OPERATION THEATER

Operation theatre or operation room is a facility within a hospital where surgical operations are carried out in a sterile environment.

CLASSIFICATION OF OT

1. BASED ON EXTENT OF SURGERY INVOLVED

- Minor OT
- Major OT

2. BASED ON TYPES OF SERVICE PROVIDED

- Outpatient OTs
- Inpatient OTs

3.BASED ON SHARING OF OT

- Decentralized
- Centralized

4.BASED ON URGENCY OF SITUATION

- Emergency OTs
- Elective OTs

STAFFING IN THE OT BASED ON

- Total number of hours of case
- Number of cases operated per day
- Type of cases (speciality involved)
- Nature of cases (planned or emergency)
- Prescribed norms, policies and procedures of the OT

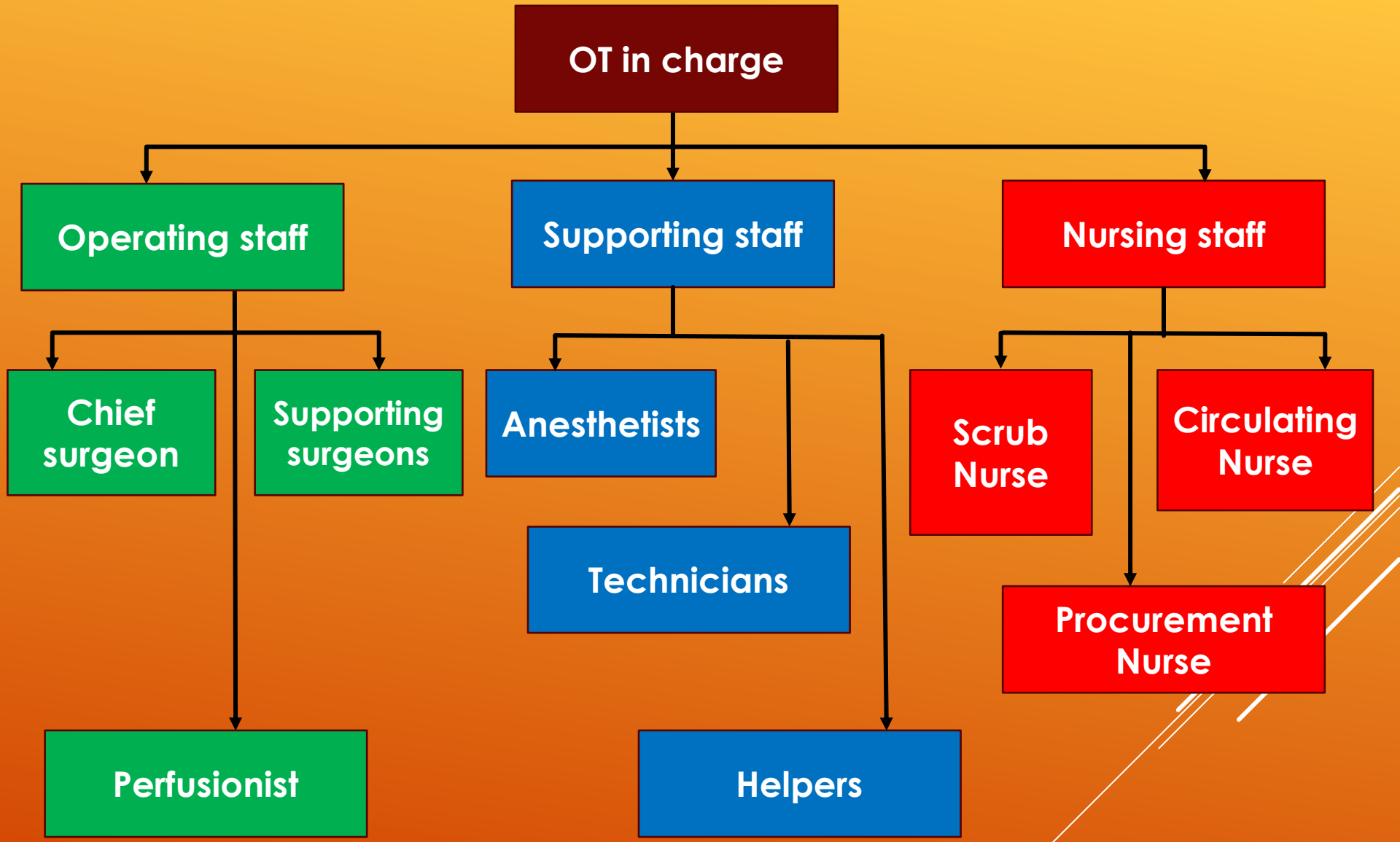
ESSENTIALS OF STAFFING IN AN OT

- Each personnel is qualified, skilled and/or experienced to assume responsibilities, authority, accountability
- Professional qualification
- An organized medical and nursing staff
- Willingness

BENEFITS OF GOOD STAFFING NORMS

- Improve patient outcomes
- Maintain patient and staff safety
- Lowers mortality rate
- Increase OT efficiency
- Reduce patient waiting time for surgery
- Enhance professional satisfaction
- Reduce OT case cancellation
- Balances workload
- Maintain staff accountability

ORGANIZATION CHART IN AN OT



POLICIES AND PROCEDURES OF AN OT

1. Functions of OT
2. Duties and responsibilities of doctors, nurses, technicians
3. Checklist for preparing the OT for surgeries
4. Posting of doctors, nurses, their working hours and responsibilities for emergency work
5. Maintenance of records for the surgical procedures

6. Methods of aseptic techniques to be followed in OTs
7. Maintenance of sterility in different zones
8. Techniques of preparation for surgery by nursing and doctors
9. Cleaning of operation theaters and schedule for fumigation
10. Maintenance of equipment
11. Disposal of medical waste
12. Safety policies and procedures

MEMBERS OF THE OT TEAM

1. OT in charge
2. Operating consultants
3. Collaborating surgeons
4. Scrub nurse
5. Circulating nurse
6. Anesthetists
7. Perfusionist
8. OT technicians

9. Pre recovery staff
10. Post recovery staff
11. Sterilization staff
12. Store keeper
13. Helping staff

OT TEAM

ESSENTIALS OF WORKING & COLLABORATION OF AN OT TEAM

- IPR
- Orientation
- Team members gather together
- Refreshment time
- Checklist
- Common notice board
- Collaboration between pre OT, OT, post OT
- Team collaboration

OT TEAM WORK

- Preoperative briefing
- Debriefing
- OR White board

ROLE OF THE NURSE IN OT

- Scrub nurse
- Circulating nursing

SUTURE

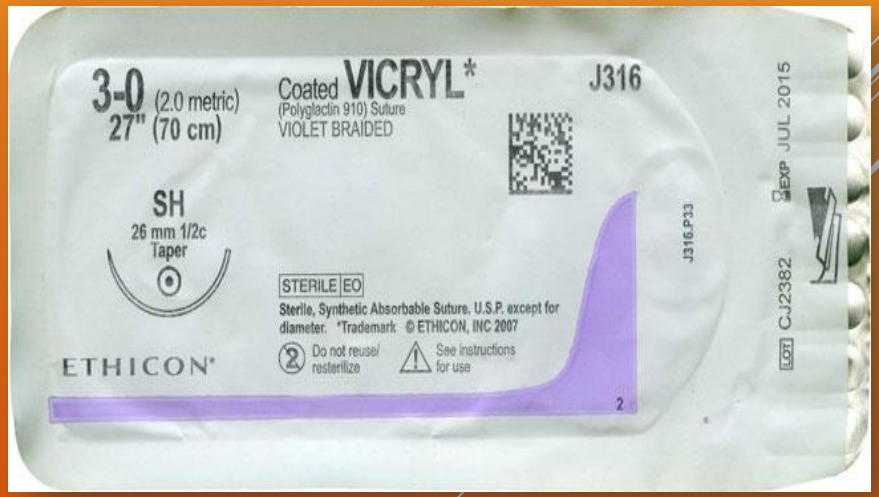
Suture is a Stitch/Series of Stiches made to secure apposition of the edges of a Surgical/Traumatic wound

CRITERIA FOR THE SELECTION OF SUTURE

1. Surgeon preference
2. Aesthetic concern
3. Speed of healing
4. Tissue contamination
5. Tension desired in wound closure
6. Cost and availability

ESSENTIALS OF SUTURING

- Should be uniform
- Should have tensile strength and elasticity
- Able to sustain Knots
- Easy to handle
- Cost effective



TYPES

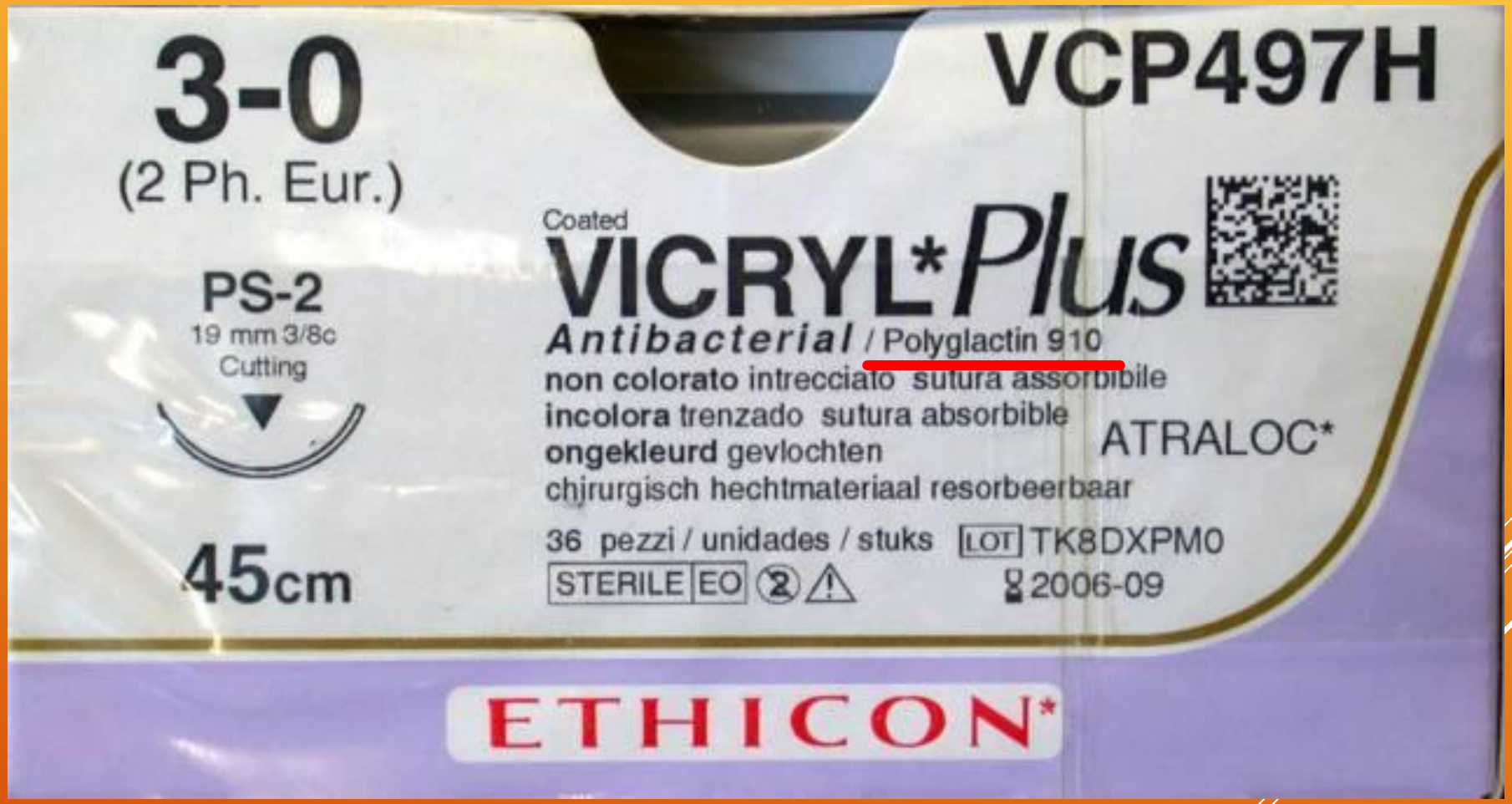
BASED ON ABSORPTION

ABSORBABLE

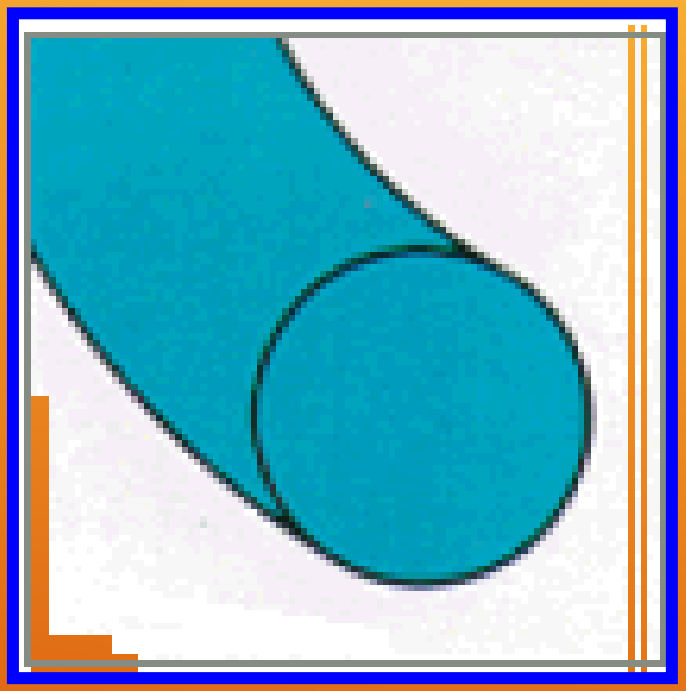
1. Polyglycolic acid (PGA)
2. Polyglactin 910
3. Catgut

NON ABSORBABLE

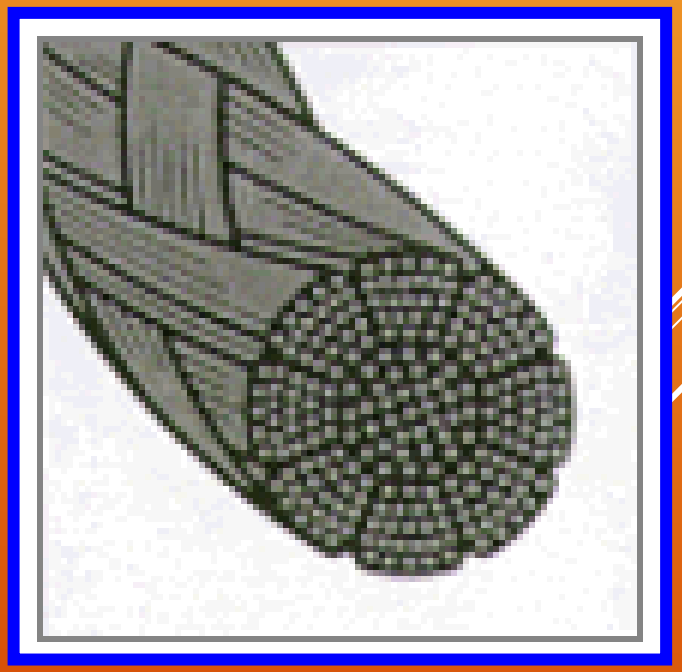
1. Polypropylene
2. Nylon
3. Polyester
4. Silk
5. Polyvinylidene fluoride/PUDF
6. Stainless steel


3-0
(2 Ph. Eur.)
VCP497H
PS-2
19 mm 3/8c
Cutting
45cm
Coated
VICRYL* Plus
Antibacterial / Polyglactin 910
non colorato intrecciato sutura assorbibile
incolora trenzado sutura absorbible
ongekleurd gevlochten
chirurgisch hechtmateriaal resorbeerbaar
ATRALOC*
36 pezzi / unidades / stuks
LOT TK8DXPM0
STERILE EO
2006-09
ETHICON*

BASED ON MATERIAL STRUCTURE



Monofilament



Multifilament

BASED ON MATERIAL STRUCTURE

MONOFILAMENT

1. polypropylene
2. catgut
3. Nylon
4. Polyvinylidene fluoride/PUDF
5. Stainless steel

MULTIFILAMENT

1. Polyglycolic acid
2. Polyglactin 910
3. Polyester
4. silk

BASED ON MATERIAL ORIGIN

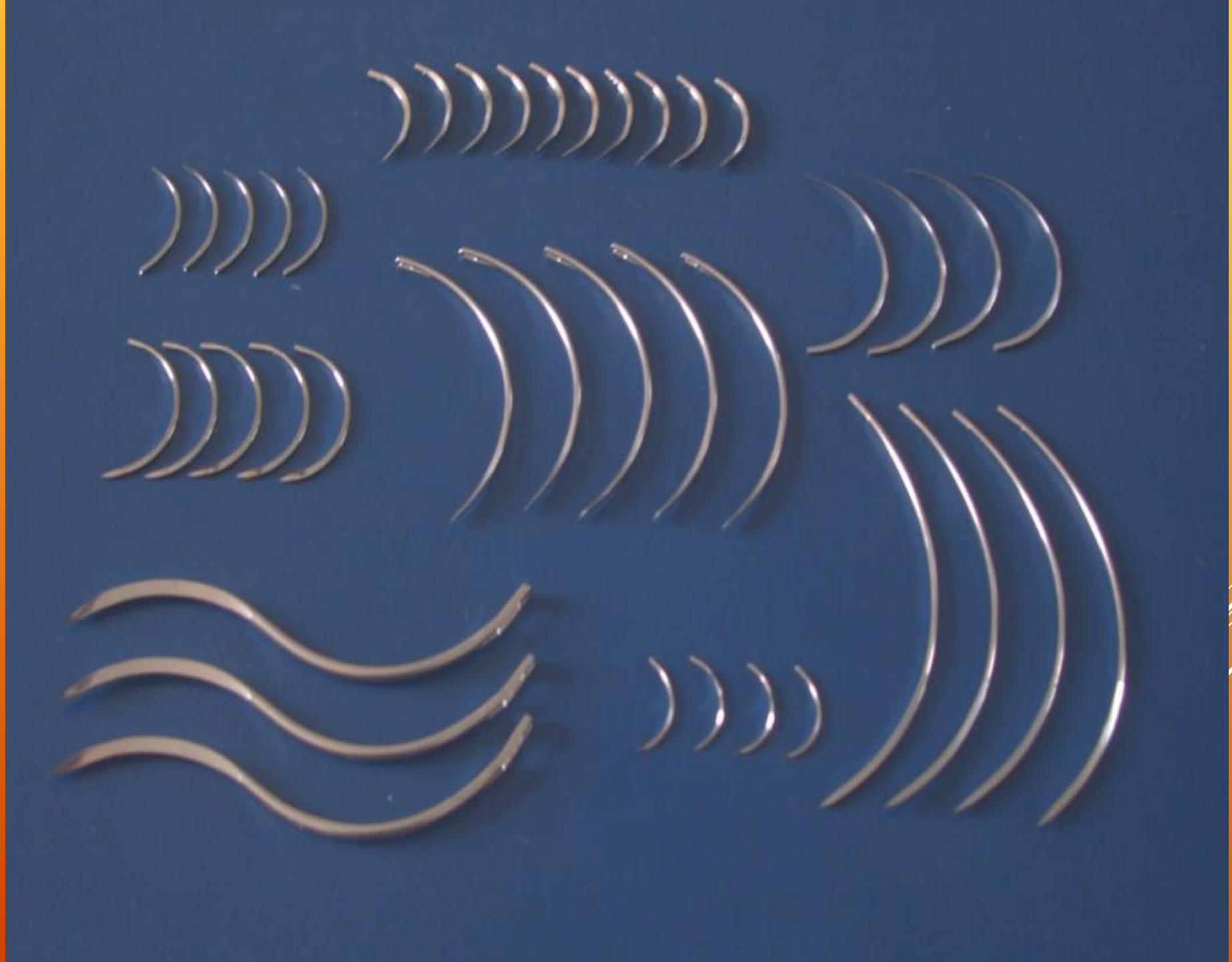
NATURAL

1. Silk
2. Catgut

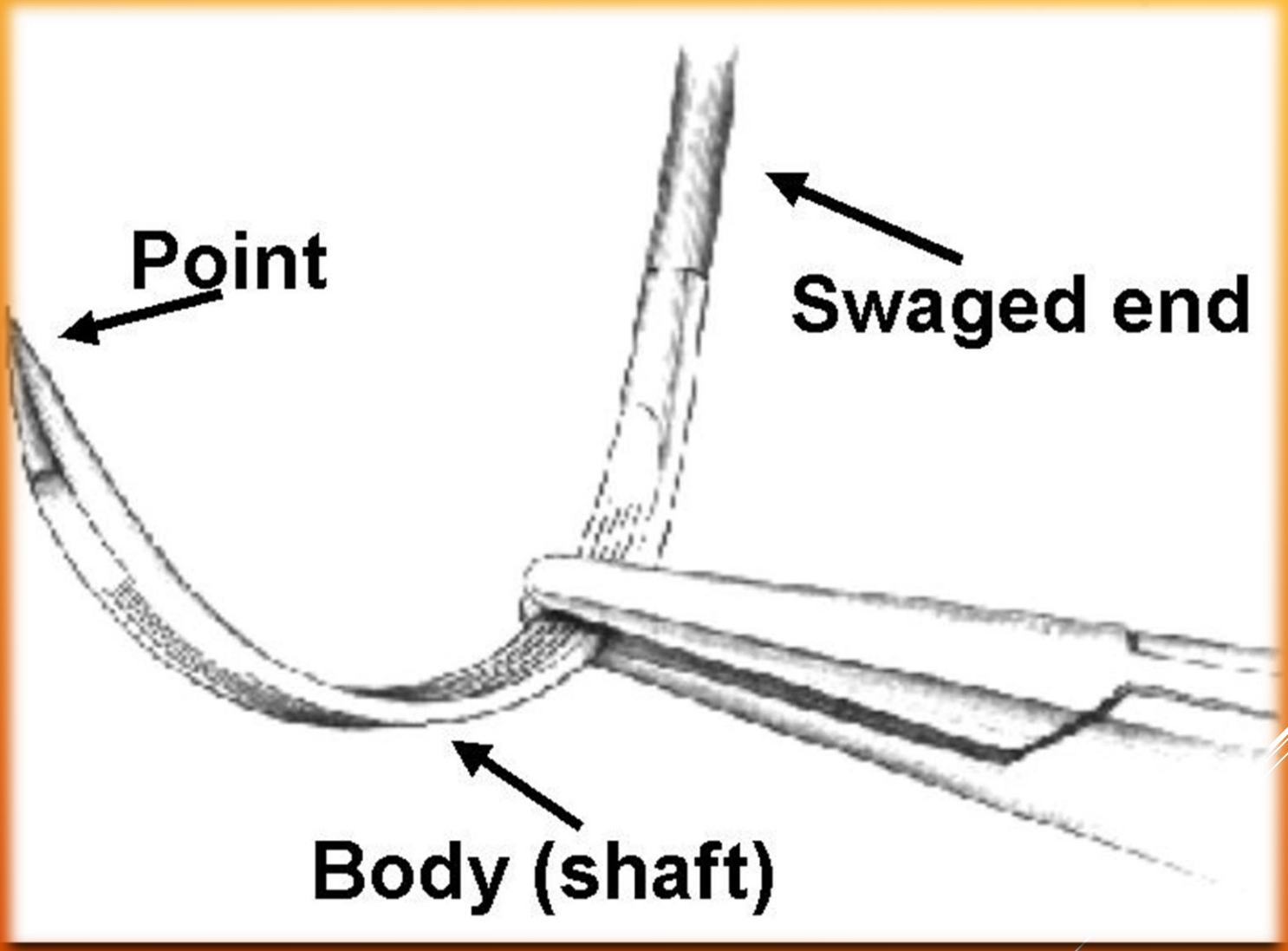
SYNTHETIC

1. All other available sutures


1
(4 metric)
30 mm 1/2 Circle
HEAVY
ROUND BODIED
NW 840
PROLENE*
NON ABSORBABLE SURGICAL SUTURE U.S.P.
STERILISED SURGICAL NEEDLED SUTURE
(MONOFILAMENT POLYPROPYLENE BLUE)
Made in India by
ETHICON
70 cm
Division of
JOHNSON & JOHNSON LTD.,
AURANGABAD
431 136.
MFD. 12/07 EXP. 11/12
Lot V7019
M.R.P. Rs. 166.00 Incl. of All Taxes
Mfg. Lic. No. AD 007
©J & J *TM V01



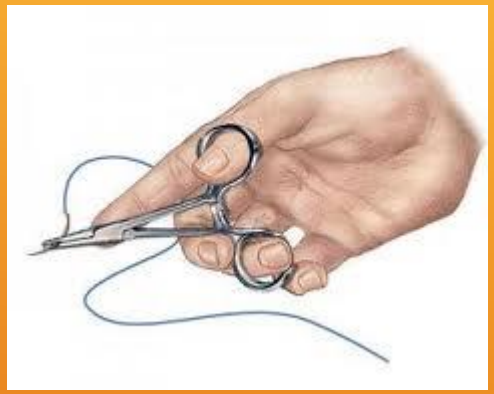
ANATOMY OF A NEEDLE



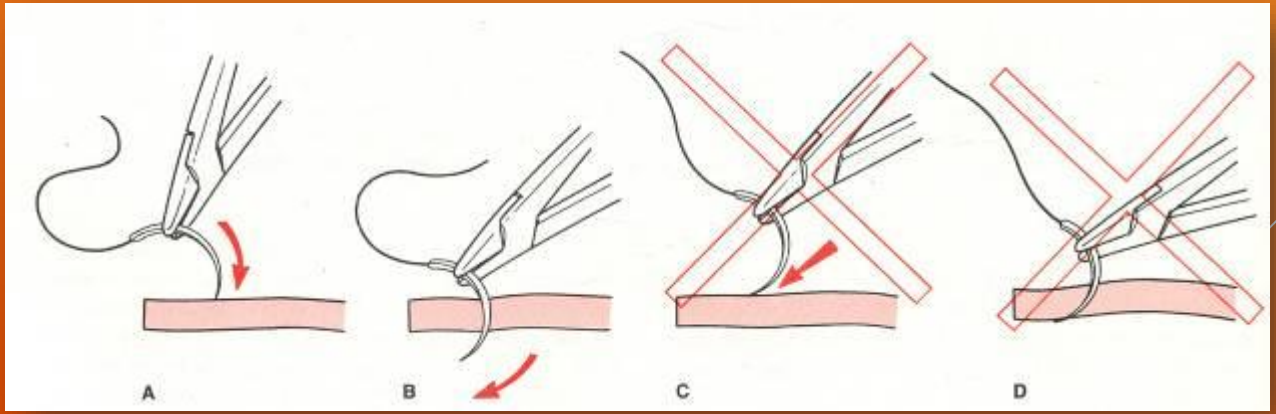
PRINCIPLES OF SUTURING

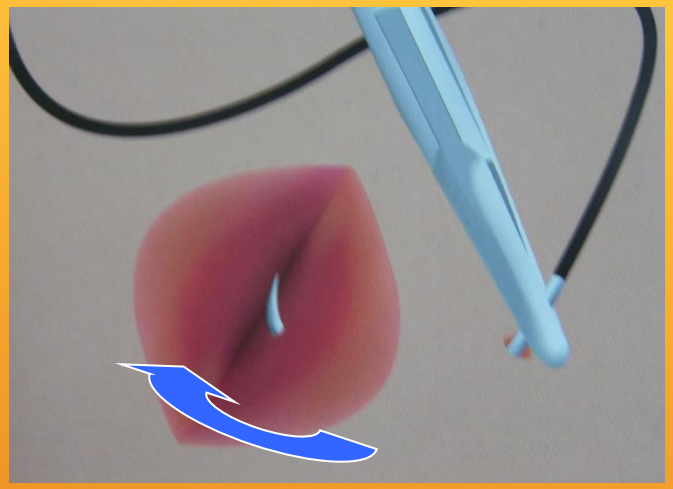
PRINCIPLES OF SUTURING

1. Needle grasped at 1/4th to half the distance from eye.



2. Needle should enter perpendicular to tissue surface





4. The bite should be equal on both sides of the wound margin and the point of the entry of the needle should be closer to the wound edge than its point of exit on the deep surface
5. The bite should be about 2-3 mm from the wound margin of the flap because after wound closure the edge of the wound softens due to collagenolysis and the holding power is impaired.

6. Usually the needle to be passed from mobile side to the fixed side but not always (exception in lingual mucoperiosteum flap) and from thinner to thicker & from deeper to superficial flap.

7.The tissues should not be closed under tension , since they will either tear or necrose around the the suture

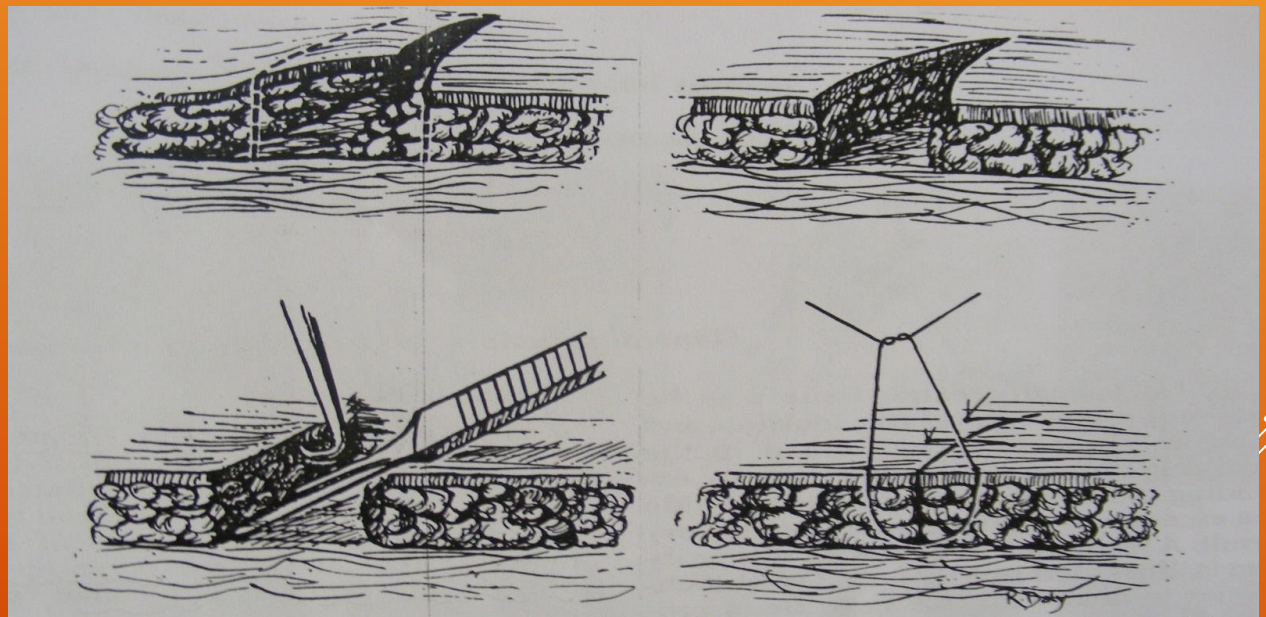


Fig. 7-11. Undermining of wound margins. Oblique injury may result in loss of tissue vitality. When this tissue is excised, it may leave defect that cannot be closed without tension. Undermining tissue margins, either sharply or bluntly, will result in closure that is tension-free.

8.Tie to approximate

9.Knot must not lie on incision line

10.The distance b/w one suture to another should be about 3-4 mm apart to prevent strangulation of the tissue & to allow escape of the serum or inflammatory exudate & to get more strength of the wound.

11. Sutures placed at a greater depth than distance from the incision to evert wound margins

12. Close deep wounds in layers

13. Avoid retrieving needle by tip

14. Adequate tissue bite to prevent tearing

15. sutures should have correct tension while tying knot for provision of the slight edema post operatively, more tensioned sutures cause

    - ischemia of the edges of the incision
    - causes tearing of the tissues
    - may leave suture mark
    - edges may get overlapped

16. Occasionally extra tissue may be present on one side of incision and cause DOG EAR to be formed in the final phase of wound closure.

- Simply extending the length of the incision to hide the exists will produce an unsatisfactory result.

- Thus after undermining excess tissue incision is made at approx. 30^0 to parent incision directed towards undermined side. Extra tissue is pulled over incision and appropriate amount is excised. Incision is closed in normal manner.

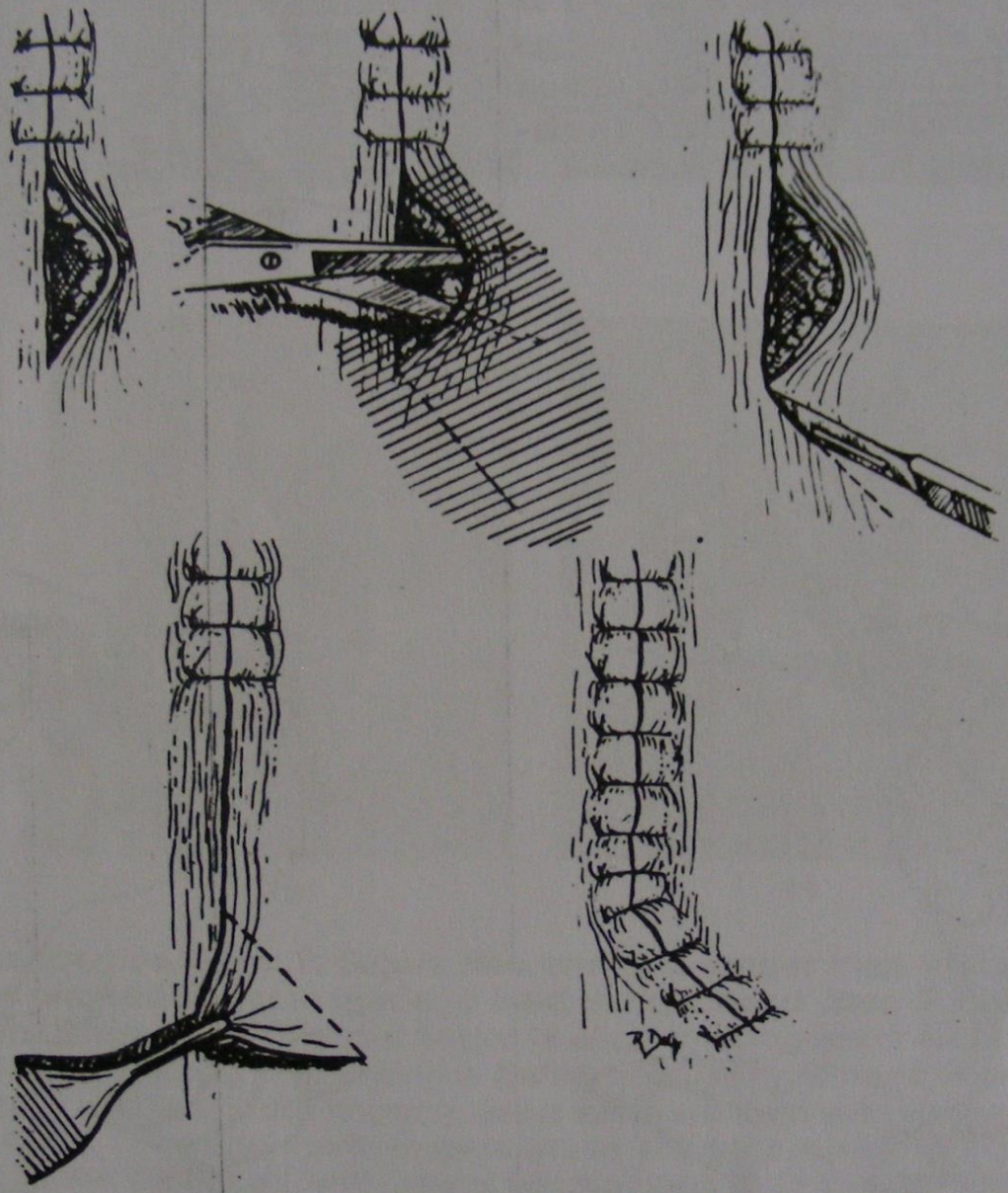


Fig. 7-12. Eliminating "dog-ear" at end of incision. After undermining excess tissue, incision is made at approximately 30 degrees to parent incision directed toward undermined side. Extra tissue is pulled over incision and the appropriate amount is excised. Incision is then closed in normal manner.

IMPROPER SUTURING TECHNIQUE

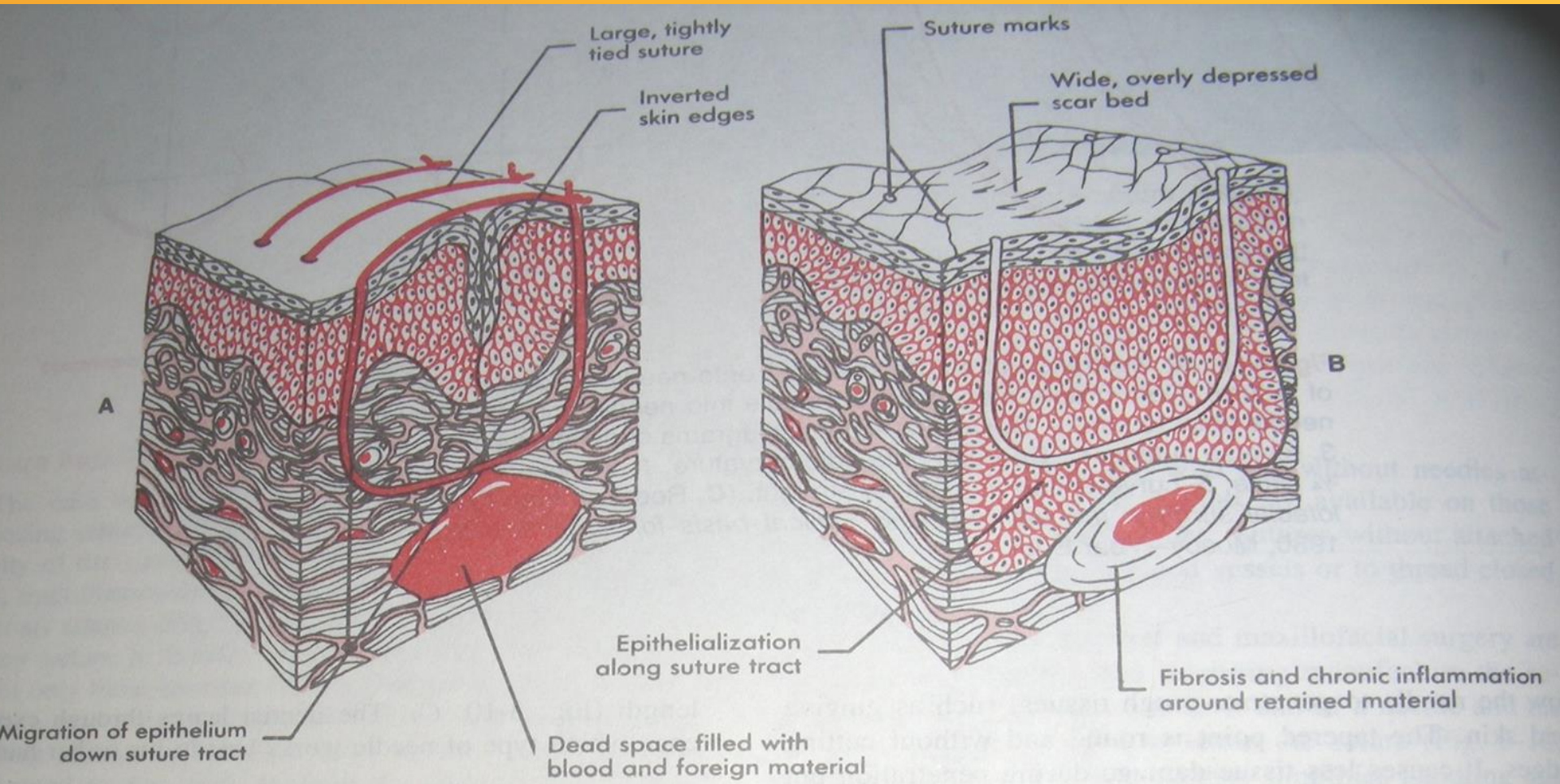
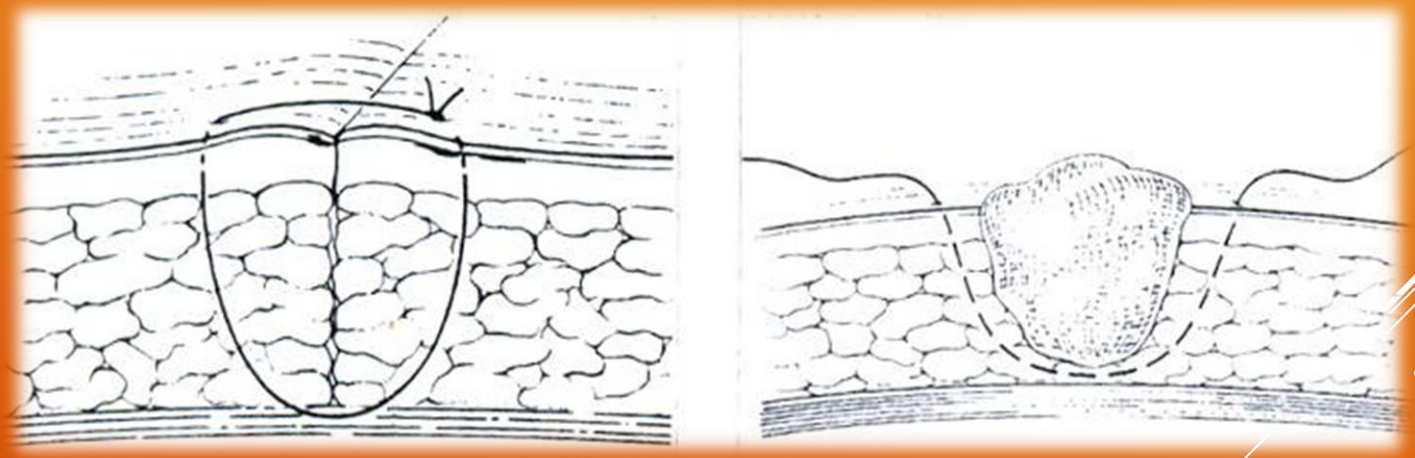


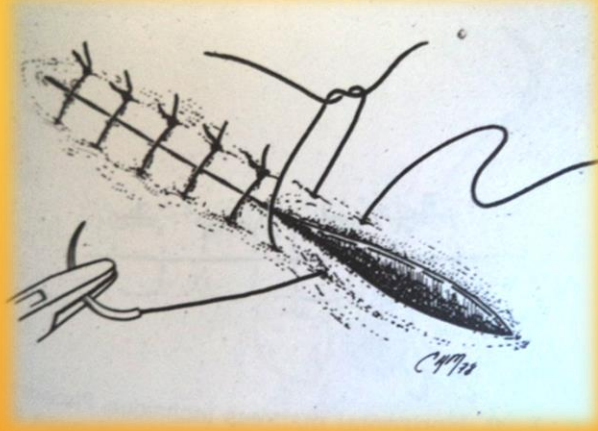
Fig. 3-11. **A,** Improper suturing technique. Excessively large suture tied too tightly, inverting wound edges, leaving dead space, and failing to remove suture early enough to prevent epithelial migration down along sutures. **B,** Poor appearance of scar is caused by wound-closure errors, as illustrated in **A.** (© 1977. CIBA-GEIGY. Reproduced with permission from Clinical Symposia—by W. Michael Bryant. All rights reserved.)

SUTURING TECHNIQUES

1.INTERRUPTED SIMPLE SUTURE

Most commonly used. Inserted singly through side of the wound and tied with a surgeon's knot.



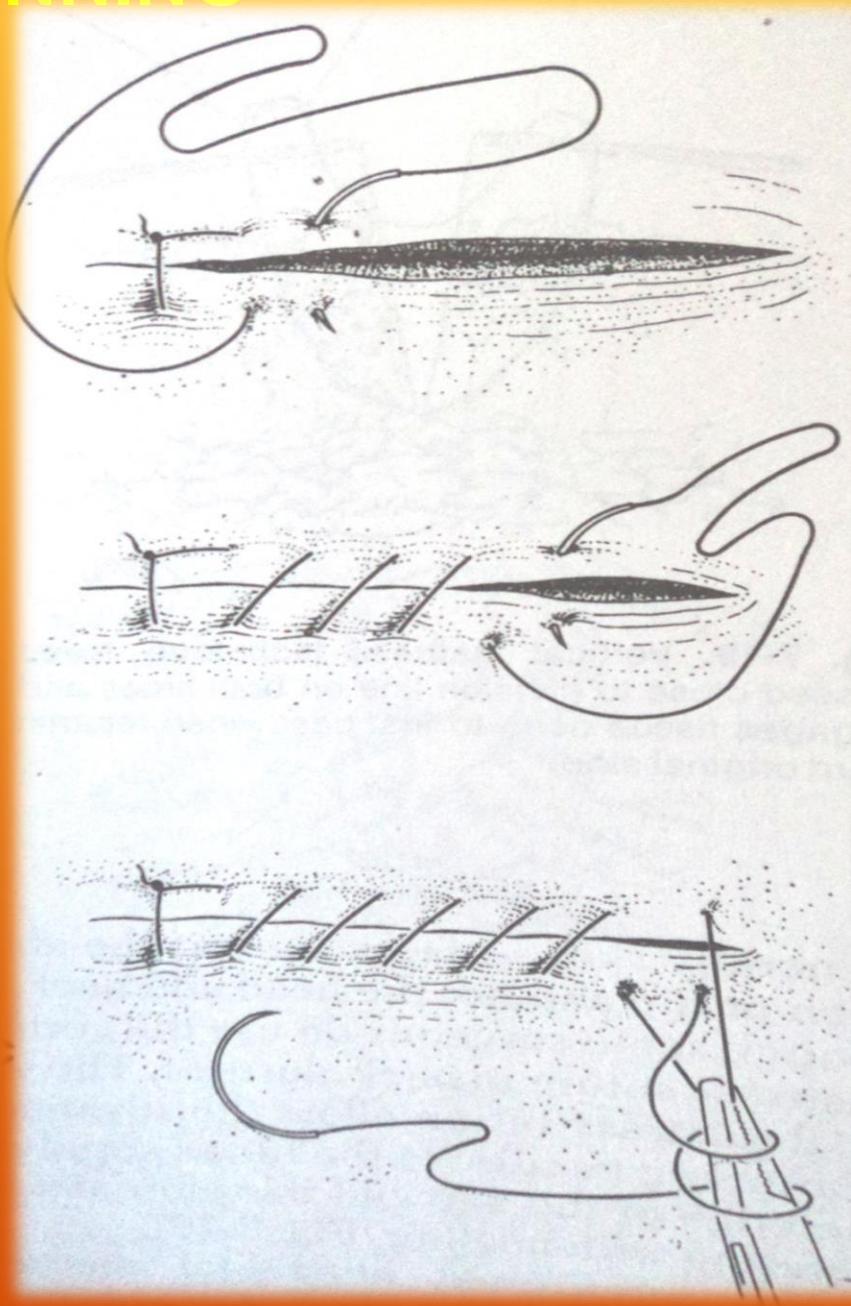


Advantages

- Strong and can be used in areas of stress
- Each is independent and loosening one will not produce loosening of the other
- In infection or hematoma, removal of few sutures
- Free of interferences b/w each stitch and easy to clean

2. SIMPLE CONTINUOUS / RUNNING

A simple interrupted suture placed and needle reinserted in a continuous fashion such that the suturepasses perpendicular to the incision line below and obliquely above. Ended by passing a knot over the untightened end of the suture.



Advantages

- ✓ Rapid technique and distributes tension uniformly
- ✓ More water tight closure
- ✓ Only 2 knots with associated tags

Disadvantages

If cut at one point, suture slackens along the whole length of the wound which will then gape open.

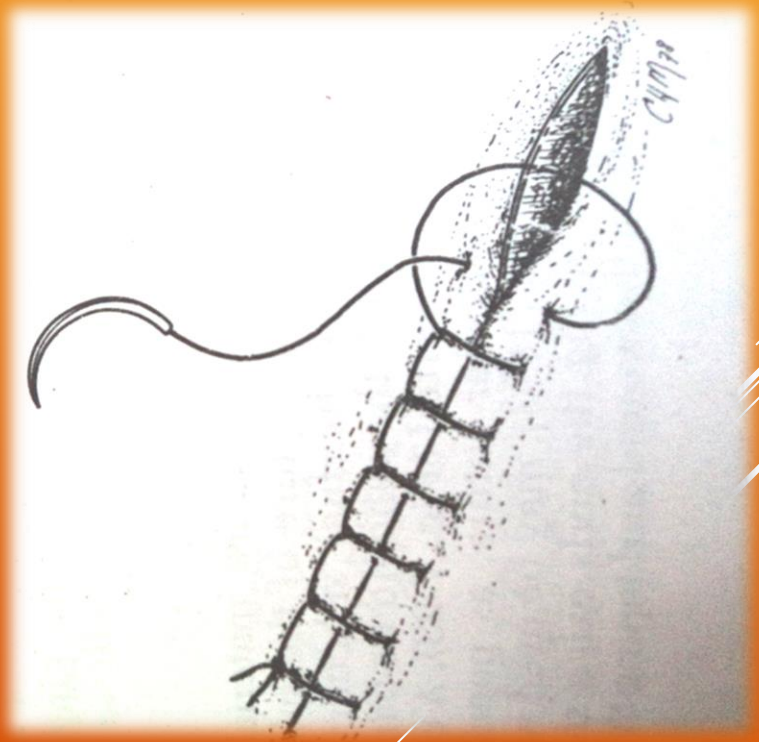
3.CONTINUOUS LOCKING/BLANKET

Similar to continuous but locking provided by withdrawing the suture through its own loop. Indicated in long edentulous areas, tuberosities or retromolar area.

Advantages

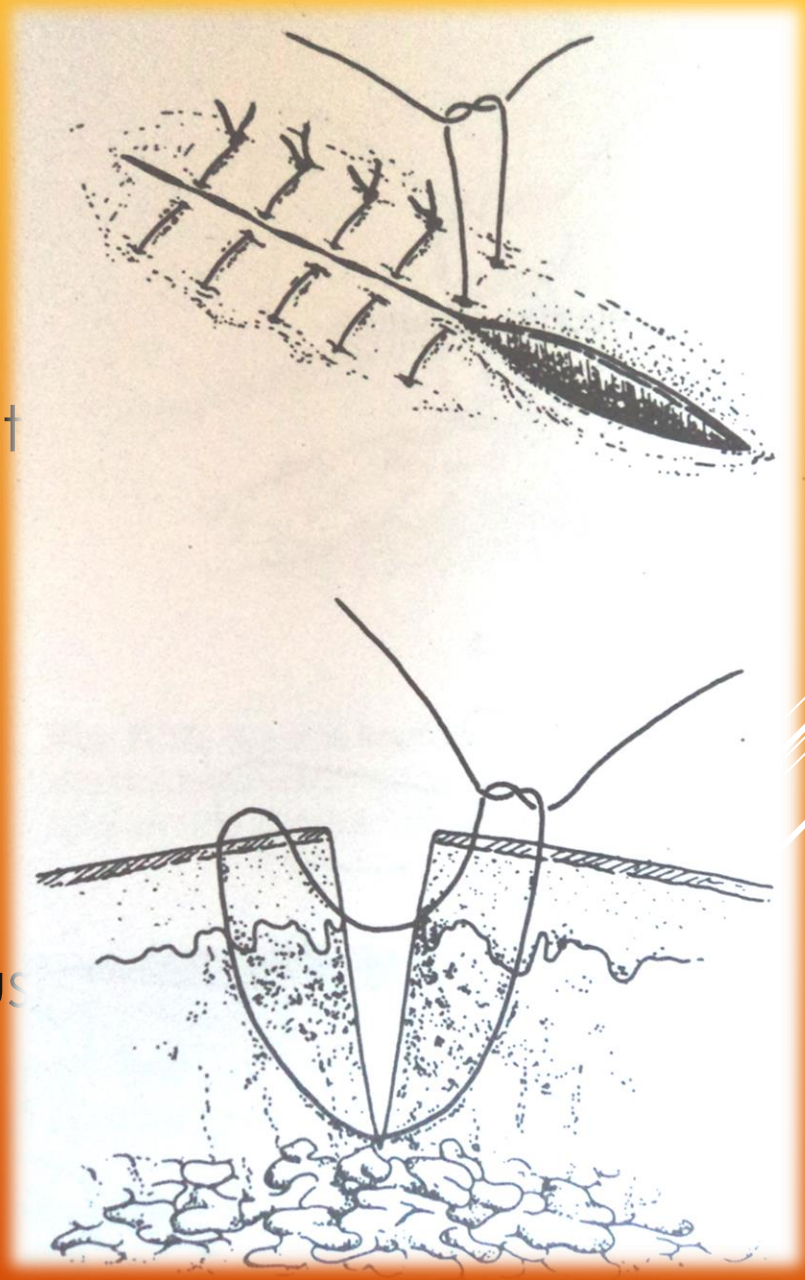
✓Will avoid multiple knots
✓Distributes tension uniformly
✓Water tight closure
✓Prevents excessive tightening.

Disadvantage :prevents adjustment of tension over suture



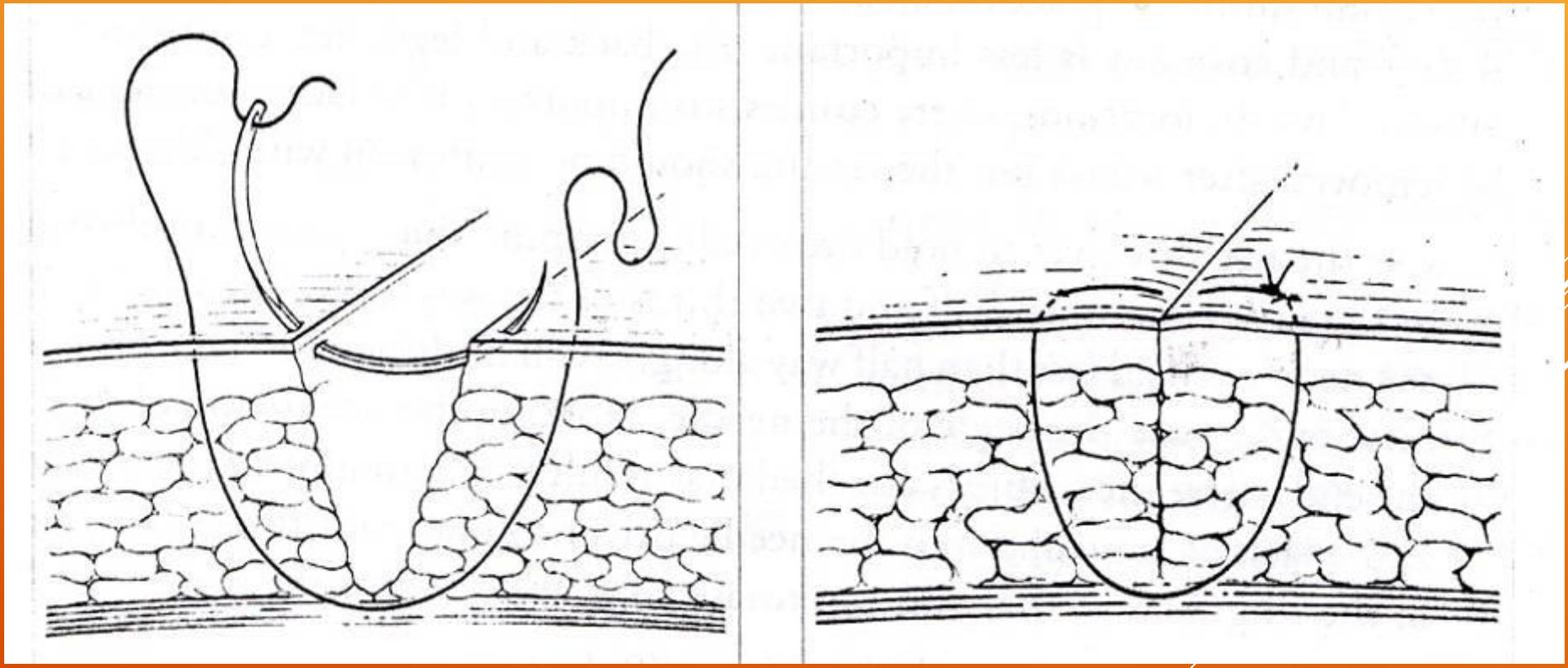
4.VERTICAL MATTRESS

- Specially designed for use in skin. It passes at 2 levels, one deep to provide support and adduction of wound surfaces at a depth and one superficial to draw the edges together and evert them.
- Used for closing deep wounds
- This approximates subcutaneous and skin edges



Needle passed from one edge to the other and again from latter edge to the fist and knot tied.

When needle is brought back from second flap to the first, depth of penetration is more superficial.



Advantages :

- for better adaptation and maximum tissue approximation
- To get eversion of wound margins slightly
- Where healing is expected to be delayed for any reason, it is better to give wound added support by vertical mattress. Used to control soft tissue hemorrhage.
- Runs parallel to the blood supply of the edge of the flap and therefore not interfering with healing.
- Uses: abdominal surgeries & closure of skin wounds.

5.HORIZONTAL MATTRESS

- It everts mucosal or skin margins, bringing greater areas of raw tissue into contact. So used for closing bony deficiencies such as oro-antral fistula or cystic cavities.

- **Disadvantage:** constricts the blood supply to edges of incision.

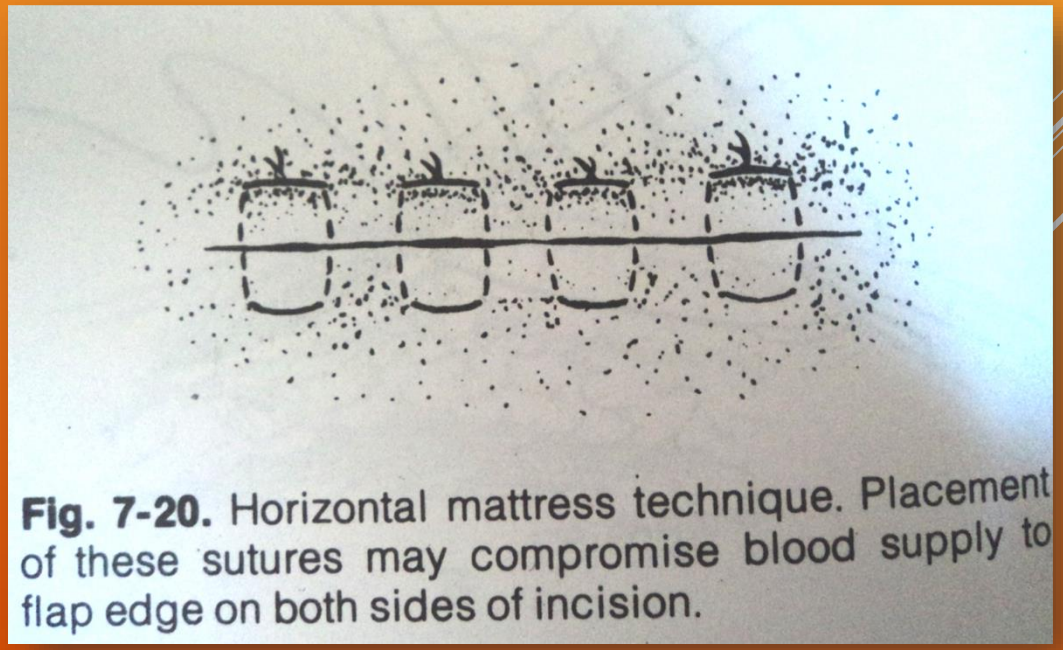
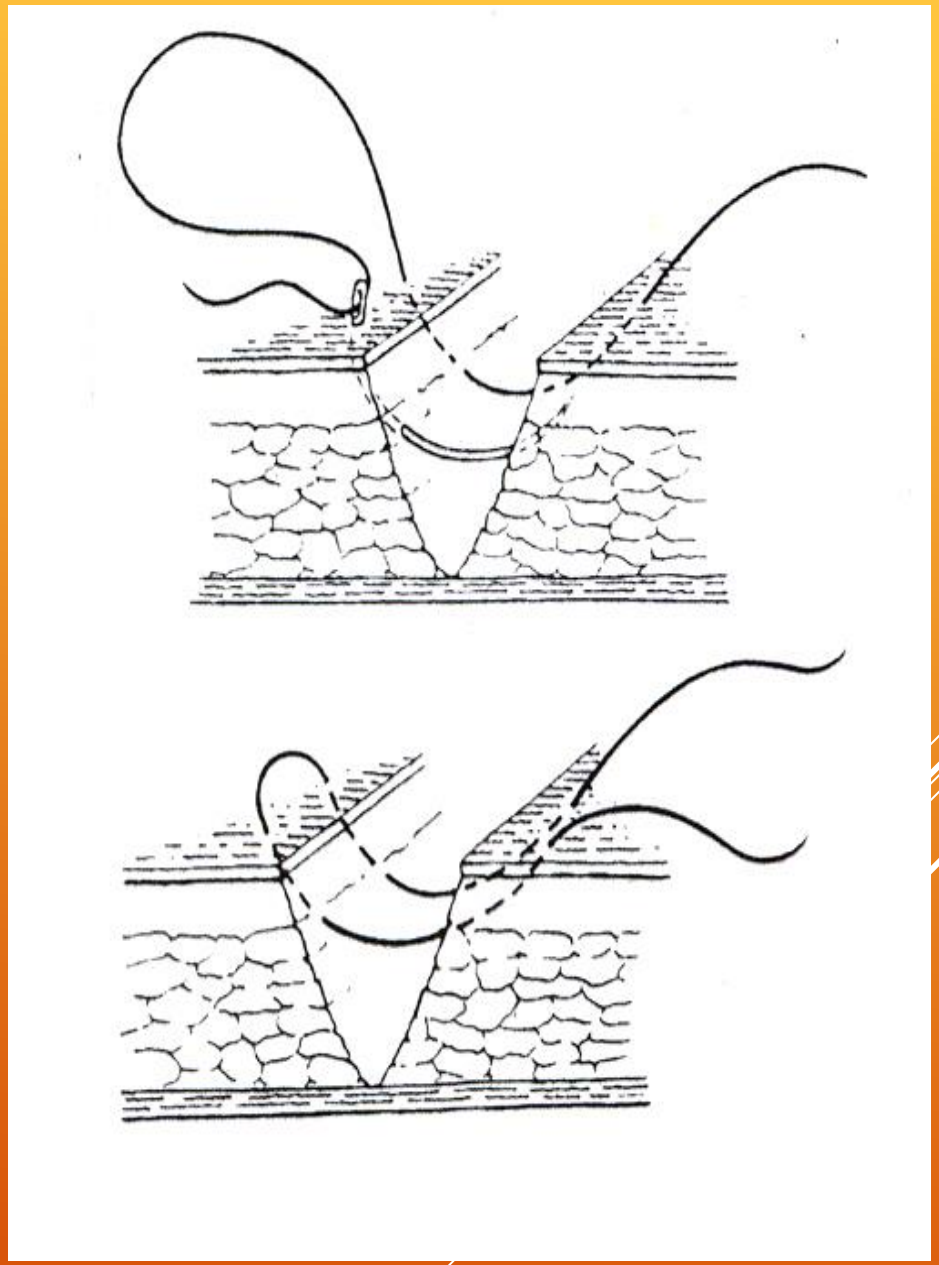


Fig. 7-20. Horizontal mattress technique. Placement of these sutures may compromise blood supply to flap edge on both sides of incision.

Needle passed from one edge to the other and again from the latter to the first and a knot is tied.

Distance of needle penetration and depth of penetration is same for each entry point, but horizontal distance of the points of penetration on the same side of the flap differs.



Advantages:

- Will evert mucosal or skin margins, bringing greater areas of raw tissue into contact.

  -So used for closing bony deficiencies such as oro-antral fistula or cystic cavities, extraction socket wounds.

- Prevents the flap from being inverted into the cavity.
- To control post-operative hemorrhage from gingiva around the tooth socket to tense the mucoperiosteum over the underlying bone.

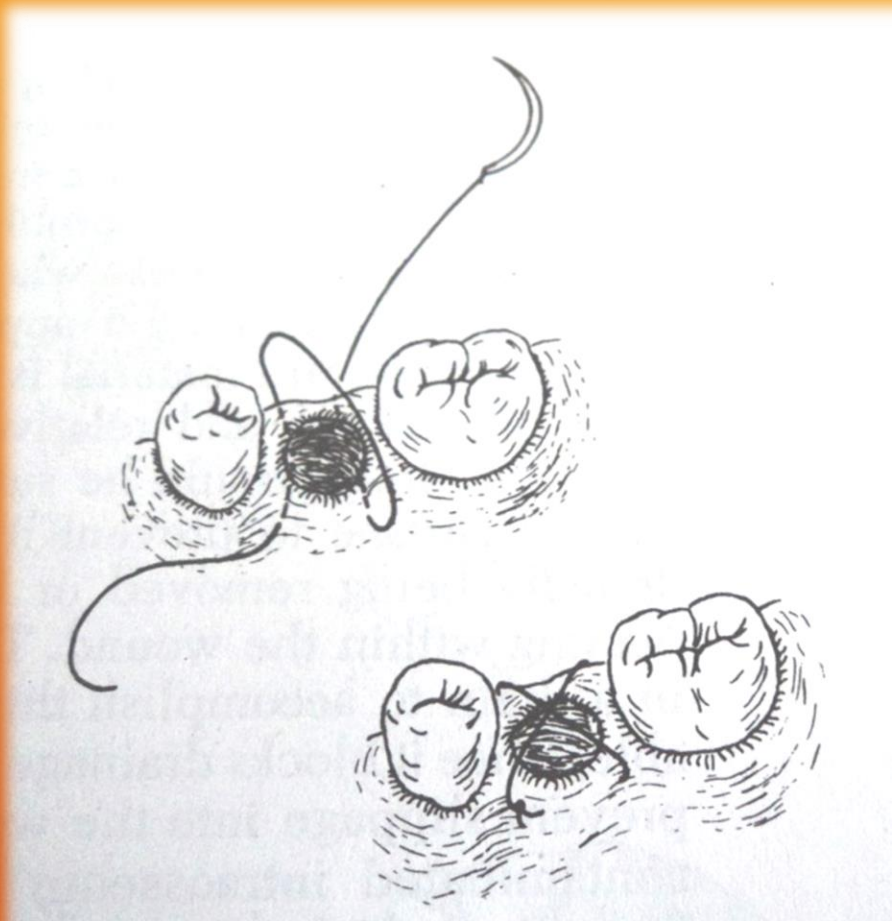
Disadvantages:

- More trouble to insert
- Constricts the blood supply to the incision if improperly used, cause wound necrosis

6. FIGURE OF 8 SUTURE

Used for extraction socket closure and for adaption of gingival papilla around the tooth Suturing begun on buccal surface 3-4mm from the tip of the papilla so as to prevent tearing of papilla.

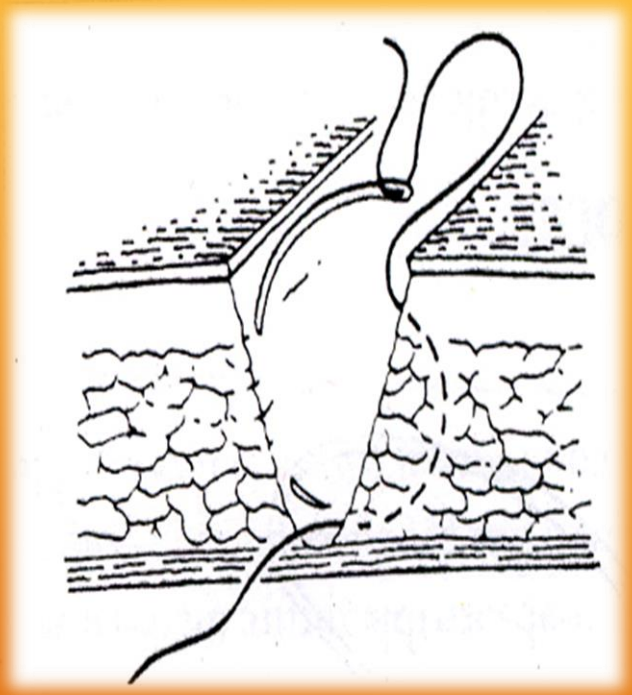
Needle first inserted into the outer surface of the buccal flap and then the lingual flap. Needle again inserted in same fashion at a horizontal distance and then both ends tied.

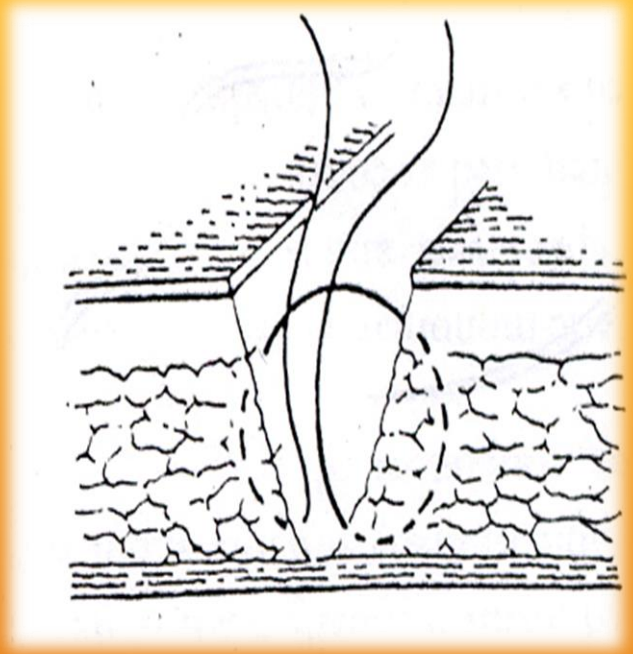


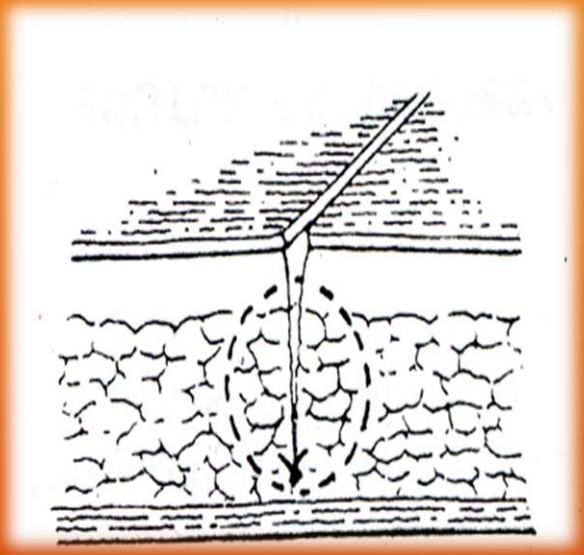
7. SUBCUTICULAR SUTURE

Used to close deep wounds in layers. Knots will be inverted or buried, so that the knot does not lie between the skin margin and cause inflammation or infection.

To bury the knot, first pass of the needle should be from within the wound and through the lower portion of the dermal layer. Needle then passed through the dermal layer and emerge through subcutaneous tissue and knot tied







8.CONTINUOUS SUBCUTICULAR SUTURE

Continuous short lateral stitches are taken beneath the epithelial layer of the skin. The ends of the suture come out at each end of the incision and are knotted.

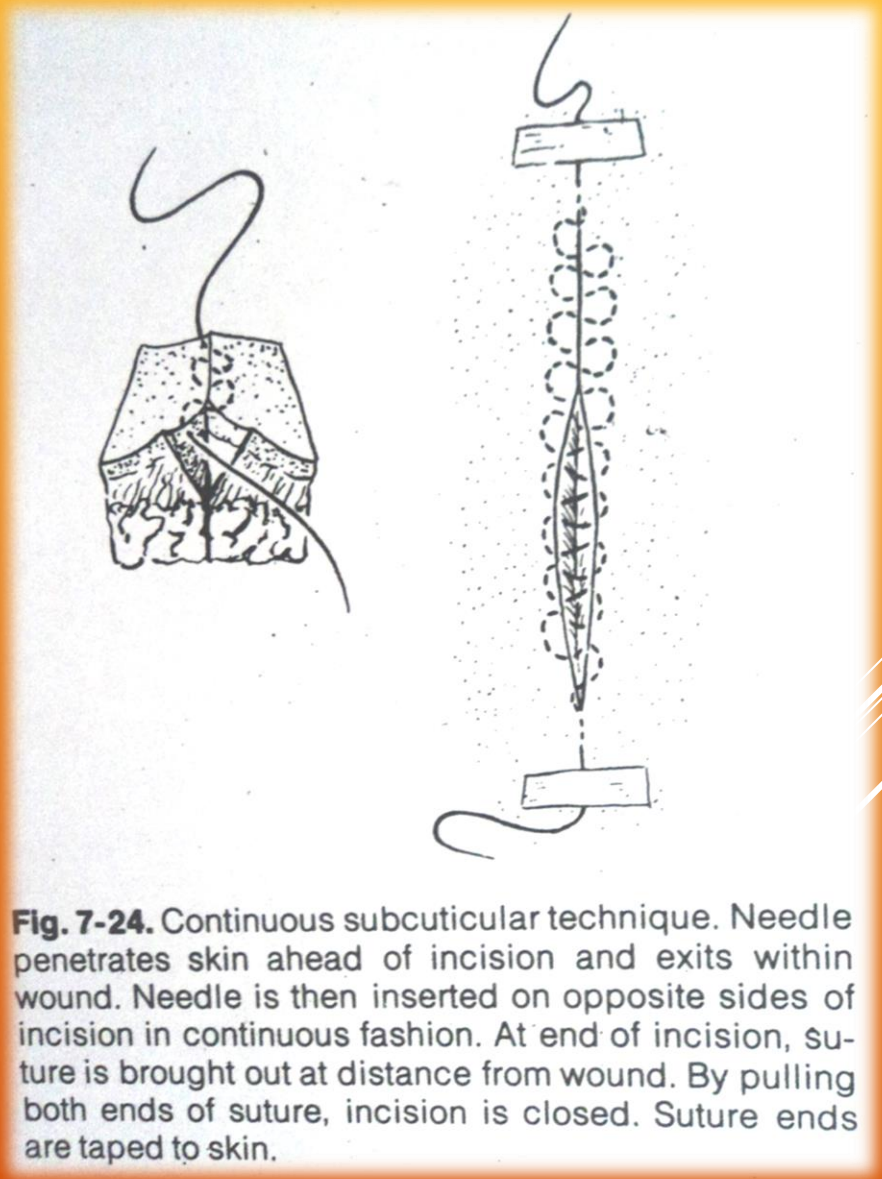


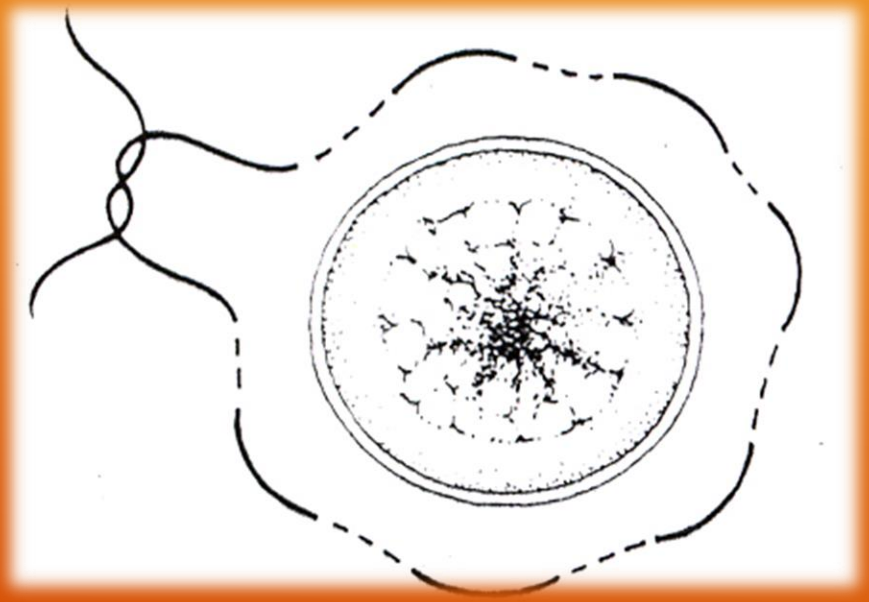
Fig. 7-24. Continuous subcuticular technique. Needle penetrates skin ahead of incision and exits within wound. Needle is then inserted on opposite sides of incision in continuous fashion. At end of incision, suture is brought out at distance from wound. By pulling both ends of suture, incision is closed. Suture ends are taped to skin.

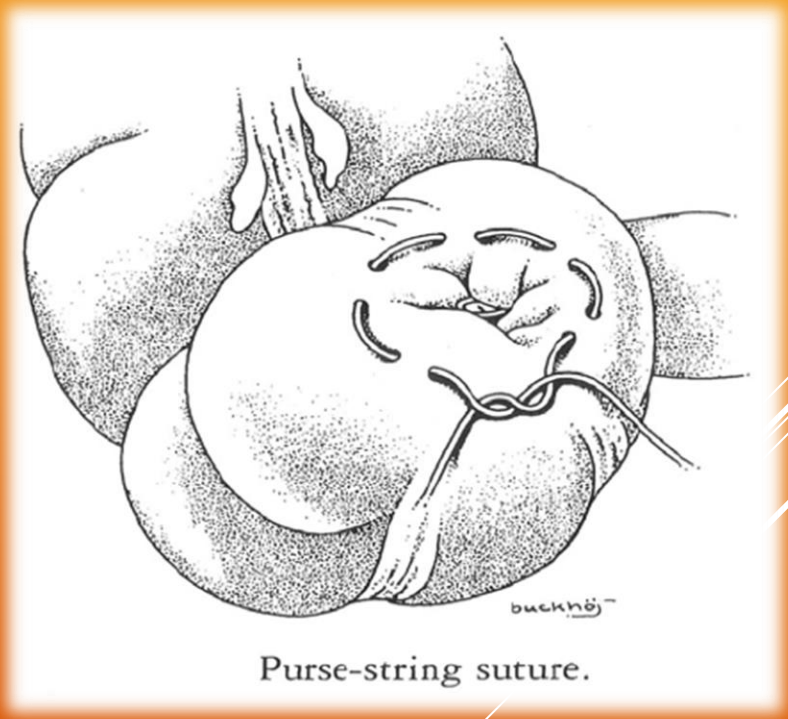
Advantages

- Excellent cosmetic result
- Useful in wounds with strong skin tension, especially for patients prone to keloid formation.
- Start next stitch directly opposite the one that precedes it.

9.PURSE STRING SUTURE

A circular pattern that draws together the tissue in the path of the suture when the ends are brought together and tied.





Purse-string suture.