DIFFICULT PROBLEMS IN HAND SURGERY

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JAMES B. STEICHEN

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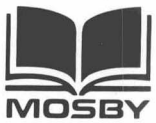

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Preface

This volume contains 50 essays by experienced hand surgeons addressing difficult clinical problems. Much of the material was presented at symposia on "Difficult Problems in Hand Surgery" held in Indianapolis in 1978 and 1981 and sponsored by the American Society for Surgery of the Hand.

No attempt has been made to make these proceedings an all-inclusive course; rather, this book concentrates on challenging clinical situations in 13 different subject areas. Although most chapters are concisely written, with the identification of a particular problem followed by a description of the author's preferred technique for management, the approach to each subject varies somewhat according to the individual style of the contributor. It must be emphasized that these chapters represent the highly personal views and preferences of the authors and in certain instances may vary somewhat from more traditional views.

We believe that this book transmits meaningful information gleaned from the experience of leading hand surgeons, and we hope that readers will find it to be of considerable clinical value.

James W. Strickland
James B. Steichen

Contents

SECTION ONE SKIN PROBLEMS

Chapter 1 Abrasion injuries of the hand

James E. Bennett

Abrasions of the hand are common. Fortunately most are superficial and heal without sequelae. A few, however, are more harmful to the skin and may expose or damage deeper tissues. Heat generated by friction may increase tissue loss, but it is difficult to assess its impact on the injury. Patients I have treated for serious hand or forearm abrasions usually have had an element of avulsion in the injured area. The mechanism of injury is either contact of the part with a moving object (e.g., bench grinder, rope or cable, or conveyer belt) or projection of the victim from or by a moving vehicle onto a dirt, gravel, cinder, or paved surface.

The most important aspect of treatment is diagnosis. The extent and depth of damage and the determination of tissue viability (or lack thereof) will dictate surgical treatment. Nonviable skin or damaged skin that will "heal" with excessive scar should be excised. Intravenous fluorescein may be helpful when there is doubt. If tendons or nerves have been severed or avulsed, their repair should await the reestablishment of skin and soft tissue integrity. The case reports that follow illustrate abrasion injuries of various upper limb parts and the factors that determine the choice of skin replacement.

Case 1

A 4-year old boy was struck by a car, incurring avulsion-abrasion injuries of the face and hand. The facial wounds were repaired by simple closure, and the hand avulsion was covered with split-thickness skin grafts. Two years later the only observable deformity was a hypertrophic scar encircling the skin graft on the hand (Fig. 1-1). Had the deep abrasion surrounding the hand avulsion been excised—as it was in the ankle abrasion shown in Fig. 1-2—this complication could have been avoided.

Deep partial thickness abrasions of the dorsum of the hand should be excised and closed with skin grafts.

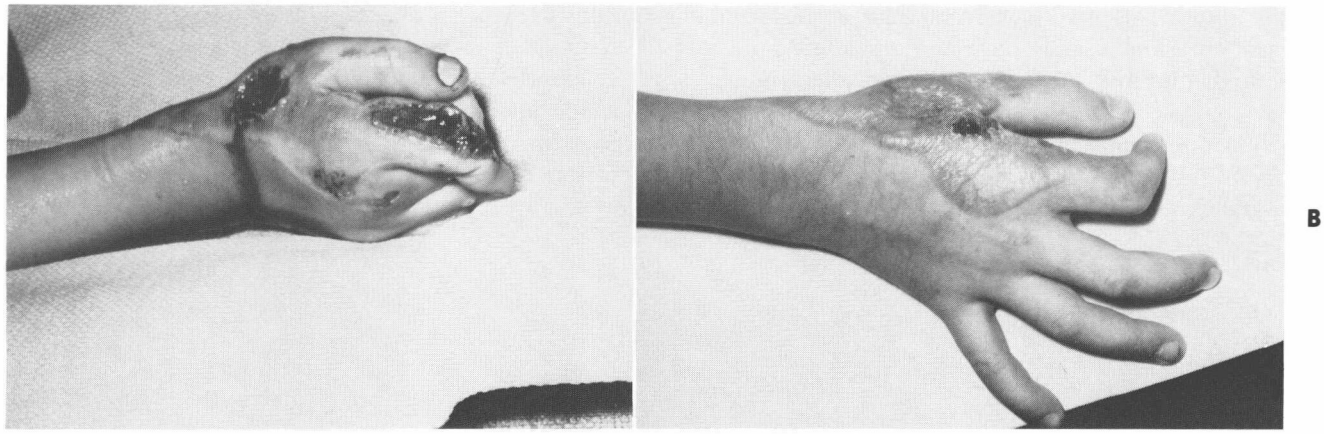

FIG. 1-1. A, Abrasion injury of radial dorsum of hand. Central full-thickness defect at base of thumb was skin grafted, and index finger wound was sutured after reduction of fracture-dislocation. **B,** Wound is virtually healed, but graft is bordered by hypertrophic scar with one area of excoriation.

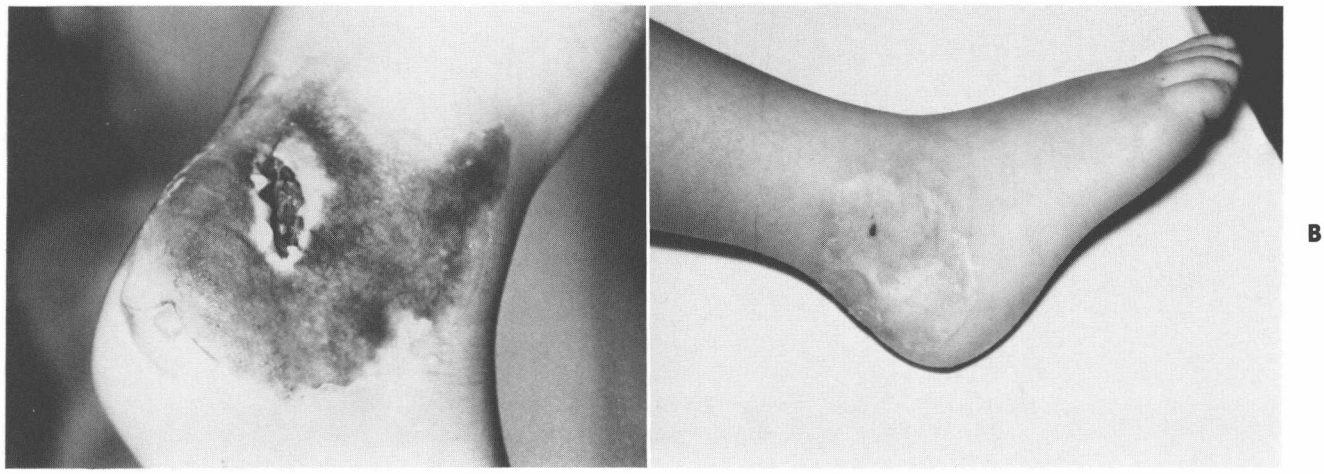

FIG. 1-2. A, Ankle wound comparable to hand injury in Fig. 1-1. Entire area of skin injury was excised and grafted. **B,** Healing without excessive scar.

Case 2

A 31-year-old man injured his hand and wrist by contact with a bench grinder. Friction diced the skin, and although little skin was missing, all shredded tissue was excised. There was a 1-cm exposure of the extensor pollicis brevis and the abductor pollicis longus tendons. Local soft tissue was used to cover the tendons, and the skin defect was closed with a split-thickness skin graft. At 4 months there was good healing and no disability (Fig. 1-3).

Diced or shredded skin should be excised. A split-thickness skin graft should be used for wound closure if the wound is suitable and tendons and nerves are intact and unexposed.

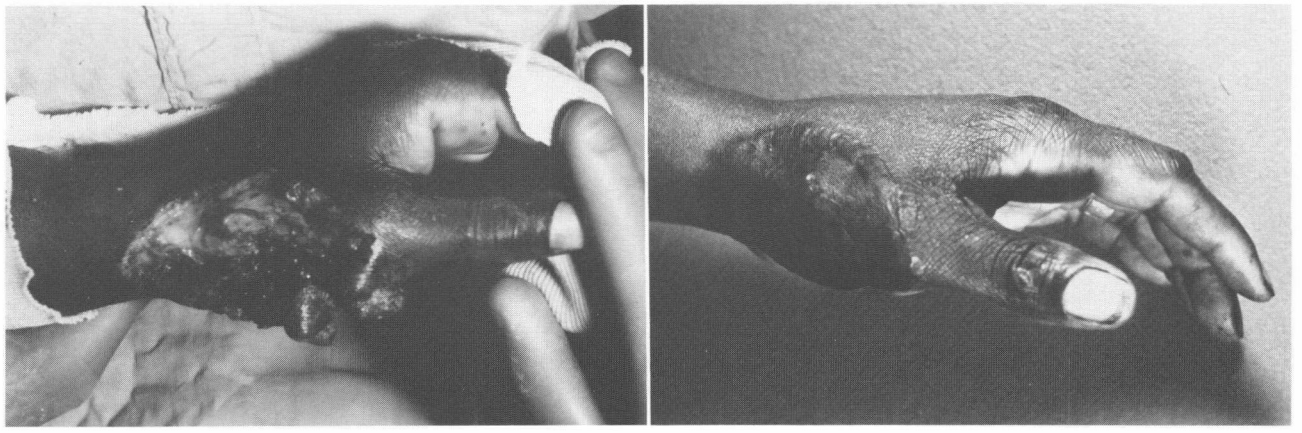

FIG. 1-3. A, Dicing abrasion of hand and wrist. All damaged skin was excised. **B,** Four months after wound closure with split-thickness skin graft.

Case 3

A 21-year-old man suffered a deep rope-burn abrasion of the medial palm. Flexor tendons to the little finger were severed. The skin wound was debrided and closed with local flaps. Tendon grafting was performed 5 months later (Fig. 1-4).

Restoration of deep structure continuity in abrasion injuries should be deferred until overlying skin integrity has been provided.

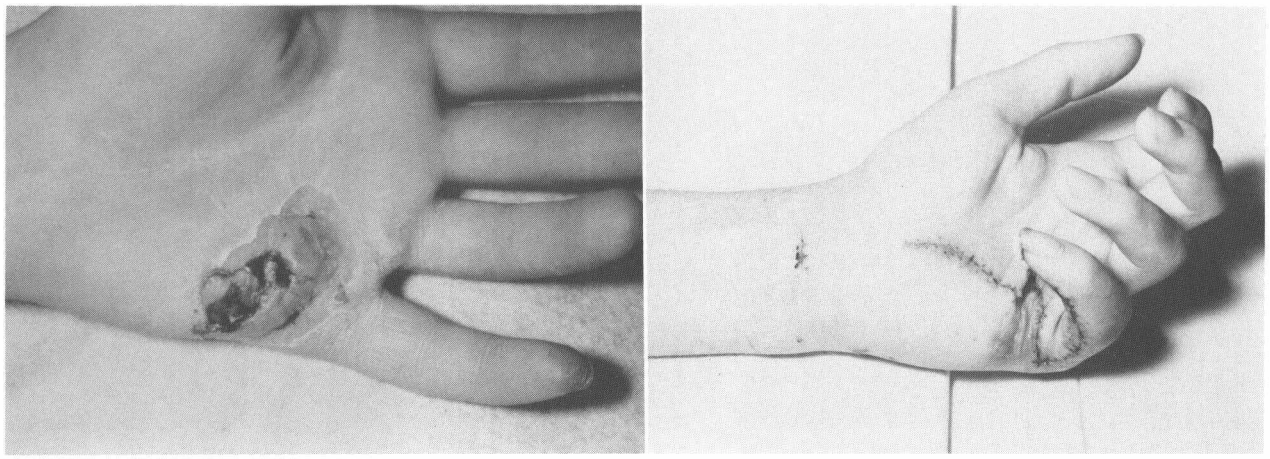

FIG. 1-4. A, Rope-burn abrasion of palm with division of little finger flexor tendons. **B,** Two weeks after placement of flexor tendon graft, 5 months after injury.