

# Surgical treatment of paediatric postburn contracture of the hand

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A 2-year-old girl presented to our institution with a severe volar contracture of the fingers of her right hand secondary to a charcoal cooking-fire contact burn sustained approximately one year prior. Initially treated with simple dressings only, this had resulted in approximately 90-degree proximal interphalangeal joint flexion contractures of all 4 fingers (Figure 1). Her parents had noticed increasing functional impairment as she grew.

Burns are among the leading causes of disability in the developing world [1]. In Cambodia there are over 20,000 incidences of permanent burn disability every year, one third in children under 10 years of age [2] and over 40% of these involve the hand and upper extremity [1]. There is poor knowledge of burn prevention and first aid, coupled with limited access to adequate treatment, in developing world countries such as Cambodia [3]. These factors all contribute to disabling contracture formation [4].

In this case treatment followed our preferred surgical strategy: careful volar skin release of all 4 fingers preserving neurovascular bundles and flexor sheath where possible, full thickness skin grafting (groin donor site) to the resultant defects and temporary Kirschner wire internal fixation (Figure 2). Wires are removed after 2 to 3 weeks once the skin grafts have taken sufficiently to allow motion and hand therapy.

After approximately 1-year follow-up, although there has been some slight recurrence of contracture (particularly in the more severely affected little finger), a significant improvement in finger extension is seen with full functional flexion possible (Figure 3).



**Figure 1.** Volar postburn contracture affecting proximal interphalangeal joints of all 4 fingers



**Figure 2.** Following skin release and temporary Kirschner wire internal fixation, full thickness skin grafts are performed to the resultant defects



**Figure 3.** Postoperative flexion and extension at 1-year follow-up

The goal of treatment is to release contracture before permanent secondary deformity develops and thus preserve function [5]. We find that the earlier surgery can be performed, less joint and tendon contractures requiring surgical treatment are seen. Internal fixation with Kirschner wires allows easy wound inspection and care and eliminates the need for splints initially. In our experience the

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majority of contractures can be treated with skin grafts in this way. Full thickness grafts are preferred to split thickness, being less likely to contract postoperatively [5–7] and the groin donor site morbidity is low [8]. When severe postburn contracture release leads to major tendon and joint exposure, procedures from further up the traditional reconstructive ladder are warranted [7].

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