

Chief Complaint: Left eye injury

History of Present Illness

A 21-year-old female presented to the Emergency Department secondary to an injury sustained the day prior to her left eye. She notes that the injury was a result of her jacket zipper inadvertently striking her left eye while putting on her jacket. She awoke the subsequent day with an abnormally appearing eye characterized by a protruding focal area that appeared “cloudy”. She denied the presence of pain, visual changes, discharge, tearing, or photosensitivity. She denied any history of contact lens use or previous history of ocular trauma or procedures.

Further questioning revealed that the patient has had corrective glasses since she was a child and had to constantly change her prescription secondary to declining visual clarity.



Case Discussion

The patient was seen and examined, and the case was discussed with Ophthalmology. The patient was comfortable with no pain, visual acuity changes, and a reassuring examination with no seidel sign. Hence it was decided that no emergent interventions were immediately needed, and the patient was discharged with next day follow-up with ophthalmology in addition to a prescription for ciprofloxacin eyedrops.

The patient was subsequently diagnosed with corneal hydrops from an undiagnosed keratoconus. The patient was prescribed a course of hypertonic saline drops and referred to an anterior chamber specialist for contact lens fitting.



1. What is the diagnosis and initial management of this disorder?
2. What underlying undiagnosed disorder does this patient have?

Pertinent Physical Exam

Visual Acuity: 20/200 OS (left eye), 20/70 OD (right eye)

Eye Exam: EOMI, PERRLA, No pain with extraocular movements. No afferent pupillary defect. Visual fields intact. No evidence of chemosis, hyphemia, or hypopyon. Fluorescein staining revealed mild uptake at the 3 o'clock position, negative Seidel sign.

Slit lamp examination demonstrated a conical protrusion from the cornea that was not within the visual field of the patient. Further examination revealed the presence of a focal, opaque area of edema of the corneal stroma that was markedly elevated compared to the rest of the cornea on the affected eye.

Answers

1. Corneal Hydrops. Initial management is hypertonic saline eye drops and ophthalmology follow up for contact fitting
2. Keratoconus

Pearls

- Recognizing ophthalmic emergencies is a necessary skill for the emergency medicine physician. Obtaining a thorough history of present illness and eye examination including extraocular movements, light reflexes, visual acuity, fluorescein staining and intraocular pressures, if necessary, will help determine the ED treatment and disposition of the patient.
- Eye illnesses range from the mundane to catastrophic. Knowing key physical examination findings and using a systematic approach with the history and physical exam will help guide treatment and disposition.
- Keratoconus is defined as thinning of the corneal stroma and breaks in Bowman's layer of the cornea, though it can affect all the corneal layers. It is an uncommon disease with a strong genetic component which usually is diagnosed around puberty but often is misdiagnosed.
- Corneal hydrops is a consequence of keratoconus. It is due to the stromal edema secondary to leakage of aqueous humor through a tear in the basement membrane between the stroma and endothelial layer of the cornea. This patient's history of constantly changing vision prescriptions is a result of the defect of the basement membrane in the cornea from keratoconus. With the mild trauma to the eye, the local inflammation caused the eye to form the cone shaped appearance in corneal hydrops.