Bilateral Corneal Perforations Due to Elder Neglect: A Case Report

Jaclyn Jordan, MD, Katherine Selman, MD, Richard Byrne, MD

ABSTRACT

Introduction: Atraumatic corneal melting and perforation is a rare etiology of eye pain and visual loss in the Emergency Department (ED), and xerophthalmia from vitamin A deficiency is primarily described as a cause of blindness in pediatric patients.

Case: A 68-year-old female presented to the ED with worsening eye pain and months of clouding and vision loss. History was limited by cognitive impairment and was provided by spouse. On exam, she was found to have a body mass index of 13.7 kg/m², dry mucous membranes, purulent discharge from both eyes, and opacification and erosion of both corneas. She was diagnosed with bilateral corneal perforations due to xerophthalmia with superimposed bacterial keratitis. Her vitamin A levels were found to be undetectable.

Conclusion: This presentation was highly concerning for elder neglect due to delay in presentation, poor outpatient follow-up, and presence of severe malnutrition. This case exemplifies the intersection of an acute medical presentation with a syndrome of neglect and demonstrates the importance of ED clinician evaluation for elder abuse and neglect.

INTRODUCTION

Older adults comprise approximately 20% of all Emergency Department (ED) visits. Older adults experiencing elder abuse or neglect are more likely to present to the ED, however recognition by ED clinicians remains low. Elder mistreatment encompasses a spectrum of neglect and abuse. Abuse may be physical, sexual, psychological in nature or involve financial exploitation, whereas neglect is defined as an intentional or unintentional failure to provide for an individual’s needs. Comorbid conditions can cloud subtle presentations of abuse or neglect, leading to missed diagnoses while leaving older adults at further risk.

Furthermore, eye-related complaints lead to approximately 2 million ED visits per year. The term “corneal melting” refers to the preceding processes that can lead to corneal perforation. Corneal melting involves destruction of the stromal layer of the cornea, eventually disrupting the structural integrity of the cornea, thus leading to perforation. While traumatic etiologies of corneal perforation are more common, atraumatic corneal melting and perforation have been described in association with Sjögren’s syndrome, graft-versus-host disease, atopic keratoconjunctivitis, infectious keratitis, and rheumatoid arthritis. Additionally, malnutrition and vitamin A deficiency can contribute to disruption of the structural integrity of the cornea.

We present a case of atraumatic bilateral corneal melting and subsequent perforation due to xerophthalmia and superimposed bacterial keratitis in an older woman as the end result of neglect and severe malnutrition.
CASE

A 68-year-old female with a reported past medical history of dementia, not on any medications, presented to the ED by private vehicle with eye pain. Her husband provided the history to the triage and bedside nurses due to the patient's cognitive impairment. He reported that she had had clouding and drainage from her eyes over the past several months which had acutely worsened over recent weeks. He stated that she had been blind for months but had not been evaluated for this. She had been complaining to him of eye pain over the past three days. Prior to physician evaluation, her husband departed the ED. On exam, the patient appeared cachectic with disheveled clothing and had a body mass index of 13.7 kg/m² and dry mucosal membranes. She had purulent, crusting drainage from both eyes with complete opacification and erosion of bilateral corneas. There were no bruises, burns, or signs of trauma. She was unable to answer questions but voiced discomfort during ocular examination. Lab results in the ED were notable for sodium 146. Ophthalmology was consulted and recommended transfer to a center with specialized ophthalmology services.

She was ultimately diagnosed with bilateral corneal perforation due to xerophthalmia with keratomalacia and superimposed bacterial keratitis. After transfer, she underwent bilateral corneal gluing, but her course was complicated by significant extrusion of intraocular contents of the right eye, necessitating evisceration of the right eye. Her vitamin A levels were found to be undetectable, and the patient was evaluated by a dietician and diagnosed with severe malnutrition. She was treated with vancomycin and tobramycin eye drops, eye shields, oral ciprofloxacin and doxycycline, and vitamin A, zinc, and iron supplementation. Hypernatremia improved with intravenous fluids and improved oral intake.

Adult Protective Services (APS) was contacted by both the ED physician and the social worker at the receiving facility due to concerns for elder neglect by her husband. After the initial history was provided, he left the hospital and was difficult to reach for updates and consent. Her daughter reported concerns about lack of appropriate care for her mother to both the ED staff and the receiving hospital, such as finding her mother at home still dressed in an old hospital gown days after a prior ED discharge. The daughter lived in another state and described not knowing the patient’s husband well. The patient had not been seen in a primary care office in two years despite accelerated decline reported by her family. She had ED visits during this period for evaluation after a motor vehicle accident and for wandering behavior. During her admission, she was diagnosed with likely frontotemporal dementia. Her daughter assumed decision-making responsibilities, and the patient was discharged to a post-acute care facility. Results from the APS investigation were not available to the medical team.

DISCUSSION

This case illustrates the complex interplay of presenting medical conditions and elder abuse and neglect. In this case, the spouse’s delay in seeking care and evidence of severe malnutrition are highly concerning for elder neglect. Elder abuse and neglect are estimated to affect 5-10% of community dwelling older adults. However, emergency physicians diagnose cases in only about 0.01% of older adult visits, although older adults suffering abuse and neglect are more likely to receive emergency care. In this case, our patient had only had healthcare encounters in the ED for the two years preceding this presentation, making it imperative that ED clinicians recognize signs of neglect as she was not being evaluated on an outpatient basis, consistent with literature that has shown victims of abuse and neglect are less likely to receive outpatient care. Furthermore, older adults with cognitive impairment are at higher risk for elder abuse and neglect. Behavioral and psychological symptoms of dementia, including resisting care, wandering, physical or verbal aggression, are associated with mistreatment. Risk factors for perpetrating elder
abuse and neglect include caregiver burden or stress, inexperience or reluctance with caregiving, substance use, and cognitive impairment. Neglect may be passive or unintentional and may be associated with poor social support or social isolation, as in this case where the patient's daughter lived several states away. Neglect also can be manifested in older adults without a caregiver, in which case it is labeled self-neglect and is defined as the failure to meet one's own basic needs. Self-neglect may manifest as poor hygiene, failure to seek medical care, hoarding, or inadequate living conditions, and is associated with increased ED utilization and mortality.

One barrier to diagnosing elder abuse and neglect is that the existing comorbidities can mask abuse or neglect. Clinical manifestations of neglect in particular may appear similar to the clinical course of chronic or progressive disease. For instance, the probability of eating issues is 86% in patients with advanced dementia, including weight loss, dysphagia, sustained decreased oral intake, suspected dehydration, and is prevalent in about 90% of patients with advanced dementia in the last 3 months of life. Cognitive impairment, frailty, needing assistance to eat, institutionalization are also factors associated with malnutrition in older adults. Malnutrition is present in 35.3% of patients with mild dementia, compared to 60.3% of patients living with severe dementia. These confounding factors may cloud the assessment for neglect and abuse, particularly in the emergency setting.

Vitamin A is necessary to maintain the integrity of epithelial surfaces as well as retinal photoreceptor pigments. Vitamin A deficiency is manifested ocularly by night blindness and keratinization and in severe cases, xerophthalmia and corneal ulcers. Vitamin A deficiency primarily has been explored in children as it remains the leading cause of preventable blindness in children worldwide. However, as vitamin A is obtained through diet, other populations at risk for deficiency include those with autism spectrum disorder, alcohol use disorder, gastrointestinal absorption problems such as inflammatory bowel disease or after bariatric surgery, and pancreatic insufficiency. This case indicates that vitamin A deficiency should be considered in older adults with other signs of malnutrition or new visual symptoms. Xerophthalmia may be secondary to drugs with anticholinergic properties, which are taken by up to 50% of older adults. Corneal ulceration and subsequent perforation represent a rare but devastating progression of xerophthalmia.

CONCLUSION

After a 68-year-old female with cognitive impairment presented to the ED with eye pain, she was diagnosed with bilateral corneal perforations as the result of severe vitamin A deficiency which resulted in complete loss of her right eye and permanent visual loss in her left eye. While malnutrition alone is not conclusive of elder abuse or neglect, ED physicians should maintain a high index of suspicion in cases when there are delays in seeking care, poor outpatient follow-up, and patients who are not able to advocate for themselves.

KEYWORDS

Case report, dementia, elder neglect, vitamin A deficiency, xerophthalmia

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CONFLICTS OF INTEREST
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REFERENCES
