UNIT 7 SUTURING OF SUPERFICIAL WOUNDS

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7.0 INTRODUCTION

We have either suffered or seen a close relative suffer a lacerated wound that required suturing and management. Improperly sutured wounds can lead to wound breakdown, infection and poor healing. Hence it is important to learn proper wound management and repair. In this practicum, we will learn wound toilet, proper wound care, including indications and contraindications of primary wound closure, delayed primary closure and where secondary healing or grafting is required.

7.1 OBJECTIVES

At the end of this unit, you should be able to:

• clean wounds properly;
• stitch and Dress of Minor wounds. The Do’s and Don’t’s during suturing;
• provide/Supervise home care, and Follow up; and
• identify danger signs, refer and follow up.
7.2 THE IMMEDIATE WOUND CARE

All wounds need some kind of cleansing. The simplest toilet (applicable, say, to eyelid wounds) is dabbing on antiseptic after ordinary washing and exploring to remove obvious dirt. Most wounds need more than this, some very much more. The more the dead tissue, the more thorough must be your toilet (dressing). Dressing is a protective covering applied to a wound with purposes, such as:

- Present infection
- Absorb discharge
- Control bleeding
- Avoid further injury

Contraindications

Conditions which does not allow dressing toilet are signs of wound are:

- foul discharge
- lymphangitis
- lymphadenitis
- fever.

7.2.1 Types of Dressing

a) Adhesive dressing (Band-aid): These are sterile dressing of different kinds and consists of a pad of absorbent gauze. To apply this surround skin must be dry before application and all the edges of the dressing pressed firmed down.

b) Non-adhesive dressing: This is readymade sterile dressing consists of layers of gauze covered by a pad of cotton wool with an attached roller bandage to hold it in position. These are enclosed and sealed in protective covering and supplied in various sizes.

c) Gauze dressing: This is sued for large wounds as it is having absorbent, soft and pliable. It is liable to adhere to wound.

d) Improvised: This can be prepared with any clean soft absorbent material such as clean handkerchief, a piece of linen, a clean paper etc.

7.2.2 Points to be Kept in Mind While Doing Dressing

An efficient dressing should be sterile:

- Wash hands thoroughly before dressing.
- Avoid touching of wound with fingers, wear gloves and use asceptive technique.
- Do not talk or cough over wound.
- If dressing stick to the wound do not try to pull it but remove gently by wetting the wound with sterile saline solution.

7.2.3 Articles Required

- Kidney tray and Paper bag.
General Skills and Laboratory Skills

- Savlon / Dettol
- Thumb forceps / Artery forceps depending on wound size
- Syringe
- Scissors
- Medication (ointment to apply on wound) i.e. soframycin, betadine
- Spirit (to clean outside of wound).
- Gloves

7.3 PROCEDURE FOR DRESSING OF WOUND

Let us learn wound dressing which can be done by two methods depending upon the examination.

7.3.1 The Social Cleansing of a Wound (Procedure)

Do this in two stages before you drape a patient, first the surrounding skin, then the wound.

1. Pack the patient’s wound with a sterile swab to keep it dry while you clean the skin around it with tap water, ordinary soap, and a nail brush. Pour on more tap water, until the patient’s skin is very clean as shown in Fig. 7.1.

2. Now remove the swab and clean the wound itself. If the dirt is ingrained, use a fresh soft boiled nail brush and gloved or scrubbed hands. You can use a nail brush in a wound. Push it into the dirty tissues of the wound with gentle rotating movements. Don’t use vigorous side to side scrubbing movements. Put a basin under the wound, so that you can pour clean water over it continuously.

7.3.2 The Surgical Cleansing of a Wound

Paint the skin around the wound with cetrimide or chlorhexidine. Don’t use iodine, because this will damage more tissue. Drape it or cover with clean cotton cloth exposing the wound.

Points to be keep in mind while cleaning the wound

- Treat the tissues kindly.
- Don’t grab them with large artery forceps, or swab them violently; this injures them, and makes them less able to resist infection.
• Use a pair of forceps to wash away all dirt and ingrained mud etc.
• Flush smaller foreign bodies out of the wound with sterile Normal saline or sterile water in a 50 ml syringe, or an ear syringe.
• You may find pieces of wood, metal, gravel or clothing.
• Explore the patient’s wound; probing for foreign material is not enough. If necessary, open it widely to look into its depths.
• If for any reason, you have to leave a foreign body, such as deeply embedded bullet, tell the patient so.
• Remove all clots and join up all cavities so that they drain easily.

7.3.3 Injured Tissues in a Wound

This you can assess the condition of the wound, patient may be referred to higher health facility.

• **Injured skin.** Except on the patient’s face, cut away 3mm of the skin margin round the wound. Don’t undermine the skin edges.

• **Injured fat** readily necroses, so cut it back freely until you reach healthy yellow fat which is not bruised.

• **Injured muscle and fascia.** (A) Cut away all torn fascia and open up fascial planes. (B) Put retractors in the wound so that you can see inside it. Cut away all dead muscle. (C) Dead muscle looks darker and bluish, it does not bleed or ooze when you cut it, and it does not contract when you pinch it with forceps. Snip it away until you reach healthy muscle which contracts and oozes where you cut it. Be radical; dead muscle is an ideal culture medium for clostridia. If you are in doubt as to whether muscle is alive or dead, cut it out!

• **If there are loose pieces of bone which are not attached to periosteum of muscle,** they are ischemic and will die anyway. Remove them. Leave bone pieces which are still attached to periosteum. Don’t scrape live muscle or periosteum from the surface of a bone, because the bone under it may die.

**If bone is exposed in the wound,** you can cover it with moist (sterile saline) gauze.

**Special Structures:** If clinical examination shows that a nerve has been injured, or a tendon or artery has been injured, refer him for proper exploration and repair to a higher centre. Similarly, if he has a compound fracture or a joint that is exposed, **DO NOT Suture the wound but clean it thoroughly as above and refer him after applying splint.**

7.3.4 Relieving Tension in the Wound

If a patient’s tissues show any tendency to burst out of his wound, open up his deep fascia longitudinally down the whole length of the muscle compartment involved. This will prevent the compartment syndrome and is especially important in the forearm and the lower leg; it may even hasten the union of a fracture.

7.3.5 Controlling Bleeding from a Wound

**If you are using a tourniquet,** if bleeding is very severe, be prepared to reapply the tourniquet, even as you try to grasp the bleeding vessels with artery forceps.
If you are not using a tourniquet, bleeding or oozing should start as you cut away dead tissue. If it does not, you have not yet reached viable tissues, so you are not cutting away enough. If the wound is extensive, pack one part of it while you clean another.

Most of the bleeding will probably have stopped by the time you have finished toileting the wound. If larger arteries spurt at you, tie them with silk or linen thread. If necessary, control oozing with packs, leave them on for 10 or 20 minutes, and apply more if necessary.

7.3.6 Sutures and Dressing

If you have had to do an extensive wound toilet, the wound will not be suitable for immediate primary suture. So pack it with gauze, aiming for dryness. Loosely bandage the gauze in place, making sure the bandages do not restrict the circulation.

If the wound is in a limb, raise it.

Prevent Gas Gangrene, if a patient has a severe muscle wound of his buttock, thigh, calf, axilla, or retroperitoneal tissues, give him penicillin 1.5 megaunits every 4 hours starting immediately after the injury. Or, give him tetracycline.

Splints to immobilise the Limb, if he has a severe wound of a limb, immobilise it and then elevate it.

A Second Surgical Toilet, if you see more dead tissue at the time of the delayed closure, toilet his wound again.

7.4 PRIMARY SUTURES

Let us now discuss the Primary Sutures its immediate care, indications and contraindications in detail as given below.

7.4.1 Immediate Primary Suture

This is the suture of a wound within six hours of the injury, but it is only safe if the wound is clean and if it contains no dead tissue. All other wounds are best packed with gauze and left open to see what happens, 3 day later.

When you suture any wound, aim to: (1) close it at all points and in all planes. Suture it so as to obliterate dead spaces in which blood and exudate can collect. Be gentle in handling tissues to prevent further trauma.

You have just toileted the wound, and have now to decide if it is suitable for immediate or delayed primary suture.

7.4.2 Indications

(1) In most parts of the body, primary suture is only indicated if a wound

- is clean cut, as by a knife or broken glass
- is less than 6 hours old
- contains no doubtfully viable tissue, and
- can be sutured without undue tension
2) Most wounds of the head, face, and neck, and small clean wounds on the hands, arms, and scalp, are suitable for immediate primary closure for up to 24 hours because their blood supply is good.

3) Close all wounds of the dura, and the pleural and peritoneal cavities, by immediate primary suture. If necessary, you can leave the tissues over them for delayed suture.

If all the other conditions apply, except that you cannot bring the skin edges together, you may be able to close the wound by primary skin grafting. Keeping this information would help the patient in relieving his/her worries, so you must explain to the patient.

7.4.3 Contraindications

These are (1) wounds more than 6 hours old, or with dirty or damaged tissue, (2) severe wounds, crush injuries, gunshot wounds and bites - either human or animal, (3) any wound in which immediate or delayed primary split skin grafting might be a better way of providing skin cover, for example degloving injuries, (4) wounds in severely shocked patients whose wound repair poorly, (5) all open fractures (6) Most open joint wounds.

7.5 TECHNIQUE OF SUTURING SKIN

You must know about sutures available for use as per site of the wound in the body.

After cleaning and preparing the wound for suturing under local anaesthesia, the correct suture material and needle are chosen for use. If using atraumatic sutures with needle, use 3–0 or 2–0 nylon or silk on a cutting needle to suture the skin at most places. However, close to the eye, on the face, and on the hand it may be better to use finer suture such as 4–0 or even 5–0. Enter the skin at right angles to the skin surface and exit from the other end beyond the breach at an equal distance from the edge. Include deeper tissue in the bites. Apply simple sutures and tie the knot without making it too tight. The margins of the wound should just approximate. Sometimes, mattress sutures may be required to get good apposition. If there is dead space, or there are tissues in the depth that require approximation, apply atraumatic chromic catgut (2–0 or 3–0) to get them close. This will reduce or obliterate the dead space.

Clean the sutured wound once again with normal saline, apply dressing with povidone iodine ointment and surgical tape or bandage to hold it. Inspect the wound after 48 hours and leave exposed if there is no significant discharge.

Most wounds can be managed by removing sutures at one week. Those on the face can be removed even a day or two earlier, while on the lower limbs and back 10 days to two weeks may be better. Healing is slower in old age and hence sutures may be left longer in them.
7.6 LET US SUM UP

The key messages of this unit are wound toilet is very important before one embarks on suturing a wound, consider primary wound closure only in clean cut wounds, especially those on the face and scalp, where there is good vascularity, give good analgesia for wound toilet and suturing, give inj. tetanus toxoid booster after any lacerated wound, if the booster has not been given in the previous one year, never suture deep wounds extending to the muscle, primarily. On the contrary, lay them open, join all cavities and do a fasciotomy, if required in such cases and square the knots as you fasten them, to ensure that they do not slip. Do not fasten them too tight, just enough to approximate cut edges.

7.7 ACTIVITY

Select 3–5 persons with wounds.
Identify different types of wounds and take care of these wounds appropriately. Describe the procedure followed is each wound and maintain record in workbook.