

# Aesthetic and Functional Restoration in Post Burn Neck Contracture

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**Abstract:** Background: A Burn contracture is an area of skin that has undergone excessive scarring as a result of healing. Contracture of the neck is an extremely disabling condition; the neck develops a fixed flexion deformity with restricted extension and rotation. In addition to neck, these can also affect the function of the lower face as well as result in possible tracheal alteration and distortion of the cervical spine. As these contracture affect the patient significantly causing both functional limitation and aesthetic disfigurements. The objectives of the surgical intervention are releasing of the scar, restoring neck movements, physical appearance, preventing recurrence of contractures and overall physical and mental health of the patient. Methods: The study was carried out in Department of plastic surgery, Super specialty hospital. The study was a retrospective study and includes the patients presented to the OPD and who underwent operative treatment after obtaining a written informed consent and ethical clearance. Result: Ten of our patients (86%) had acceptable neck function and cosmesis. We assessed function after rehabilitation 4 months postoperatively by the range of motion and also determined the aesthetic results by the presence of colour match (appearance of the graft by its colour) and absence of hypertrophy (neck movements). Conclusion: Excision of all scar tissue is possible in severe contractures, but incisional release is required in extensive contractures. Skin grafting is a simple, reliable, and safe operation, but has disadvantage of hypertrophy and recurrence of contracture.

**Keywords:** Contracture, STSG, Burn, Scar

## 1. Introduction

A Burn contracture is an area of skin that has undergone excessive scarring as a result of healing. Without splinting or pressure pulling in the opposite direction, such contractures can continue years after the original injury.

Post burn is one of the most common burns sequelae. Contracture of the neck is an extremely disabling condition; the neck develops a fixed flexion deformity with restricted extension and rotation. In addition to neck, these can also affect the function of the lower face as well as result in possible tracheal alteration and distortion of the cervical spine. As these contracture affect the patient significantly causing both functional limitation and esthetic disfigurements which lead to cosmetic, functional and social problems, operative correction is generally recommended, particularly in children in whom they can cause growth imbalance in the head and neck area.

The objectives of the surgical intervention are releasing of the scar, restoring neck movements, physical appearance, preventing recurrence of contractures and overall physical and mental health of the patient.

## 2. Methods

The study was carried out in Department of plastic surgery, Super specialty hospital, Kota medical college, Rajasthan.

The study was a retrospective study and includes the patients presented to the OPD and who underwent operative treatment after obtaining a written informed consent and ethical clearance. The subjects with post burn neck contractures of either sex or age were included and the patients who refused to give consent are excluded.

Preliminary recording of patients' particulars, a brief relevant history and details of the burn injury were taken along with clinical examination of the patients.

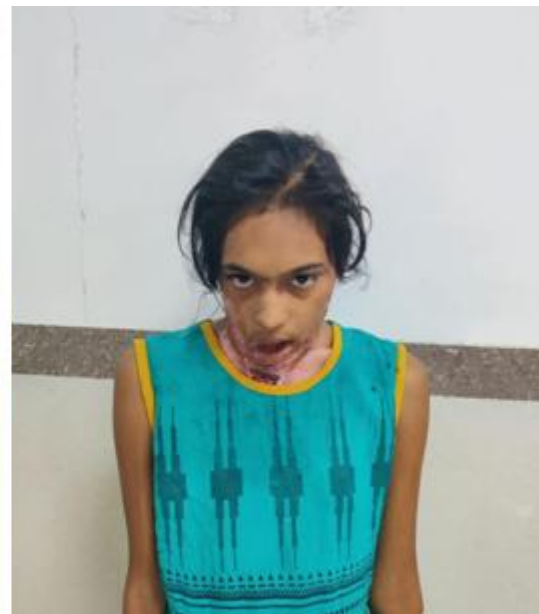
## 3. Operative Procedures

Incisional or excisional release was done till full extension was obtained and the raw area was created by dissection through the scar to underlying normal tissue. Skin graft was the mainstay of treatment.

**Pre – Operative**



**Post Operative**





**4. Results**

Twelve patients who underwent corrective operational treatment between April 2022 to February 2023 were included in the study. All the patients were operated under general anaesthesia after obtaining informed consent.

**Table 1:** Age and sex wise distribution of cases of post burn neck contracture

Age Group	No. of Cases
0 - 10	5
10 - 20	2
20 - 30	4
>30	1

Sex	No. of Cases
Male	4
Female	8

**Table 2:** Types of initial burn insults which resulted in post burn neck contracture

Burn injury	No. of cases
Flame	6
Scald	4
Chemical	1
Electrical	1

The indication for release in our study was limitation of movements (present in all our patients) besides disfigurement, unstable scar, and intolerable subjective symptoms.

In our study, the limiting scar was excised in mild cases while incision was mainly used in severe and extensive contractures.

Split thickness skin graft was used in all the cases.

The postoperative stay of the patients was around 2 weeks, and a longer admission was required for patients who had to undergo repeat STSG.

Ten of our patients (86%) had acceptable neck function and cosmesis. We assessed function after rehabilitation 4 months postoperatively by the range of motion and also determined the aesthetic results by the presence of colour match (appearance of the graft by its colour) and absence of hypertrophy (neck movements).

**5. Conclusion**

Excision of all scar tissue is possible in severe contractures, but incisional release is required in extensive contractures. Skin grafting is a simple, reliable, and safe operation, but has disadvantage of hypertrophy and recurrence of contracture. A follow up program for reasonable period is highly desired.

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