

SUTURE MATERIALS

Sutures are widely used in surgery and for suturing minor or major lacerations following trauma. Their primary function is to hold wound in good apposition for the promotion of wound healing.

Suture materials are available in two major categories namely:

1. Absorbable
2. Non-absorbable

and are usually available in pre-sterilised individual packets.

They can be either mounted or non-mounted, i.e., with or without needles.

Needles can be cutting, reverse-cutting or round-body, but the sizes may vary.

Smallest : 6/0, 5/0, 4/0, 3/0, 2/0, 0, 1, 2 – largest

Sutures can be monofilament that is single stranded or multi-filament with many strands.

The United State Pharmacopoeia (USP) recommends that suture boxes must provide complete information of the suture materials. This includes:

1. size
2. types of sutures
3. types of needles

Some boxes have specific indications, like

F S for skin
P S for plastic skin
P for precision point
P C..... Precision cosmetic

In addition, as a general rule the following sizes are commonly used for suturing.

Face 5/0 or 6/0
Hands and limbs 3/0 or 4/0
Elsewhere 2/0 or 3/0

METHODS OF SUTURING

- Simple interrupted suture
- Vertical mattress
- Horizontal mattress
- Subcuticular
- Continuous

Suturing must be carried under strict aseptic technique with the help of an assistant. First and foremost, it is important to assess and clean the wound thoroughly.

Requisites

1. Required suture materials.
2. Draping
3. Local anaesthesia
4. Gloves
5. Needle holder
6. Dissecting forceps (tooth and non-tooth)
7. Scissors (stitch and dissecting)
8. Cleaning lotions
9. Dressing materials

Complications

1. Haematoma formation
2. Localized skin necrosis due to tension
3. Infection
4. Keloid formation
5. Dog's ear
6. Poor cosmetic result
7. Rarely, tissue reaction with suture

These sutures are normally removed after

Face and head 5 days
Legs and abdomen 7 – 10 days
Back and soles 10 – 14 days

Absorbable materials are digested by tissues during healing process and are made from collagen (animal protein) or synthetic polymers.

Non-absorbable materials resist enzymatic digestion process and are usually made of inorganic materials.

Absorbable materials

1. *Catgut plain* – used to suture mucous membrane of lips, tongues superficial laceration of the genital area. They are easily absorbed within one week.
2. *Catgut chromic* – used to suture fascia, muscles, or ligature of blood vessels. It is usually absorbed within 30 – 45 days.
3. *vicryl* – same as above. Takes at least 70 days for absorption. Rapid vicryl is easily absorbed.
4. *PDS* – expensive, takes at least 5 – 6 months to be absorbed.

However, vicryl is the most commonly used suture materials during surgery while closing in layers.

Non-absorbable materials

1. *Ethilon* – most commonly used to close and suture skin after surgery or trauma to the skin. Cutting needles are usually used.
2. *Prolene* – used to suture nerve, tendon or blood vessels. Preferable round body needles are used.
3. *Silk and Linen* – have similar properties. They are very strong, but they are adherent to the tissues and can caused reaction or infection.

Other suture materials that are also used are:

1. *Staples* – to close wound under high tension, like scalp, trunk and extremities.
2. *Strips and tapes* – used to close superficial laceration on the face.
3. *Dermabond* – very expensive, ideal for simple laceration, but fact around the edges have to be removed.