both eyes had visual acuity of 0.0 logMAR with normal intraocular pressure and healthy fundus.

Discussion

This case of isolated congenital iris stromal defect can be explained by understanding the relationship between intraocular fluid dynamics and the structure of the iris. Forward flow of aqueous from the posterior chamber to the anterior chamber is driven by a pressure gradient across the pupil, with pupillary diameter being a main factor affecting the magnitude of this gradient.[4] As the pupil constricts, the iris is in greater apposition to the lens, increasing this pressure gradient. Conversely, a dilated pupil results in a decreased pressure gradient across the chambers.[4]

In the present case, the absence of stroma in the abnormal portion of the iris resulted in a thin and floppy structure that was easily distended by physiologic pressure gradients. When the pupil was small, the relatively high physiologic pressure gradient behind the iris led to a forward bowing of the posterior pigmented epithelium. The physics of this is analogous to that of a sail in the wind. When the pressure generated on the posterior surface of the sail is greater than that of the anterior surface, the sail bows forward. When the pupil dilated and the pressure gradient decreased, the posterior pigmented epithelium resumed a flaccid position and the apparent "mass lesion" disappeared. This is analogous to when there is no wind in a sail, hence, the sailing iris!

Other congenital iris defects are described in the literature including colobomas, aniridia, Axenfeld-Rieger, and Irido-corneo-endothelial syndromes.[5] These defects do not result in the same "sailing iris" effect, as no pressure gradient is created due to either full thickness iris defects or a lack of pupillary contact with the lens. In contrast, the consequences of pressure gradients between anterior and posterior of the iris are observed in the elderly. With the development of cataract, the lens thickens and pushes forward against the pupil. This creates a pressure gradient that bows the entire peripheral iris forward, even in the presence of normal iris stroma, leading to acute angle closure glaucoma in predisposed eyes with shallow iridocorneal angles.[6] In the present case, the local bowing of the iris has not led to any angle closure or pressure rises over a 7-year follow-up. This case demonstrates that detailed examination, under anesthesia as required, including imaging modalities are essential to assessment of pigmentary iris lesions.

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Footnotes and Disclosure

The authors have no proprietary or commercial interest in any materials discussed in this article.

Conjunctival and periorbital petechiae presumed secondary to self-inflicted asphyxiation in a pediatric patient

The presence of petechiae of the face and conjunctiva is a well-described finding seen in strangulation injuries. These petechiae are commonly seen post-mortem in deaths by asphyxia and are consequently used in forensic analysis.[1] Conjunctival and facial petechiae have also been noted to occur in nonfatal asphyxia, and their presence may be a sign that a severe strangulation injury has occurred.[2] The mechanism for facial and conjunctival petechial hemorrhages in asphyxia is thought to be rupture of capillaries with little connective tissue support secondary to local pressure elevation from continued arterial flow while venous output is obstructed.[1] We herein report an unusual case of a pediatric patient in which this clinical presentation signaled underlying recreational self-inflicted strangulation. This case report is adherent to the principles of the Declaration of Helsinki and is compliant with Health Insurance Portability and Accountability Act guidelines.

A 13-year-old girl presented with conjunctival and periorbital petechiae, noticed several hours earlier. She denied change in vision, eye pain, nosebleeds, or easy bruising. She had a history of chronic constipation but no recent infections, weight change, or fever and no family history of bleeding disorders. When interviewed in private, the

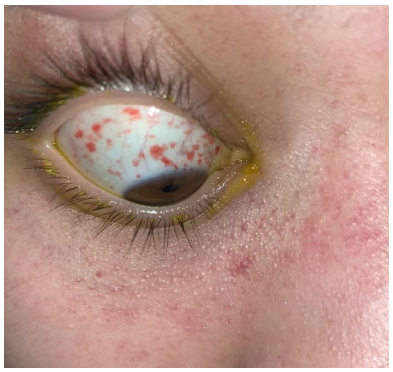

Fig. 1—Periorbital and superior bulbar conjunctival petechial lesions noted in an otherwise healthy pediatric patient. The differing colors of the facial petechiae suggest lesions at different stages of resolution and therefore multiple episodes of occurrence. The patient did not have petechiae of the inferior conjunctiva. The patient's fellow eye and periorbita had symmetric findings. The petechiae were ultimately felt to be a consequence of participation in self-inflicted strangulation.

patient disclosed a history of substance use (including inhalants, benzodiazepines, and marijuana), psychiatric illness (including recent hospitalization for intentional overdose), and self-injurious behavior. The patient also disclosed self-inflicted strangulation to "[get] high," which she had been participating in over the last year. She denied recent suicidal thoughts and current participation in self-harm activities. However, based on her affect it was not clear to examining providers if she was fully forthcoming about her recent behavior, and suspicion for ongoing participation in self-inflicted strangulation remained.

On examination, the patient had visual acuities of 20/20 OU. Examination revealed subtle facial petechiae concentrated in the bilateral periorbital region. The facial hemorrhages were of varying colors, suggesting different hemorrhage age and possibly multiple episodes of occurrence. Anterior segment examination demonstrated subconjunctival petechial hemorrhages of the bilateral superior bulbar conjunctiva (Fig. 1). The remainder of her anterior segment examination was unremarkable. A dilated funduscopic examination revealed subtly increased retinal vasculature tortuosity. Intraocular pressure, pupillary examination, extraocular movements, and confrontation visual fields were within normal limits. Examination of the patient's neck did not show any ecchymosis, tenderness, or gross motility abnormality. A targeted hematologic workup with complete blood cell count, basic electrolyte panel, prothrombin time, partial thromboplastin time, D-dimer, fibrinogen, erythrocyte sedimentation rate, and C-reactive protein was within normal limits. The patient's presentation was attributed to recent self-inflicted strangulation. Two weeks after initial presentation, the conjunctival and facial petechiae resolved spontaneously. The patient was referred to a pediatric psychiatric provider for further care.

The differential diagnosis of subconjunctival petechiae in pediatric patients includes infectious causes of conjunctivitis (viral or bacterial), blood dyscrasias, local trauma, and ocular inflammation.[3] In the present case these alternate causes were ruled out by history, examination, and the results of the hematologic laboratory tests. Instead, a more unusual cause of subconjunctival hemorrhage was detected by history—strangulation injury. A causal link between the patient's subconjunctival hemorrhages and strangulation is not definite because the patient also endorsed a history of chronic constipation, which can be a cause of subconjunctival hemorrhage as a result of the Valsalva maneuver.[3] However, given the characteristic hemorrhagic pattern of bilateral periorbital and conjunctival petechiae,[1] in the setting of the known prior participation in self-inflicted strangulation, a high clinical suspicion of the asphyxial nature of her conjunctival petechial lesions was warranted.

Recreational use of inhalants for intoxication, as disclosed by this patient, has not been clearly linked with conjunctival petechiae, but this finding has been reported in deaths resulting from severe inhalant use.[4] Child abuse was not suspected in this patient, but in a pediatric patient, and especially in infants, bilateral subconjunctival hemorrhages including conjunctival petechiae may also be a sign of nonaccidental trauma.[5]

Self-inflicted asphyxia to achieve euphoria has been previously reported in adolescent patients. This behavior may be colloquially referred to by adolescents as "the choking game" and is a harmful product of self-exploration, pursuit of risk, and peer pressure.[6,7] Participation in self-inflicted asphyxiation does not necessarily indicate an underlying psychiatric illness. Sometimes this behavior can result in severe hypoxia, including clinically significant ischemic injury to the brain.[6] A survey of pediatricians and family practitioners found that aproximately one-third of physicians surveyed had not heard of adolescent participation in self-inflicted strangulation to achieve euphoria and that of those physicians who had heard of this behavior, many were unable to recognize stigmata of strangulation injuries. Moreover, the study suggested a discrepancy between physician-reported frequency of identifying this behavior in their adolescent patients and rates in which adolescents report participating in this behavior.[7] Accordingly, the present case illustrates that increased awareness of the choking game enables the physician to recognize possible signs of self-inflicted asphyxiation and elicit the necessary history to make this diagnosis.

Petechial hemorrhages of the conjunctiva and periorbita are classic findings in strangulation injuries[1,2] and perhaps the most likely signs that may cause the patient to present for ophthalmic evaluation. Petechiae can also be seen on the buccal mucosa.[8] Examination of the patient's neck may reveal ecchymoses, hematomas, ligature marks, or tenderness to palpation.[2] If a ligature was used, there may be soft tissue injury without superficial findings.[8] Strangulation may also injure the pharynx or larynx, and affected individuals consequently may have sore throat, difficulty in swallowing, and hoarse voice.[8,9] Hypoxia resulting from strangulation may cause headache, confusion, or disorientation.[7,9,10] Onset of

these symptoms and signs after a child has spent time alone may signal participation in self-inflicted strangulation.[10]

In a child with features concerning for strangulation injury, it is important to question the child directly and in a non-confrontational manner, asking about self-infliction or infliction by others. The patient should be interviewed in private, as is typically done when asking pediatric patients about other sensitive subjects such as use of drugs and alcohol or sexual activity. With parents present in the room, patients might be less forthcoming to avoid parental discipline. Similarly the inquiring physician must normalize the nature of the conversation with the child to make the child feel comfortable disclosing the behavior to the physician and not feel as though he or she is being judged for the behavior. In spite of these measures by the physician, the patient may deny or not disclose strangulation—if clinical suspicion remains, strangulation injury should not be prematurely excluded.

Conjunctival/periorbital petechiae from a single strangulation episode will spontaneously resolve and should be observed. However, other secondary injuries from strangulation may require emergent evaluation in an emergency room or urgent care context; management of these injuries is beyond the scope of this report. The cause of strangulation must also be addressed. If participation in recreational self-inflicted strangulation is identified, this behavior requires management by the child's pediatrician and likely referral to a pediatric psychologist. Ongoing participation in the behavior carries high risk for the patient because recreational self-inflicted strangulation may result in accidental death and hypoxic brain damage.[6,7] Moreover, this high-risk recreational activity may be a marker for coexisting substance use or psychiatric illness.[11] If the strangulation is found to be a suicide attempt or concerning features such as suicidal ideation and intent are identified, emergent psychiatric evaluation is necessary. If strangulation is found to have occurred from child abuse, legal involvement including child protective services is necessary as dictated by local and federal protocols of the region.

This case highlights the importance of obtaining a careful social and psychiatric history in pediatric patients presenting with acute, bilateral conjunctival petechiae. Conjunctival and facial petechiae should alert the clinician to the possibility of an assault with severe strangulation but may also serve as a marker for self-inflicted asphyxiation with either self-harm or euphoric intent.

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Multimodal imaging of sclerochoroidal calcification associated with choroidal neovascular membrane

Sclerochoroidal calcification is a benign condition typically diagnosed in asymptomatic, older, white adults, which can simulate other more serious conditions such as choroidal melanoma, metastasis, or lymphoma.[1] It is characterized as yellow or yellow-white single or multifocal