

POLICY NAME/#	CLIN64	
POLICY TITLE	LATERAL CANTHOTOMY AND CANTHOLYSIS	
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	_____	_____
	Jennifer Jackson/VP CNO	(Date)
ORIGINATION DATE	5/2014	
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 lateral canthotomy and cantholysis in an effort to preserve visual function threatened by orbital compartment syndrome.

**II. PURPOSE**

This policy provides the guidelines for performing a lateral canthotomy and cantholysis in the setting of orbital compartment syndrome for prevention of permanent loss of visual function.

**III. DEFINITIONS**

**Orbital Compartment Syndrome:** Precipitous rise in intra-ocular pressure compromising blood flow to the optic nerve and retina that occurs when a space occupying lesion rapidly develops within the limited space of the orbit. Many such lesions can occur (tumor, abscess, bleeding, mass) but in the setting of trauma a retro-bulbar hematoma is most common. Increased orbital pressure forces the globe against the eyelids, which are firmly attached to the orbital rim by the medial and lateral canthal ligaments, preventing the release of orbital pressure. When orbital pressure exceeds \*\*\*, blood flow to the optic nerve and retina is hindered which can cause permanent vision loss in minutes if not rapidly corrected.

**Relative Afferent Pupillary Defect:** Medical sign during a swinging flashlight test whereupon a patient's pupil appears to dilate when a bright light is swung to the affected eye. This is indicative of reduced function of the retina or optic nerve. The affected eye will fully constrict however when a bright light is swung to the opposite eye showing that the efferent path is intact.

**Lateral Canthotomy and Cantholysis:** Surgical procedure whereupon the lateral canthus is cut (canthotomy) all the way to the orbital rim in order to expose and provide access to the lateral canthal ligament. The lateral canthal ligament is then cut (cantholysis) in order to allow the globe to decompress from the orbit in the setting of orbital compartment syndrome.

#### IV. PROCEDURE

##### A. INDICATIONS:

###### 1. In the awake patient:

A. Acute proptosis AND decreased visual acuity OR elevated intra-ocular pressure

###### 2. In the comatose patient:

A. Acute proptosis AND presence of a relative afferent pupillary defect OR elevated intra-ocular pressure

##### B. CONSIDERATIONS:

###### 1. Assessing for proptosis

Caution to not mistake lid edema for proptosis. To assess for true proptosis the lids must be opened. This can be challenging when tight and edematous. This can be accomplished with assistance using 4x4s for traction, and looking down on the patient's face from the head of the bed.

###### 2. Assessing visual acuity

Visual acuity deficits will be severe and thus should be characterized by gross deficits with finger counting > hand motion only > light perception > no light perception.

###### 3. Assessing elevated intra-ocular pressure

Instruments for measuring intra-ocular pressure are typically not available out of hospital. Gentle palpation of the globe can provide a rough assessment of the intra-ocular pressure. A hard "rock-like" globe is concerning. Avoid palpation if there is concern for globe rupture.

##### B. CONTRAINDICATIONS:

1. Suspected globe rupture

2. Patient unable to tolerate procedure due to pain or anxiety

3. Other greater threats to life take priority. Canthotomy may be done in flight so as not to delay transport.

##### C. EQUIPMENT:

1. 1% Lidocaine with epinephrine.
2. 10cc syringe with 25 gauge needle.
3. Chloroprep sticks.
4. Blunt fill needle.
5. Straight hemostat
6. Scissors
7. Forceps
8. Sterile gloves
9. 4X4 sterile gauze
10. Snellen chart

D. PROCEDURE:

1. Clear debris away from the lateral canthus of the affected eye. Clean area with chloroprep. Ensure adequate analgesia and anxiolysis in the awake patient.
2. Inject 1-2 ml of 1% lidocaine with epinephrine into the lateral canthus. Direct the needle tip towards the lateral orbital rim to avoid injuring or injecting the globe. This provides analgesia and hemostasis.
3. Apply straight hemostat to the lateral canthus angled towards the lateral margin of the bony orbit. Apply clamp pressure for 30-90 seconds to devascularize the canthus. Ensure to crimp all the way to the orbital rim.
4. Remove the hemostat. Lift up the skin around the lateral orbit with forceps and cut the lateral canthus 1-2 cm laterally along the region demarcated by the hemostat. A common mistake is to make too small of a cut.
5. Utilizing forceps, lift the inferior lid in an anterior-inferior direction to expose the inferior crux of the lateral canthal ligament. Blood will typically obscure direct visualization of the ligament, but the ligament should be palpable with the scissor's tip.
6. Cut the inferior crux of the lateral canthal ligament to perform an orbital compartment release. Adequacy of release will be evident by: improvement in visual acuity, loss of afferent pupillary defect, and worsening of proptosis as globe is able to adequately release from the orbit.
7. If release is not adequate do not hesitate to cut the superior crux of the lateral canthal ligament as well.

E. COMPLICATIONS:

1. Iatrogenic globe rupture
2. Lacrimal duct injury
3. Scleral laceration or injury
4. Infection

5. Vision loss
6. Fibrosis

**V. RESPONSIBILITY**

Flight Physician, Advance Nurse Practitioner

**VI. KEY WORDS**

None

**VII. APPENDIX**

None

**VIII. REFERENCES / CITATIONS**

Roberts, James R., Catherine B. Custalow, Todd W. Thomsen, and Jerris R. Hedges.  
Roberts and Hedges' Clinical Procedures in Emergency Medicine. 6th ed. 2013. Print