University of Cincinnati Medical Center | UC Health

POLICY NAME/#	**CLIN 69**
POLICY TITLE	**Chest Wall Escharotomy**
POLICY OWNER	**Air Care & Mobile Care**
	Matt Gunderman/Director (Date)
	Dr. William Hinckley/Air Medical Director (Date)
	Dr. Elizabeth Powell/Ground Medical Director (Date)
ADMINISTRATIVE APPROVAL	**Teri Grau, Interim CNO (Date)**
ORIGINATION DATE	**01/2018**
LAST REVISION/ REVIEW DATE 01/2018	**NEXT REVIEW DATE 01/2019**

I. POLICY

Trained and authorized personnel in Air Care & Mobile Care are permitted to perform a chest wall escharotomy to release eschars obstructing respiration The performance of limb escharotomy will not be addressed in this protocol. Limb escharotomy may be indicated for ischemic limbs with prolonged transport times but should be discussed with attending physician prior.

II. PURPOSE

This policy provides the guidelines for performing a chest wall escharotomy with the goal of preventing death or permanent disability from inadequate respiration.

III. DEFINITIONS

Eschar: tough leathery tissue remaining after a full thickness (third-degree) burn.
Escharotomy: surgical procedure of incision through an eschar to expose the subcutaneous tissue allowing release of restrictive pressures. In the setting of restrictive chest wall burns, an escharotomy facilitates return of normal chest wall respiratory mechanics.

IV. PROCEDURE

A. INDICATIONS:

I. Chest wall full thickness burns hindering respiratory mechanics as evidenced by at least one clinical indicator (A or B) AND at least one objective measure (C-G).

1. Clinical Indicators:

A. Patient hard to ventilate with BVM

B. Lack of chest rise with BVM

2. Objective Measures:

C. Hypoxia (SpO_2 < 90%) refractory to endotracheal intubation and not felt to be secondary to hypotension or another reversible etiology, e.g., a tension pneumothorax OR

D. High pressures (>30 mmHg) with BVM ventilation despite removal of other potential obstructive hindrances (pneumothorax, obstructed ETT, right mainstem intubation) OR

E. High peak and plateau pressures (>40 mmHg) with low tidal volumes on ventilator without other more probable cause (Asthma/COPD, ARDS, vent dysynchrony) OR

F. Persistently elevated $EtCO_2$ (>55) despite adequate respiratory rate and tidal volumes OR

G. Blood gas with evidence of significant respiratory acidosis despite adequate respiratory rate and tidal volumes (pH < 7.2, pCO_2 > 60)

II. Chest wall full thickness burns hindering BVM ventilation in an arrested patient prior to termination of resuscitative efforts.

III. Attending physician discretion. If there is doubt about the need for an escharotomy then discussion with the receiving attending or burn surgeon should be requested.

B. CONTRAINDICATIONS:

1. Burns that are obviously non-compatible with life, i.e., burned beyond recognition

C. EQUIPMENT*:

1. Surgical scalpel blade No. 10
2. Portable electrocautery
3. Chloroprep sticks
4. Sterile gloves
5. 4X4 sterile gauze

6. Non-adherent dressing
7. Marking pen
8. Chest wall incision diagram

*Please see procedural kit in critical care bag

D. PROCEDURE:

1. Ensure patient has adequate analgesia and anxiolysis. Despite eschars being insensate, deeper tissues and surrounding tissue will remain sensate.
2. Outline the incision sites with marking pen (reference attached diagram below) along the bilateral mid axillary lines, elliptical inferior to the costal margin, and elliptical below the clavicles joining the vertical incisions.
3. Prepare wound sites with chlorhexidine
4. Incise with #10 blade through eschars until subcutaneous fat is visible, bleeding is normal and indicative of adequate release. Take care to avoid cutting through fascia.
5. Run finger along incisions to break up fibrous bands
6. Pressure and gauze may be applied to achieve hemostasis. Portable electrocautery device may be used for as well for more significant bleeding.

E. COMPLICATIONS:

1. Pain and trauma to patient
2. Self-injury to providers
3. Difficult to control bleeding

V. RESPONSIBILITY

Flight Physician, Advance Nurse Practitioner

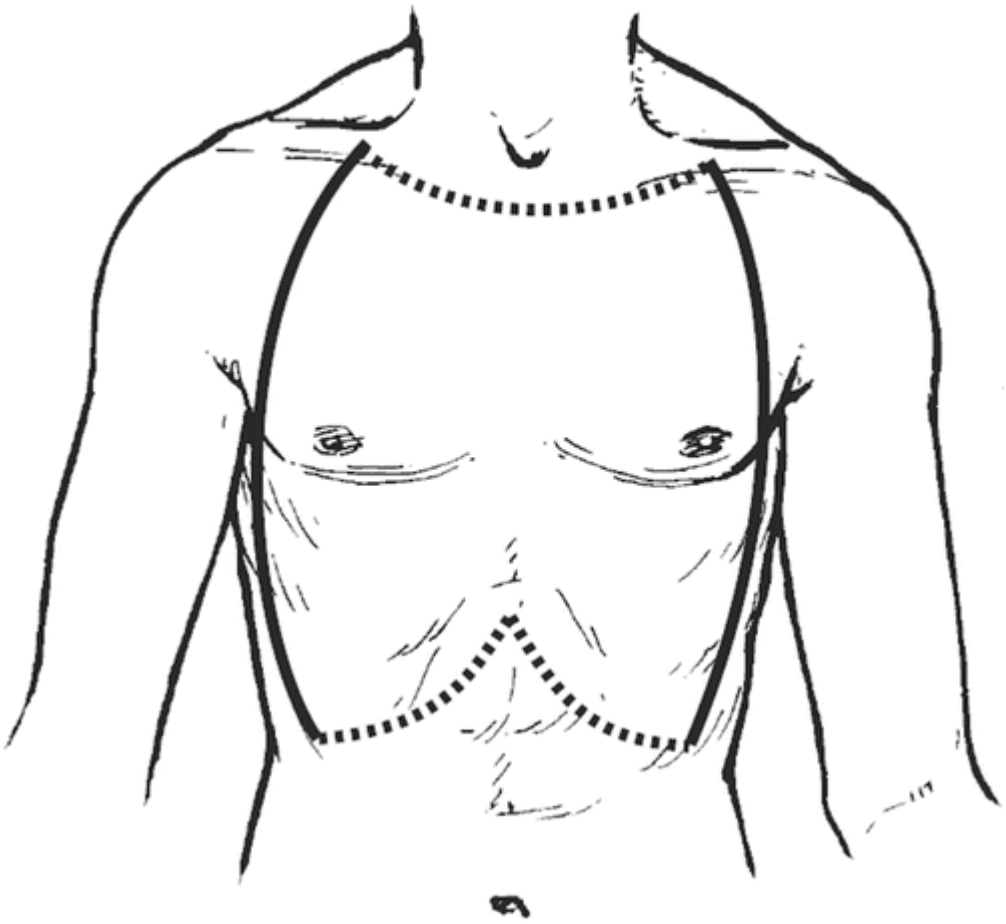
VI. KEY WORDS

None

VII. APPENDIX

Chest Wall Escharotomy Diagram^1

Figure 1. Suggested incision locations for chest escharotomy.



VIII. REFERENCES / CITATIONS

1. Kupas DF, Miller DD. Out-of-hospital chest escharotomy: a case series and procedure review. Prehosp Emerg Care. 2010;14(3):349-54.
2. Roberts, James R, Catherine B. Custalow, Todd W. Thomsen, and Jerris R. Hedges. *Roberts and Hedges' Clinical Procedures in Emergency Medicine*. Chapter 41, page 659, Figure 38-31, 2014. Print.