

Hand escharotomies and digital amputations: 21 years at a Regional Burns Centre

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Introduction

Hand escharotomy is the **urgent surgical decompression** of **circumferential burnt tissue** to the hand or digits to restore **effective circulation**. Previous research outlines significant variation in technique. In our regional burns centre we analysed our own practice in hand escharotomies.

Methods

- Who? **All patients** with hand escharotomy as part of their acute management for burns treated in Pinderfields Regional Burns Centre between **2003 – 2023**
- How? Data entered into the *International Burns Injury Database*, review of **patient notes** and **clinical photographs**
- Excluded? Patients **repatriated elsewhere** & patients who **died in <14 days** were excluded from digital amputation analysis

Results

50 patients identified across 21 years, with **71 hands** requiring escharotomy (**mean 2.4/year**). **26 different incision patterns** identified (*see examples below*)

Mean age **36.6 years** (9 months-67 years)

M : F ratio of **2.85 : 1**

Mean TBSA estimated by referring team **42.5%** (IQR 30%)

Mean length of stay **56.6 days** (range 0-270 days)

- 15 patients (**30%**) died of causes directly related to burn injury
- Of these, **10 died within 14 days** of burn
 - Mean time from burn to death was **15.2 days** (N=15)
 - Mean referred TBSA was **66.1%** (N=15)

3 patients were repatriated out of area, with no follow up data available.

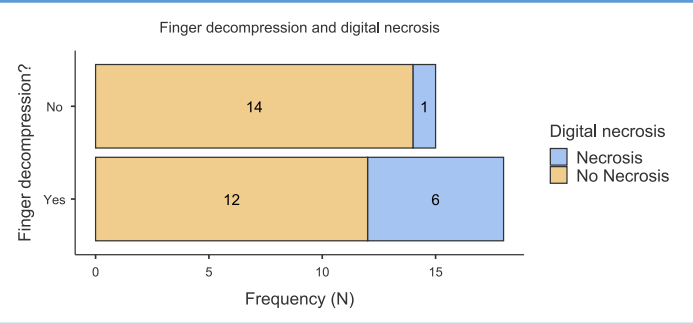
11/37 patients (29.7%) had some form of amputation, ranging from finger tip to above elbow amputation (mean referred TBSA 42.6%)

- 1 patient had fingertip decompression
- Done on return to theatre as extension of initial escharotomy done out of area
 - Later needed terminalisation of all digits

Digital necrosis reported in 6/18 (**33%**) of cases where digits decompressed, compared to 1/15 (**6.6%**) of cases where digits not decompressed –

$\chi^2 = 3.48, p = 0.062, \text{ OR} = 7.00 \text{ (95\% CI = 0.736 – 66.6)}$

(17 patients uncategorisable - insufficient data, lost to follow up or died)



Clinical Case

24M - 80% TBSA flame burns

Escharotomies to both hands, as well as upper limbs and right lower leg

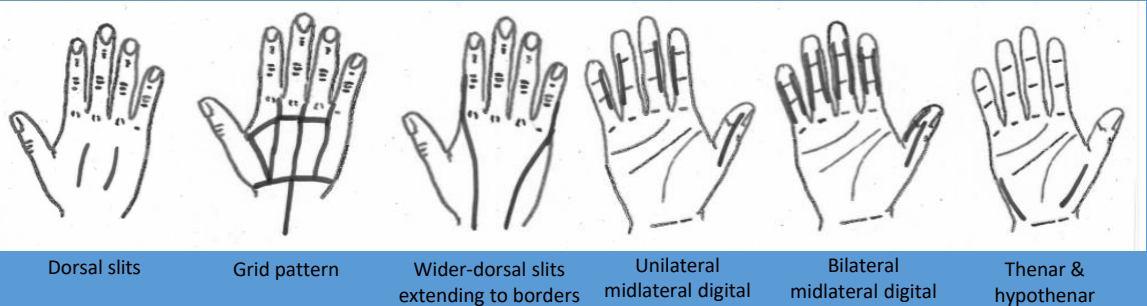
Developed scar contracture to right little finger – ray amputation 3 years after burn

No subsequent digital necrosis, acute or subacute terminalisation



Examples of escharotomy incision patterns identified

Most patients within the series had a combined technique based on clinical need



Conclusions

Hand escharotomies are **rare and infrequent**

Often associated with **severe burns** and **high TBSA%**

Significant risk (**30%**) of amputation despite escharotomy

No single consistent technique identified in series