WOUND HEALING

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There are various ways in which a wound can heal (see Chapter 3). Plastic surgeons can a ff ect the way in which wounds heal. Primary healing, or ‘healing by primary inten - tion’, occurs when the wound is closed soon after the injury by reapproximating the wound edges. This is typically achieved - with sutures, although glue, tape and staples can also be used. Incisions are designed so that they lie along the lines of r elaxed skin tension to reduce the appearance of the scar, particularly on the face and in areas of tension (Figure 47.4). Secondary healing, or ‘healing by secondary intention’, occurs w hen the wound is left to heal from its base. The wound is typically kept clean with sterile non-adherent dressings. Over the course of days and weeks, the wound contracts and skin cells migrate across the wound through a process called epithelialisation. Secondary healing is typically employed for wounds that have poor healing potential, such as leg and pressure ulcers, in which surgery risks exacerbating the wound-healing burden. Every reconstructive procedure depends on the poten- tial for wound healing. Furthermore, m uch of reconstructive plastic surgery involves the creation of wounds to heal other wounds – hence the aphorism ‘rob Peter to pay Paul’. There- fore, the plastic surgeon must consider how to maximise the chances of success and adopt their approach accordingly . Edward Ehlers , 1863–1937, Professor of Clinical Dermatology , Copenhagen, Denmark. Henri Alexandre Danlos , 1844–1912, dermatologist, Hôpital St Louis, Paris, France, gave his account of this condition in 1908. Hippocrates of Kos , c . 460–375 /uni00A0 /b.sc/c.sc/e.sc , was a physician in Ancient Greece and considered to be the ‘father of medicine’. For example, in genetic conditions such as Ehlers–Danlos syndrome and epidermolysis bullosa (for which there is cur - rently no cure), the surgeon is required to be less aggressive in their approach as surgical intervention risks creating addi - tional iatrogenic wounds that may fail to optimally heal, thus potentially worsening the patient’s situation (Hippocra tes: primum non nocere ; fi rst, do no harm). Systemic comorbidities including diabetes, peripheral vascular disease, renal failure, corticosteroid use and immunodefi ciency are signifi cant causes of delayed wound healing and must be addressed preopera - tively . For example, diabetic control may be optimised with the help of an endocrinologist, and preoperative angioplasty may augment blood fl ow in a chronically ischaemic lower limb. Nutrition is essential for w ound healing; vitamin and protein defi ciencies should be addressed preoperatively with the guid- ance of a dietician. Smoking is particularly detrimental as it causes vasoconstriction and decreases local oxygen delivery to tissues, thus impairing healing; patients are therefore advised to cease smoking at least 6 weeks prior to elective surgery if possible. Furthermore, it is crucial to optimise a wound bed to promote healing. For example, the wound may require formal debridement and washout to minimise bacterial colonisation and hence the risk of surgical site infection. Perioperative antibiotics may also be necessary .

Subdermal plexus Superficial adipose tissue Deep adipose tissue Deep fascia Muscle Figure 47.3 Diagram of skin anatomy with vascular plexus. Figure 47.4 Lines of relaxed skin tension. Fasciocutaneous Musculocutaneous perforator perforator

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