FLAP MONITORING

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Following microvascular free-flap reconstruction, patients may be monitored in a high-dependency unit setting as it is crucial to keep the patient physiologically optimised in order that the flap remains well perfused at all times. The traditional adage is that the patient should be kept ‘wet, warm and comfortable’. - Strict fluid balance is monitored with the aim of keeping the circulation hyperdynamic; the flap is kept warm with a Bair ® Hugger device and analgesia is carefully controlled to mini - mise excessive catecholamine production as a result of pain. - The flap is monitored regularly by specialist nurses who assess - the colour, warmth and turgor of the flap. Pressure applied to the skin of a musculocutaneous flap enab les the capillary refill). time to be assessed; if necessary the flap can be pricked with a hypodermic needle to assess bleeding. The arterial and venous flow to a flap can often be monitored with a hand-help Doppler device, whereas some surgeons use an implantable Doppler (attached to the venous outflow of the flap), which is especially useful for muscle flaps (without the benefit of a skin paddle to monitor) or those flaps that are buried and thus not accessible for direct visual monitoring. The survival of a free flap is usually threatened by an interruption to arterial inflow or venous drainage; rapid iden tification of a problem is essential as an immediate return to theatre is required to salvage the flap. A pproximately 5% of free flaps will require exploration in theatre f or vascular com promise; of these, more than 60% can be salvaged. The earlier a flap is explored the greater the likelihood of salvage success. Approximately two-thirds of cases of vascular compr omise are venous in aetiology , with one-third being arterial; combined inflow and outflow issues are sometimes seen, and in some situ ations the vessels may be patent but compromised by external pressure (such as a haematoma or an excessively tight dress ing). Thus, when assessing a compromised flap at the bedside, the surgeon must ensur e that the dressings are loosened and any overly tensioned sutures released. Close flap monitoring is of most value in the first 48 hours with rapid detection of vascular compromise facilitating early salvage and improved flap survival. A free-flap survival rate in excess 95% is typical in rou tine elective reconstructive cases such as breast reconstruction using a transverse rectus abdominis (TRAM) or deep inferior epigastric perforator (DIEP) flap. Flap survival rates are slightly lower in, for example , cases of complex polytrauma or head and neck reconstruction.

(h) (c) (d) Figure 47.28 Replantation of digit. (a–c) Complete avulsions of the index and middle /f_i ngers at the distal interphalangeal joints. The avulsed middle /f_i nger was not salvageable. (d) The avulsed index /f_i nger was dissected and the digital arteries, veins and nerves were identi /f_i ed. Heterotopic replantation of the avulsed index /f_i nger to the middle. appearance with the range of motion demonstrated. (i) (j) (e–g) Immediate postoperative appearance. (h–j) One-year postoperative

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