

Institute of Surgical Research

Surgical techniques – A4 Practical Module

A1. MODULE – The asepsis and the surgeon

A2. MODULE – Surgical instrumentation

A3. MODULE – Surgical knotting; suture types

A4. MODULE: Operations, Bleedings

- skin incision,**
- handling surgical bleedings,**
- drainage,**
- wound closure with continuous and interrupted sutures, clips**

A5. MODULE - Wounds

A6. MODULE – Minor surgical procedures



Skin incision 1.

skin scalpel (#20 blade, #4 handle),
the surgeon and assistant stretch the skin with sterile
towels placed on both sides of the operative field.



Skin incision 2.

Incision is made

- **perpendicular to the skin,**
- **with a single, definite cut.**

Direction of the incision

- **depends on the location of the organ,**
- **parallel to Langer's lines (better wound healing, less scar formation),**
- **toward oneself, from left to right.**

Skin incision 3.

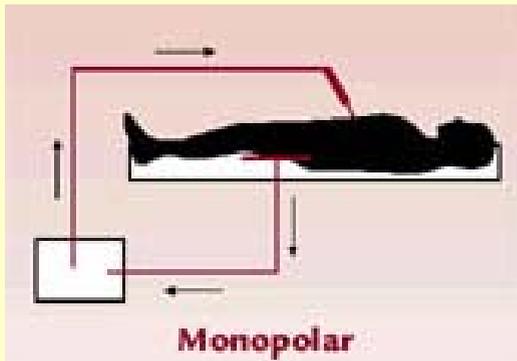
Depth must be the same in the whole length:

- 1. insert the tip perpendicularly into the skin,**
- 2. cut in 45° angle with the edge (not with the tip!),**
- 3. finish the incision with holding the scalpel perpendicularly.**

Discard the scalpel into the container!

Handling surgical bleeding 1.

- **Oozing:** 1. pressure (**tamponade**) with dry or wet (warm saline) towels, sponges; 2. chemical hemostatic agents (**Spongostan, Surgicel, etc.**)
- **Small vessels:** electrocoagulation (**diathermy**)
thermal effect of high frequency alternate current



Must not be used to cut skin, only deeper layers (burn injury)!

Handling surgical bleeding 2.

- **Larger vessels: ligature**

Phase 1. soak up blood: with sponge (assistant)

Phase 2. clamp with artery forceps (mosquito, Péan, etc. - surgeon)

Phase 3. ligature with threads:

- **tie the first knot („half-hitch”),**
- **remove the artery forceps,**
- **tie the second knot.**

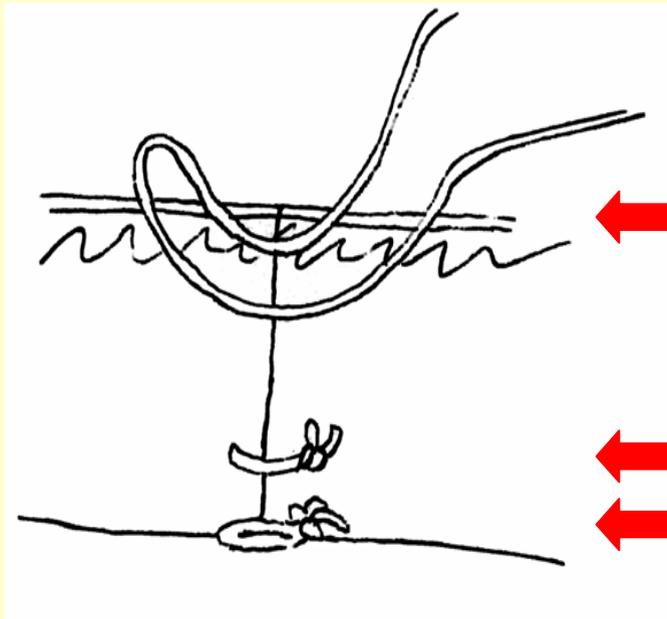
Handling surgical bleeding 3.

- **Diffuse, anatomical bleeding:**
 - suture with two stitches,
 - suture in „8” form.
- **Preventive hemostasis:**
 1. clamp with two artery forceps,
 2. cut the vessel between them,
 3. ligate both ends.

Handling surgical bleeding 4. (video)



Closing wounds in separate layers



3. Skin

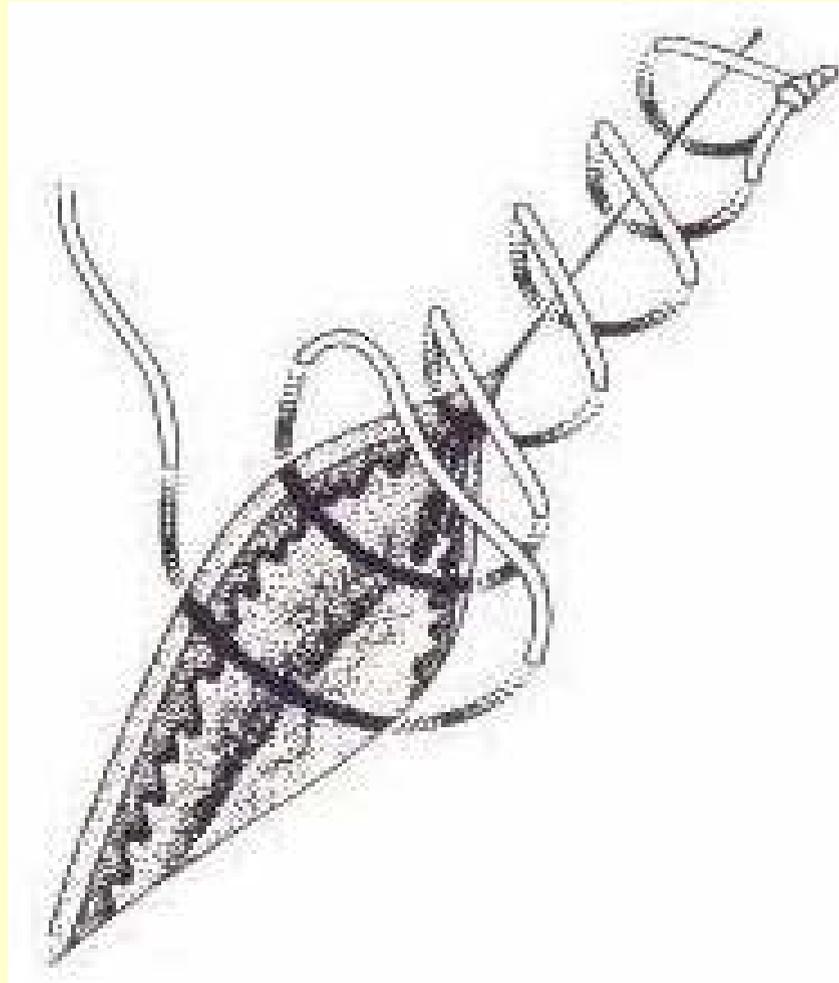
2. Subcutis

1. Peritoneum, fascia

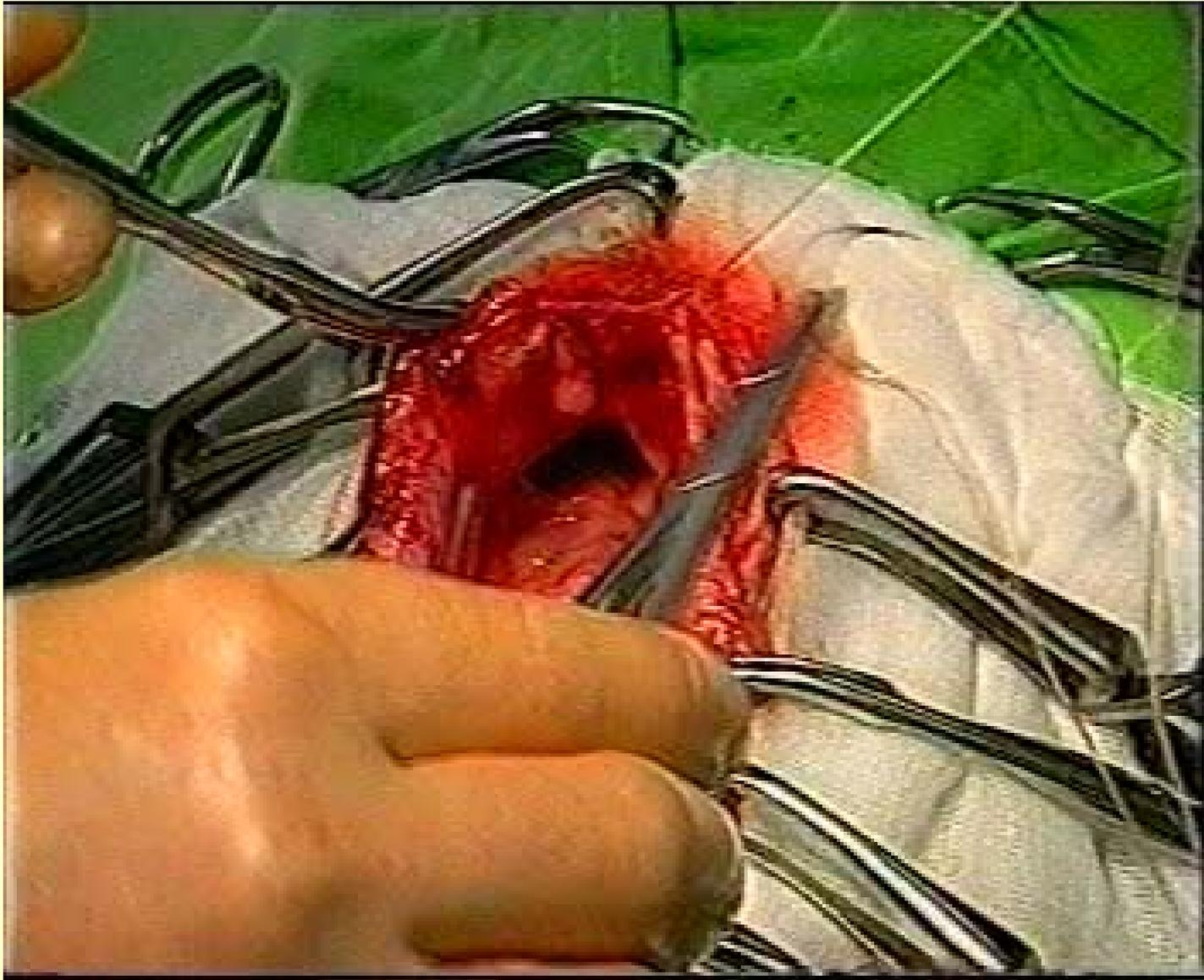
1. Deeper tissues (muscle, fascia)	Absorbable threads Simple continuous suture
2. Subcutis	Absorbable threads Simple interrupted suture
3. Skin	Non-absorbable threads Vertical mattress suture

Wound closure 1.

Simple continuous suture

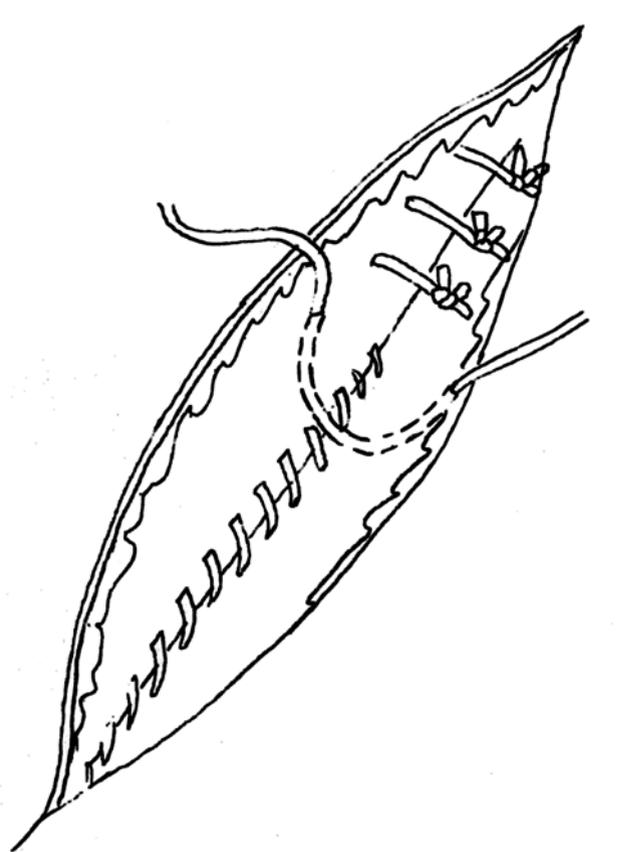


Simple continuous suture (video)



Wound closure 2.

Simple interrupted suture - the subcutis

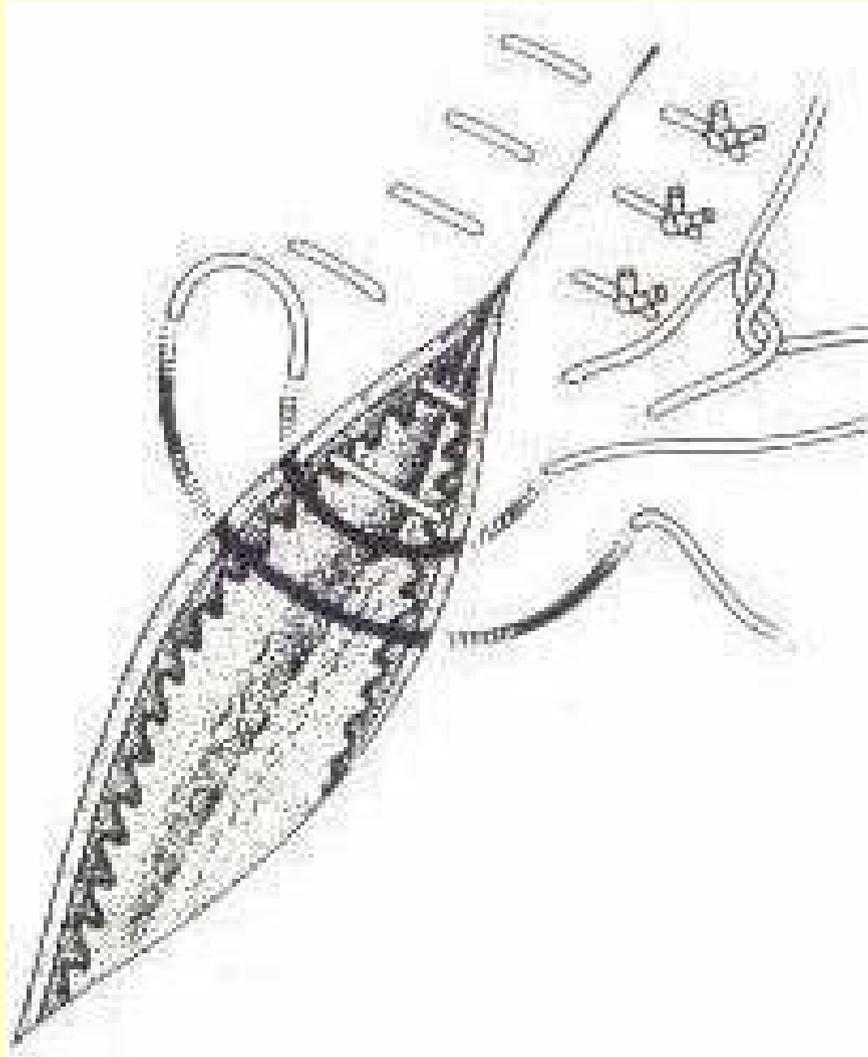


Subcutis: always use interrupted stitches;

- **Important to secure wound closure;**
- **Should not be placed close to the skin;**
- **Threads are cut at the end (only after completion of all stitches).**

Wound closure 3. Suture of the skin

Donati-type vertical mattress suture



Wound closure 4. Michel clips



Drainage

Principle

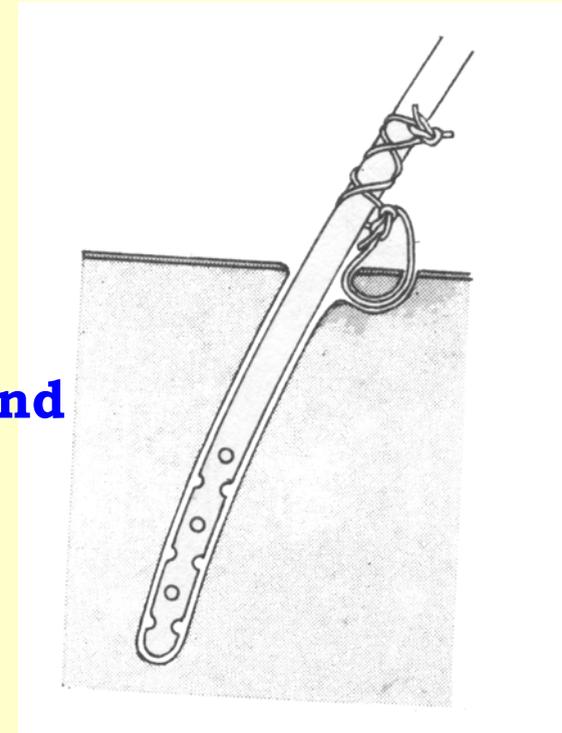
- to channel air / existing fluids (pus, blood, body secretions) and those that collect later;
- major aims: alleviation of pain and inflammation.

Tube drains

- multiple holes,
- made of silicone, rubber or latex,
- should be secured in place by sutures.

Drainage in practice

1. Create an aperture separate from the wound
2. Pull the drain through the aperture
3. Skin stitches, loose knot
4. Securing the tube



Practicals

Working in operating teams (surgeon, assistant and nurse):

- 1. Scrubbing, disinfection, gowning;**
- 2. Skin incision (on prepared, cleaned natural tissue);**
- 3. Handling surgical bleedings with ligatures;**
- 4. *Closing the wound in separate layers (the assistant ties the knots):***
 - 5. Continuous suture (peritoneum) with linen thread, knotting by hand;**
 - 6. Drainage – insertion of a tube drain;**
 - 7. Interrupted stitches (subcutis); linen thread, knotting by hand;**
 - 8. Wound closure with Michel clips;**
 - 9. Donati-type stitches (skin) with monofilament thread, knotting by hand.**

Schedule

0-15 min	15-30	30-45	45-60	60-90
Introduction	Scrub preparation Operating room	Surgical procedures Operating room	Surgical procedures Operating room	Surgical procedures Operating room
	Suture Tutor: Suture types	Scrub preparation Operating room	Surgical procedure Operating room	Surgical procedure Operating room
	Suture Tutor: Suture types	Suture Tutor: Suture types	Scrub preparation Operating room	Surgical procedure Operating room

Have a good practice!