Stop Suturing Like Cobbler

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Abstract Suturing is the joining of tissues with needle and thread so that the tissues will bind together and that healing occurs by primary intention with least scarring. Professionals like tailor and cobbler are also involved with suturing. Although both professions are involved with suturing, they are not dealing with live tissue, so there are no problems like poor healing, ischemia and wound edge necrosis. These complications, which are common with live tissue, may finally lead to wound dehiscence and increased risk of surgical site infection, and ugly scar. Every surgeon should be cognizant of principles of wound healing and aesthetics.

Keywords Suture · Surgeon · Cobbler · Subcuticular

Suturing is the joining of tissues with needle and thread so that the tissues bind together and healing occurs by primary intention with least scarring. The scientists have always been in search of ideal suture material and technique, which promote wound healing by primary intention with minimal scarring. Lord Moynihan enunciated the principle of an ideal suture material. According to him, an ideal suture material for skin should provide enough tensile strength required for primary healing (5–10 days) with minimal scarring. It should not promote a foreign body reaction and spread of infection. Similarly, technique of suturing should be such that it allows better

apposition of edges with minimal scar formation. Surgical knotting should not cause additional complication such as suture granuloma and sinus.

Professionals like tailor and cobbler are also involved with suturing. Sometimes, seeing beautiful handy work of experienced cobbler seems aesthetically better than ugly scar created by surgeon (Fig. 1). Although both professions are involved with suturing, cobblers are not dealing with live tissue, so there are no problems like poor healing, ischemia and wound edge necrosis. These complications, which are common with live tissue, may finally lead to wound dehiscence and increased risk of surgical site infection, ugly scar and a scar akin to “Rail track” on a geopolitical map of a country (Fig. 1). Every surgeon should be cognizant of principles of wound healing and aesthetics.

Modern synthetic absorbable sutures allow approximation of dermis and other tissues with minimal foreign body reaction and inflammation. Monofilament material harbours no organisms around the thread, so risk of infection is minimal. Continuous subcuticular synthetic sutures viz. polyglyconate, polyglycolic acid, polyglactin, polyglecaparon and polydioxanon offer all above-mentioned advantages [1]. There is ample evidence that subcuticular continuous suture with one of the above materials result in excellent healing with minimal risk of surgical site infection. This is especially true for closure of wounds on the face, neck, breast and limbs. Polglase and Nayman compared subcuticular suture with percutaneous sutures and found that subcuticular sutures were associated with lower infection rates [2].

A Cochrane review has provided level I evidence in favour of a subcuticular suturing technique [3]. Continuous subcuticular polyglycolic acid suture with buried knots is shown to be resistant to surface contamination with *Staphylococcus aureus* in mice and is suggested to be superior

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Fig. 1 “Rail track” appearance of scar following breast surgery

to percutaneous skin sutures in *infectability* and to a tape closure in security [3]. A good example of minimal scar formation is found with intracutaneous subcuticular buried suture closure of Pfannenstiel incision in the lower abdomen [4].

Besides the aesthetic aspect, another problem with transcutaneous suture or staple in case of tumour surgery is the need to sacrifice a large amount of skin and subcutaneous tissue, if an incomplete excision has been carried out. In this situation, the second surgery is aimed at obtaining wide histologically negative margins by excising the initial scar including any drain site scar (Fig. 2). Figure 2 reinforces this point where an excision of a large breast lump was carried out by an unscrupulous surgeon who had placed a drain very far from the incision. The amount of tissue sacrificed was almost tantamount to a mastectomy in a pursuit to obtain clear negative margins.

Teaching Points

We wish to bring home the following scientific principles of cutaneous wound repair:

1. Plan the incision according to the underlying pathology—viz. elliptical incision to remove overlying skin for malignant/borderline lesions (e.g. Phyllodes tumour) if

the skin is close to the tumour, a vertical midline laparotomy for acute abdominal conditions and a transverse incision on trunk for elective operations.

2. Be cognizant of the “lines of relaxed skin tension” formerly called “Langer’s line”. These lines are oriented—*transversely* to long axis of the body in the *trunk* (remember “T for T”) and longitudinally in the limbs (remember “L for L”).
3. Achieve perfect haemostasis and avoid putting a drain. If a drain is necessary—exit it close to incision.
4. Use subcuticular absorbable sutures. If there is excessive tension on the wound edges, place tension relieving “Figure of eight” or “X” suture in the subcutaneous tissue using monofilament slowly absorbable suture which retain tensile strength for 3 to 6 weeks or longer [5].

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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Fig. 2 Showing removal of large amount of breast tissue during second surgery for positive margin, involving removal of drain site

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