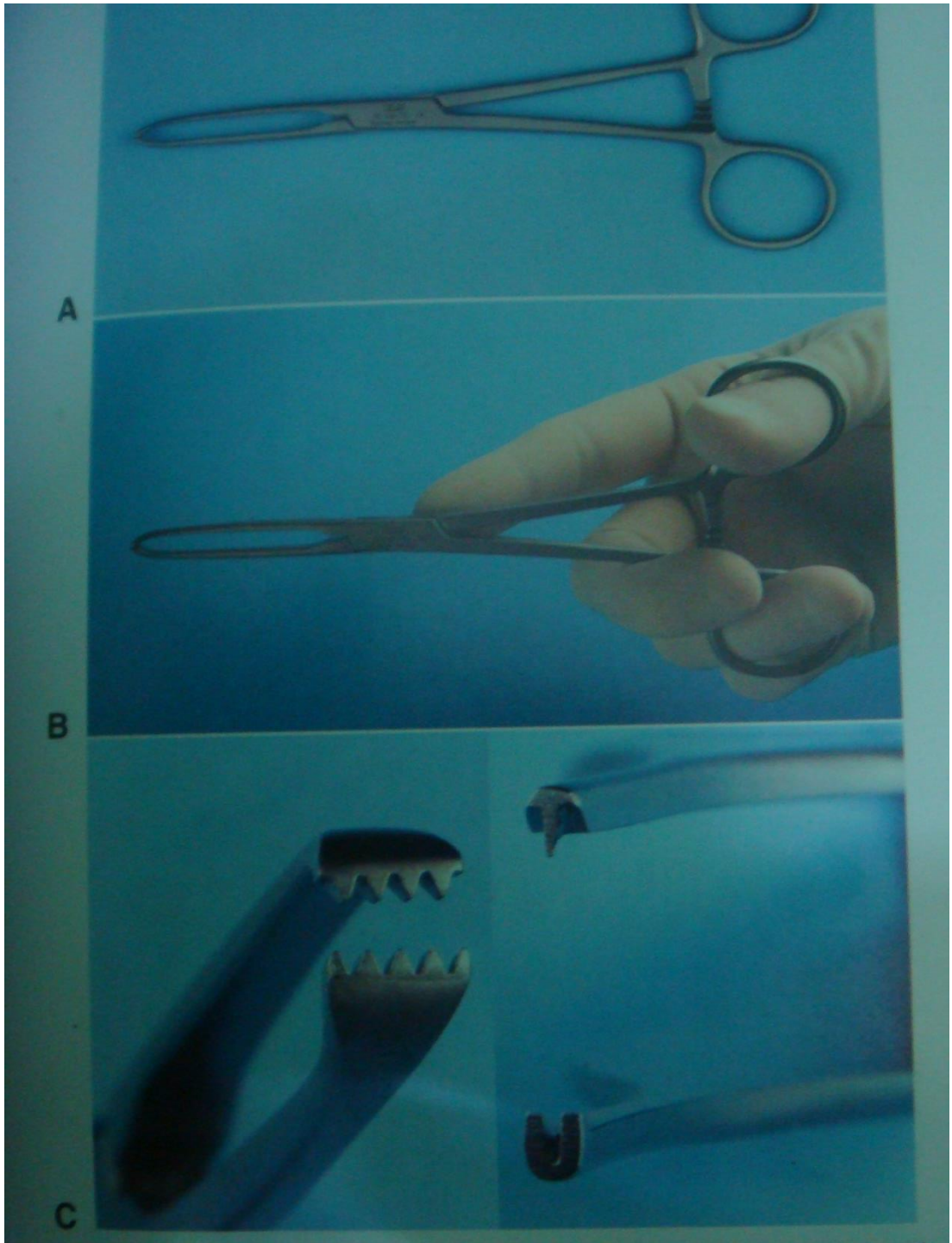


FIGURE 6-11 A, Allis tissue forceps are useful for grasping and holding tissue that will be excised. B, Allis forceps are held in same fashion as needle holder. C, Comparison of Adson beaks (*right*) with Allis beaks (*left*) shows difference in their design

5- CONTROLLING HEMORRHAGES:

When incision are made through tissue, small arteries and veins are incised, causing bleeding. For most dentoalveolar surgery, pressure on the wound is usually sufficient to control bleeding. Occasionally, pressure dose not stop bleeding from a larger artery or vein. When this occurs, an instrument called a ***hemostat*** is are useful. Hemostats come in a variety of shapes, may be small & delicate or larger, & straight or curved which is commonly used. A hemostat has long, delicate beaks used to grasp tissue and a locking handle that allow the hemostat clamped onto the vessel either or suture or cauterize, also used to pickup small root, calculus, amalgam or used to removed the granulation tissue from tooth socket.

Hemostat (Mosquito artery forceps straight &curved).

6- REMOVING BONE:

A- Rongeurs: used to removing bone in dentoalveolar by its sharp blades that are squeezed together by the handles we have two designs (1) a side-cutting forceps, (2) a side and end cutting forceps (***Blumenthal rongeurs***) which commonly used in dentoalveolar surgical procedures that require bone removal , its can be inserted into the sockets to remove bone, sharp bone & even large amount of bone by use it in multiple bites if remove large amounted in one bite the cutting end will become dull and destroy the instrument and there is a risk of losing the removed piece into the throat.

B-Bur & Hand piece: High-speed, high-torque hand pieces with sharp carbide burs remove cortical bone efficiently. Burs such as a No. 557 or No. 703 fissure bur or a No. 8 round burs are used. When large amounts of bone must be removed, such as in torus reduction, a large bone bur that resembles an acrylic bur is used.

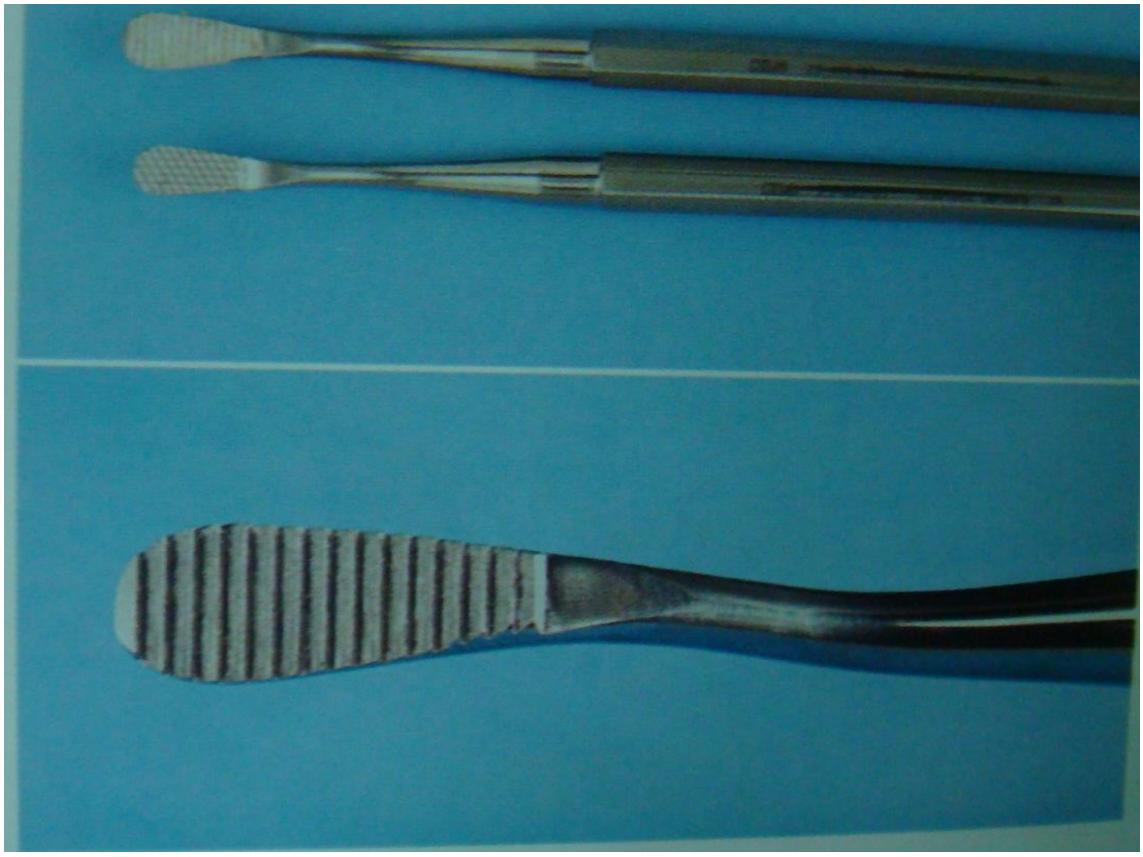
The handpick that is used must be completely sterilizable & must not exhaust air into the operative field, making it unwise to use typical high-speed turbine drills for routine restorative dentistry in surgery to avoid tissue emphysema which is a dangerous condition.

C- Mallet & Chisel: Are often used when removing lingual tori . The edge of the chesal must be kept sharp to function properly.

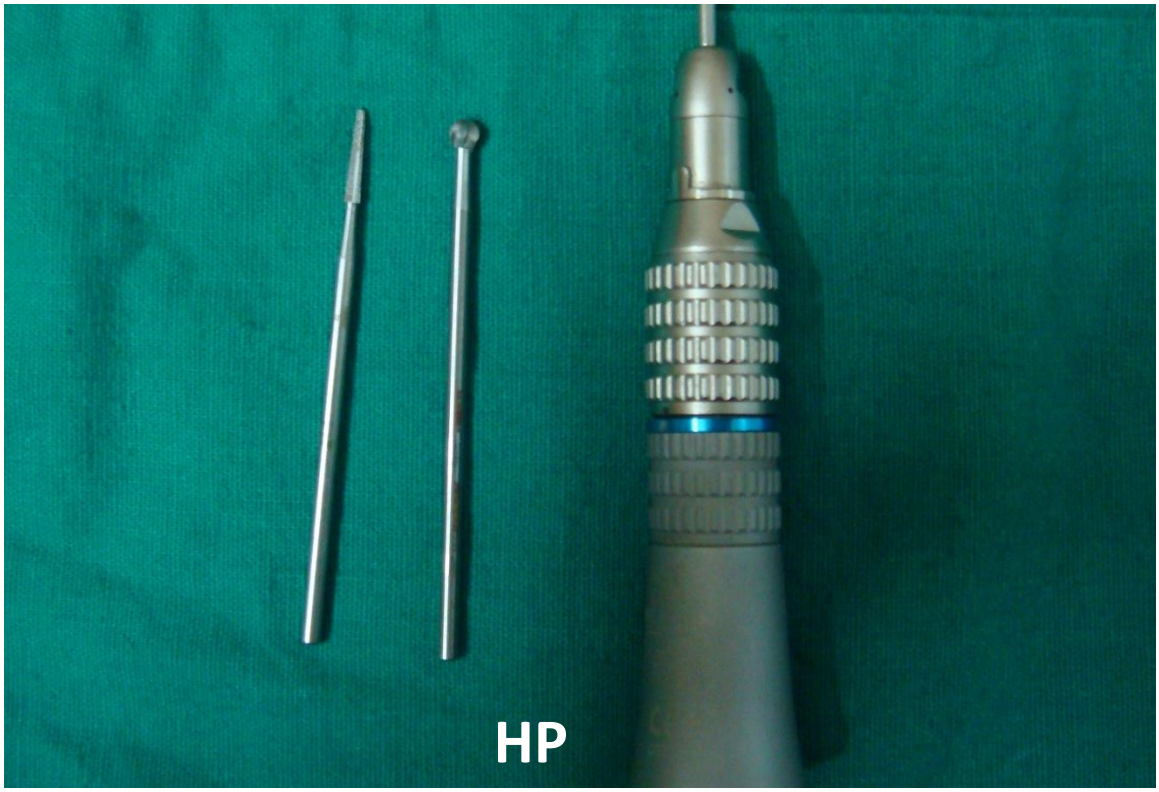
D- Bone file : Final smoothing of bone before suturing a mucoperiosteal flap back in position is usually performed with a small bone file, its double-ended instrument with small & large end & the removing bone is by *pull* stroke.

Rongeurs (bone nibblers)

IGURE 6-15 Surgical mallet and chisel can be used f
emoving bone.



Bone files



7- Removing soft tissue from bony cavities : the ***curette*** commonly used for oral surgery is an angled, double-ended instrument used to remove soft tissue from bony defects like granulomas or small cysts from periapical lesions & granulation tissue debris from a teeth socket.

8- Suturing soft tissue: Once surgical procedure has been completed the mucoperiosteal flap is returned to its original position and is held in place by sutures. For suturing the surgeon needs:

A- Needle holder: Is an instrument with a locking handle & a short, blunt beaks. Intraoraly a 6-inch (15 cm) NH is usually recommended the beak of the NH are shorter & stronger than that of hemostat, the face of a beak of the NH is crosshatched to permit a positive grasp of the suture needle. The hemostat has parallel grooves on the face of the beaks, this will decreasing the control over needle &suture.

curette

Needle holder

Needle holder **Artery forceps**

B-Suture needle: The needles used intraoraly is small half-circle or three-eighths suture circle, the needle is curved to allow it to pass through a limited space, the tips of the needle either tapered such as the sewing needle or triangular tips that allow them to be cutting needle the cutting portion is about one third the length of the needle. The curved needle held approximately two thirds of the distance between the tip and the base of the needle.

C- Suture Material: Many types of suture materials are available. The materials are classified by diameter, rsorbability, and whether they are monofilament or polyfilament. The size of suture relates to its diameter and designated suturing of oral mucosa is 3-0 (000), a larger size suture is 2-0, or 0. Smaller sizes are designated ,for example, 4-0, 5-0, & 6-0.

Non-resorbable suture materials include types such as ***silk, nylon, vinyl, & stainless steel,*** the commonly used is silk, nylon &vinyl. *Resorbable* sutures are primarily made of gut. The term catgut is often used to designate this type of suture, gut actually is derived from the serosal surface of the sheep intestines. ***Plane catgut*** resorbs quickly in the oral cavity, 3-5 days. Catgut that treated by tanniny solutions (chromic acid) and is therefore called ***chromic catgut*** lasts longer 7-10 days. Several synthetic resorbabale suture that has long chains of polymers braided into suture material. Examples are ***polyglycolic acid & polylactic acid***, its take 4 weeks before they are resorbed. Monofilament sutures are catgut, nylon, &stainless steel. Polyfilment sutures are silk, polyglycolic acid,& polylactic acid.

Polytiefilament is a braided material, its easy to handle and tie and rarely come untied, the cut ends are usually soft and nonirritating to the tongue and surrounding soft tissues, but because of the multiple filaments, they tend to (wick) oral fluids along the suture to the underlying tissues that may carry bacteria along with the saliva. Monofilament do not cause this wicking action but its difficult to tie, tend to come untie, and the ends are stiffer and irritating to the tongue and sotf tissues.

D- Scissors: suturing scissor usually have short cutting edges because their sole purpose is to cut sutures.

9- Holding the mouth open: Some time its necessary to support the mandible to prevent stress on the TMJ , supporting the jaws is by bite block which is a soft, rubberlike block on which the patient can rest the teeth and its in several sizes to fit variously sized patients. The other instrument is the side-action mouth prop or molt mouth prop.

10- Suctioning: Typical surgical suction has small-diameter tip , suction tips usually have a hole to prevent tissue injury caused by excess suction pressure.

11- Holding Towels & Draper in position: When drapes are placed around a patient they can be held together with a towel clip, the instrument has a locking handle and finger and thumb rings. Careful should be take not to pinch the patients underlying skin.

12-***Irrigation***: When handpiece and bur are used to remove bone, it is essential that the area be irrigated with asteady stream of irrigating solution, usually sterile saline or sterile water. The irrigation cools the bur and prevents bone-damaging heat bulidup and increases the efficiency of the bur by washing away bone chips from the flutes of the bur and by providing a certain amount of lubrication. Also irrigation done to the surgical field before the flap is suturing. Irrigation is done by plastic syringe with a blunt 18-gauge needle

Mouth gage

Towel clip

Disposable syringe