

Management of First Web Space Contracture in a Severely Burnt Patient

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INTRODUCTION

Burns of the hand are common and are involved in approximately 30-60% of all burn injuries [1-5]. We present an interesting case of a severely burned patient with complex vascular anatomy who required free-tissue transfer to correct a first web space contracture of the right hand.

THE CASE

A 42-year-old right hand dominant male construction worker was admitted to Royal North Shore Hospital (RNSH) with 82% TBSA flame burns. The upper limbs sustained full thickness, circumferential burns. Significantly, whilst in ICU the patient developed a tracheo-innominate artery fistula. Ligation of the innominate artery significantly altered the right upper limb's vascular supply, with the Circle of Willis supplying retrograde flow down the right internal carotid and into the right subclavian artery. The patient developed a flexion deformity of the little finger and first web-space contracture of the right hand with poor 1st CMCJ range of motion (Figure 1) for which he was referred to the Department of Hand Surgery and Peripheral Nerve Surgery at RNSH.



Figure 1. Pre-operative deformity of 1st webspace and ring finger

The reconstruction performed was fusion of the DIPJ of the little finger and fusion of the 1st carpometacarpal joint into a more functional pronated position (Figure 2). The first web-space was released and a free groin flap based on the superficial circumflex iliac artery pedicle inset and anastomosed to the superficial radial artery and venae comitantes (Figures 2, 3, and 4). The patient had an uncomplicated post-operative course and was discharged after 10 days.



Figure 2. Webspace release and fusion of DIPJ ring finger and 1st CMCJ

DISCUSSION

Hand burns cause long term challenges for the reconstructive surgeon. Web space deformity is common post thermal injury and occurs secondary to scar contracture and banding [6]. The major goal of reconstruction is to deepen the web space using local advancement flaps, Z or V-to-M plasties or, in cases of severe tissue loss, free-tissue transfer.

In this case, due to the paucity of healthy tissue, the patient's options for reconstruction were limited. Local flap reconstruction was impossible due to presence of burnt tissue and the blood supply to the limbs was also tenuous. Therefore, free-tissue transfer was performed with good outcome.



Figures 3 and 4. Fasciocutaneous groin flap with pedicle. Completed free flap reconstruction of the 1st webspace

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