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Figure 1. Physical exam findings.

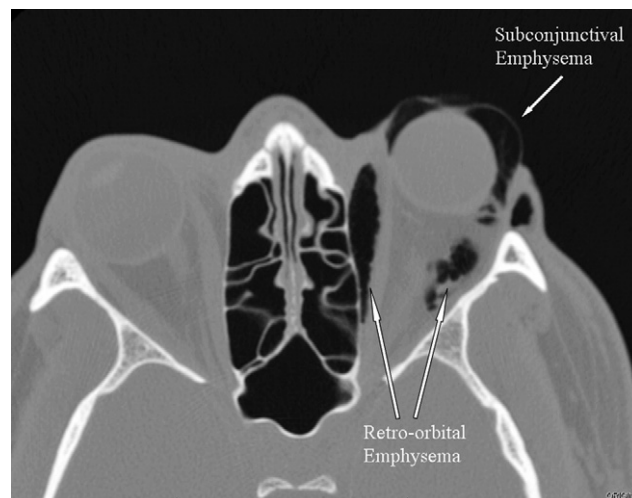


Figure 2. Computed tomographic orbits. Used with permission of Drew Weber, MD, the Department of Emergency Medicine and the Department of Ophthalmology, Wake Forest University Baptist Medical Center, Winston-Salem, NC.

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A 32-year-old man presented to the emergency department with complaint of left eye pain and swelling. Approximately 5 hours before arrival, he tripped down 2 stairs and struck his left eye on a windowsill. He went to sleep hoping the pain would subside, but on awakening he blew his nose and immediately noted severe left eye pain, swelling, and blurry vision. Physical examination findings are presented in [Figure 1](#). An ophthalmologist was urgently consulted and after reviewing physical examination findings, ordered a computed tomography (CT) scan of the orbits, which is described in [Figure 2](#). What are the indications and contraindications of a lateral canthotomy? Would you perform a lateral canthotomy on this patient?

For the diagnosis and teaching points, see page 642.

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- Physician management services including medical director duties, quality improvement, EMS director duties, medical staff services, and community relations.
- Personnel or payroll expenses including fringe benefits.
- Documentation expenses including transcription costs, training, and supplies.
- Adoption and implementation of electronic medical record systems to improve patient care.
- Medical equipment, materials, and supplies including depreciation.
- Office expenses including rent or mortgage expenses for office space, utilities, telephone, information services, technical support expenses.
- Recruitment expenses including travel, moving costs, and training.
- Other professional books and journals, continuing medical education expenses, and licenses.
- Availability expenses. The emergency department must be fully staffed and operational 24 hours-a-day, 7 days-a-week whether any patients are present or not. Unlike other specialists that can be "on call," the emergency physician must be physically present and ready to provide care at all

- times. This unique practice expense requires significant costs which cannot be allocated to a particular patient.
- Costs associated with the preparation for and participation in planning for regional and national disasters, including travel and lodging, vaccine/immunization updates, shift coverage, community support, and adherence to federal/state mandates.
- Expenses related to the support and adherence to mandated performance and quality measures required by hospital and regulatory agencies and third party payers.
- Expenses related to compliance with hospital mandated patient satisfaction initiatives.
- Administrative costs required for adherence to patient privacy regulations.

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DIAGNOSIS:

Subconjunctival and orbital emphysema with orbital floor fracture. After sustaining an orbital blowout fracture, the patient blew his nose and tracked air into the orbit and under the conjunctival plane. Because of the left eye proptosis, marked conjunctival swelling, and fixed ocular motility, we considered performing a lateral canthotomy. The ophthalmologist opted to review a CT of the orbits first, given the absence of an afferent pupil defect, nearly preserved visual acuity, and borderline intraocular pressure. On visualizing subconjunctival emphysema on CT, the ophthalmologist performed a bedside conjunctival needle decompression with an 18-gauge needle, producing an immediate rush of air. The patient regained normal intraocular pressure, extraocular movements, and visual acuity.

Indications for lateral canthotomy include signs of retrobulbar hematoma with increased intraocular pressure (>40 mm Hg), relative afferent pupillary defect, decreased vision, proptosis, and decreased ocular motility.^{1,2} Although lateral canthotomies can be sight-saving interventions, they can also result in significant periocular damage such as ectropion, ptosis (damage to the levator aponeurosis when cut too superiorly), damage to the lacrimal gland or lacrimal artery, globe injury, and cosmetic deformity.³ They are contraindicated in open globe injuries (enophthalmos, exposed uvea, or an irregularly shaped pupil). If emergency ophthalmology consultation had not been available for our patient, a lateral canthotomy may have been indicated. Prolonged increase in intraocular pressure can lead to optic nerve damage from ischemia similar to compartment syndromes in 1 to 2 hours if intraocular pressure approaches ophthalmic artery perfusion pressure.⁴ Emergency physicians should be familiar with this critical procedure and weigh the risks and benefits of its application.

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