



ABLATIVE FRACTIONAL RESURFACING IN ACUTE CARE MANAGEMENT OF FACIAL BURNS: A NEW APPROACH TO MINIMISING THE NEED FOR ACUTE SURGICAL RECONSTRUCTION

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Background

Apart from acute indications for reconstructive procedures to prevent secondary damage, including eyelid ectropion, microstomia and acute contractures, current evidence suggests to await full scar maturation prior to surgical intervention. Particularly in facial burns, surgical reconstructions often need to be performed several times and outcomes are not always ideal.

Aim

To evaluate the efficacy of early intervention with the ablative fractional CO2 laser in acute management of panfacial burn injuries.

Methods

A 39 year old Asian male with a 60% TBSA flame burn injury with panfacial involvement was developing early upper and lower eyelid ectropions and microstomia following epithelialization. Treatment with the ablative fractional CO2 laser was initiated 6 weeks

post injury whilst still in the ICU, and provided at regular subsequent intervals. Concurrent non-surgical scar contracture management was provided as per site specific standard protocols.



Induction of inflammatory cascade → collagen/scar remodelling Photographic data and measurements specific to deficits in eye and mouth closure were taken at rest, in addition to maximal opening at baseline and routinely until scar stabilisation was achieved.

Results

Date	EYE ROM (mm)		
	Deficit @ rest (L/R)	Active closure deficit (L/R)	Max opening range (L/R)
20.Oct	9mm / 10mm	7mm / 8mm	12mm / 13mm
27.Oct	2mm / 4mm	0mm / 0mm	12mm / 12mm
15.Nov	4mm / 5mm	0mm / 0mm	14mm / 15mm
24.Jan	3mm / 5mm	0mm / 0mm	14mm / 15mm
22.Mar	1mm / 2mm	0mm / 0mm	14mm / 15mm



Figure 1: Eye closure deficit at rest at 20.Oct, 27.Oct, 24. Jan & 22.Mar

Date	MOUTH ROM (mm)		
	Deficit @ rest Vertical / horizontal	Deficit on active closure Vertical ROM	Active max opening range vertical / horizontal
20.Oct	12mm / 46mm	6mm	26mm / 51mm
27.Oct	8mm / 46mm	0mm	35mm / 51mm
15.Nov	0mm / 50mm	0mm	34mm / 60mm
24.Jan	0mm / 52mm	0mm	39mm / 60mm
22.Mar	0mm / 53mm	0mm	40mm / 62mm

Conclusion

This case report demonstrates that early intervention of ablative fractional CO2 resurfacing, combined with non-surgical scar management is a valuable treatment approach to minimize facial contractures, enhances and accelerates scar maturation and may prevent the need for surgical scar reconstructions. Further, it may provide more optimal functional and aesthetic results compared to traditional reconstructive methods.

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