FIGURE 8.5 Preparation for applying Dermagraft. The composition of the sheet is marked by the manufacturer's color coding of the Dermagraft.

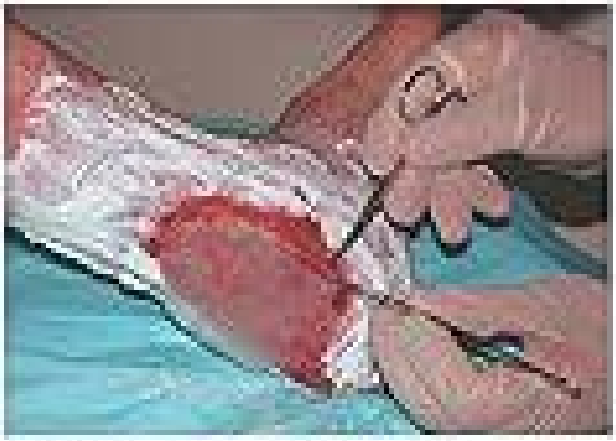

FIGURE 8.6 Dermagraft being applied to an ulcer.

absence of human components. Limited clinical studies have been carried out.

Oasis is a biologic dressing derived from porcine small intestinal submucosa that has been processed to produce a collagenous, acellular matrix with growth factors and cell adhesion molecules. Because skin grafting is not performed, Oasis has the advantage of a lower incidence than other porcine heterografts. It also may be easy to apply and reapply. A primary disadvantage is that because it is not fixed, it is easily traumatized. It requires a secondary dressing for additional protection and to provide a barrier during take. Oasis with compression was compared with compression alone in 120 patients with at least one venous leg ulcer. After 12 weeks of treatment, 59% of the ulcers in the Oasis group had healed versus 38% in the standard treatment group ($p = 0.02$).[11]

Integra (Integra LifeSciences Corp, Plainsboro, NJ) is a bioysnthetic, temporary, bilaminated skin substitute consisting of a matrix of bovine collagen and chondroitin-6-sulfate covered by a synthetic silicone elastomer (Silastic). It is approved by the Food and Drug Administration (FDA) for the treatment of burns. It is a good alternative for patients with severe burns in whom there is insufficient skin available to use as a donor for an STSG.

Dermagraft consists of neonatal fibroblasts seeded on a three-dimensional polyglactin bioabsorbable mesh with no more silicone membrane (Figs 8.7, 8.8). Dermagraft was designed as a skin substitute for full-thickness wounds. It has the advantages of avoiding the use of non-human tissue, ready availability, low chance of wound contracture and scarring, and mesh absorption in 60–90 days.

Dermagraft is FDA approved for the treatment of chronic diabetic ulcers. It was shown to be of significant clinical benefit in achieving wound closure within 12 weeks compared with conventional therapy alone (50% vs 30%, $p = 0.02$).[12]

Composite skin substitutes (see Video 8.1)

Composite skin substitutes contain both epidermal and dermal components. The first true composite skin equivalent consisting of both epidermal and dermal elements,

FIGURE 8.7 [illegible] applied to an ulcer.

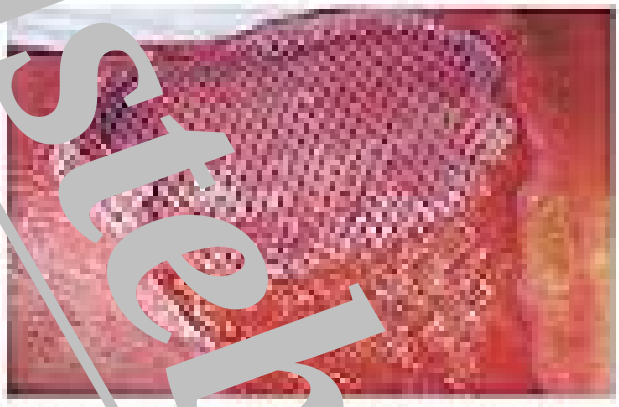

FIGURE 8.8 [illegible] applied to an ulcer.

such with living cells approved for use by the FDA is Apligraf (Organogenesis, Canton, MA, also known as Graftskin). This is a bilayered, living construct made up of cultured human neonatal foreskin keratinocytes overlying fibroblasts cultured within a matrix of bovine type I collagen (Figs 8.9, 8.10). It is indicated for neuropathic, [illegible] ulcers but lacks

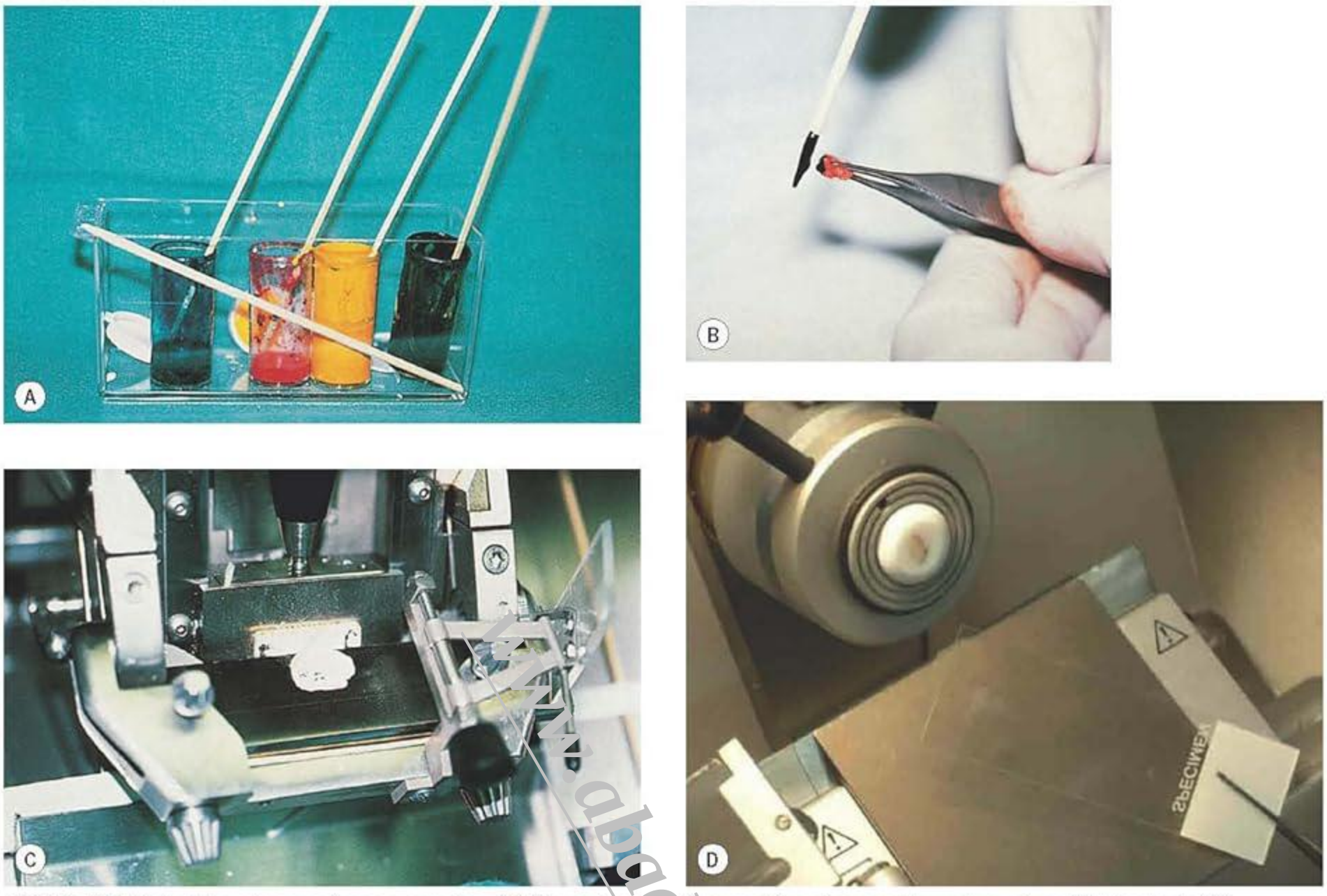

FIGURE 45.7 Mohs laboratory specimen processing. (A) Tissue dyes. (B) Eye marking of non-epidermal margins with black ink. (C) Sectioning of frozen specimens. (D) The histotechnician cuts serial sections through specimen block as it passes over the cryostat blade. The thin, cold tissue adheres directly to the room temperature microscope slide applied to it.

electrocoagulation, or a hand-held battery-operated thermal electrocautery unit if avoidance of electrical interference with implanted devices is required.

A two-dimensional map is then created while the patient is still in the operating suite to document the exact tumor location. It may be helpful to transpose the map onto a digital photograph of the lesion.[31] The specimen is then divided into sections small enough to fit on a microscope slide (0.5–1.5 cm), and its non-epidermal edges are stained to allow proper orientation (Figs 45.6C, 45.7A,B). Two to three colors are used for each specimen to allow for adequate orientation.[32] The number of specimens depends on the size of the tumor, but the numbering sequence of the tissue specimens should be consistent from patient to patient. The clockwise numbering pattern is the one historically and most commonly used, starting at the 1 o'clock position. When large specimens have central portions, the sequence is initiated at the skin edges and then continued into the central portions (Fig. 45.8). Ideally, the layer of tissue should be cut into as few blocks as possible to minimize the risk of false-positive and false-negative margins that increase with each additional subdivision.[33]

When specimens contain cartilage or bone, or subcutaneous tissue without any skin edge, this should be indicated on the map. At this point, the tissue is handed to the Mohs technician for further processing. Patients are advised that each layer may require 1–2 h, and they may proceed to the waiting area after the placement of a pressure dressing. Occasionally, patients remain in the Mohs operating suite during tissue processing if their mobility is limited or if they require continuous monitoring.

Once in the laboratory, rather than being cut vertically, each specimen is placed bottom-side up toward the microtome stage so that horizontal sections can be taken from the deep surface. This process requires many precise steps[34–37] with attention to detail to avoid mapping errors. First the specimen is embedded in optimal cutting temperature (OCT) or similar agents compound (Tissue-Tek; Miles Inc, Diagnostics Division, Elkhart, IN) and a forceps or flat portion of a scalpel handle is used to ensure the specimen is completely flat. If the specimen contains cartilage or fat, this can be more difficult. A variety of devices and maneuvers is available to assist in tissue flattening if the technician finds them of value.

The tissue may be immediately frozen with tetrafluoroethylchloride or liquid nitrogen and then transferred to the cryostat for thorough freezing (see Fig. 45.7C). Obtaining a complete section is critical to prevent errors in

Table [illegible] Dressing materials and relative performance

Dressing material	Absorption level	Adhesive quality	Conformability	Hydration/debridement ability	Odor control ability	Clinical applications
Film	None	Fully adhesive	Conformable to surface anatomy	Will hydrate slowly	None	Superficial, lightly exuding wounds, as a secondary dressing
Hydrogel	[illegible]	Non-adhesive or adhesive borders	Conformable to surface anatomy	Will hydrate moderately	None	Superficial, light to moderately exuding wounds, painful wounds
Hydrocolloid	Low to moderate	[illegible] surface	Conformable to surface anatomy	Will hydrate moderately to quickly depending on water content	May exacerbate odor [illegible]	Superficial, light to moderately exuding wounds
Foam	High	Non-adhesive [illegible]	Some versions conformable to cavities	Not hydrating	Slight, due to absorption only; some versions contain charcoal for active control	Superficial to deep, moderately to heavily exuding wounds
Alginate	High	Non-adhesive	Conformable to cavities	Not hydrating	[illegible] charcoal versions exist	Superficial to deep, moderately to highly exuding wounds
Contact layer	None	Non-adhesive	Conformable to surface anatomy	Slightly hydrating, depending on cover dressing	None	Superficial wounds of any exudate level

Adapted from [illegible]

reducing expenses from possible complications such as infection.[illegible]

SUMMARY

This chapter presents an extensive discussion of the different types of dressings currently available, including their advantages, disadvantages, and indications. From simple gauze dressings, advances in technology have led to the development of complex biosynthetic dressings, which closely approximate the structure and function of natural skin. From the belief that wounds heal best when kept dry and exposed to air, it has been established that acute wounds undoubtedly heal best in a moist environment and why.

This chapter also reviews the technical aspects of applying some types of dressings as well as specific dressings for certain sites and techniques for post-[illegible] care. The importance of postoperative care cannot be stressed enough. It may make the difference between patient and doctor satisfaction and dissatisfaction. Once the surgical procedure is completed, a careful selection of dressings, close monitoring of the phases of healing and prompt and correct treatment of complications all come into play. It is [illegible] to remember that postoperative complications are always easier to prevent than to treat.

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