

Would Emergency Medicine Consultants be Authorised and Able to Perform a Lateral Canthotomy in a Sight Threatening Emergency

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Received: November 21, 2018 **Published:** February 01, 2019

Three Part Question

Could -an Emergency Medicine consultant or middle grade] [Perform a lateral canthotomy] [To save the eye with a sight threatening Emergency].

Clinical Scenario

You are a senior doctor working in the Emergency department when a patient presents with a red painful eye. You suspect orbital compartment syndrome and know the patient could lose their sight if you don't act. You know how to do a lateral canthotomy as well as the risks but wonder if it is reasonable to do this within the emergency department?

Search Strategy

Cochrane Lateral Canthotomy and Emergency Medicine - no results.

Just lateral Canthotomy -3 results, nil relevant.

PubMed/Medline.

Lateral AND Canthotomy AND Emergency Medicine AND Consultant. = no results.

Lateral Canthotomy AND Emergency Medicine = 6 results (3 of which were relevant) 3 relevant papers listed below.

Relevant Paper(s)

Citation: Mukul Shah and Stephen Campbell. "Would Emergency Medicine Consultants be Authorised and Able to Perform a Lateral Canthotomy in a Sight Threatening Emergency". *EC Emergency Medicine and Critical Care* 3.2 (2019): 105-107.

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study Weaknesses
Iserson KV1, Luke-Blyden Z2, Clemans S3. 12/11/2015 United States [1]	Expert opinion by consultants based in US - no patients	Expert opinion	Orbital compartment syndrome acutely threatens vision. Lateral canthotomy and cantholysis ameliorate the compartment syndrome and, to save a patient's vision, must be performed in a timely manner. This requires appropriate tools. In resource-poor settings, the straight hemostat and iris scissors that are generally used for this procedure may be unavailable.	In such situations, safe alternatives include using a multitool in place of a hemostat and a #11 scalpel blade instead of the iris scissors. As when using hemostats of varying sizes, the pressure applied to the multitool must be carefully modulated. When using a scalpel blade for the lateral canthotomy, the hemostat arm remains beneath the lateral canthus as a "back-stop" to protect deeper tissues. For the cantholysis, use the back of the blade to "strum" for the ligaments, reversing its direction only to cut the ligament when it is identified.	Low level of evidence. Due to rarity and ethical restrictions a cohort study or randomized controlled trial are not feasible but this is not even the next level of evidence (case report) and is simply the view of experts.
Rowh AD, Ufberg JW, Chan TC, Vilke GM. March 2015 United States [2]	Single case report	To present a case of orbital compartment syndrome caused by traumatic retrobulbar hemorrhage and the procedure of lateral canthotomy and cantholysis, reviewed with photographic illustration	Case report - Lateral canthotomy and cantholysis are readily performed at the bedside with simple instruments. The procedure may prevent irreversible blindness in cases of acute orbital compartment syndrome.	Emergency physicians should be familiar with lateral canthotomy and cantholysis in the management of orbital compartment syndrome to minimize the chance of irreversible visual loss.	Weak level of evidence due to rarity. Only case report
McInnes G, Howes DW. January 2002 Canada [3]	Single case report - 4 37 Year old male	The case of a 37-year-old man with blunt ocular trauma, a retrobulbar hemorrhage and rapidly increasing orbital pressure requiring an urgent lateral canthotomy and cantholysis is presented. Lateral canthotomy can be performed by ED senior staff in an emergency.	Lateral canthotomy and cantholysis is a simple procedure that can be performed by emergency physicians.	It has the potential to save vision, particularly in cases of blunt ocular trauma. Successful use of this in the case of this 37 year old gentleman described	Only a single case report due to rarity. hence weak level of evidence

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Comment(s)

Both the case reports as well as the expert review suggest lateral canthotomy is a procedure that can be performed in the emergency department when a sight threatening situation arises. Due to ethical concerns it would not be possible to have a higher level of evidence for this question. There are more papers and reviews in the ophthalmology literature as opposed to the emergency medicine literature. However, this is not transferable as the environment and training of individuals concerned is very different. As it is a rare outcome, multiple case report are the best level of evidence possible.

Clinical Bottom Line

Case reports and expert review suggest lateral canthotomy can be done in the Emergency department in a sight threatening situation. More case reports in this area would be welcome. Particularly in the UK.

Bibliography

1. Iserson KV, *et al.* "Orbital Compartment Syndrome: Alternative Tools to Perform a Lateral Canthotomy and Cantholysis". *Wilderness Environmental Medicine* 27.1 (2015): 85-91.
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Volume 3 Issue 2 February 2019

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