



An Intraocular Injury from a Dog Bite

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Orbital dog bites, although uncommon, occur mostly in children and are reported to be associated with severe ocular adnexal injury without globe involvement [1,2]. We report the rare case of a severe intraocular injury from a dog bite with a corneal laceration and mild cataract formation. To our knowledge, this is the first documented case.

Patient Description

A previously healthy 23 year old woman was bitten by an Akita dog while she bent down to pet it. She was bitten on her right shoulder and on the right side of her face. Two hours after the trauma she was admitted to our department. On examination of her right eye the visual acuity was hand movement at 1 meter. The lid examination revealed marked edema, a periorbital hematoma and a fairly superficial lower lid laceration. The eye was hypotonous. Slit-lamp biomicroscopic examination showed significant conjunctival injection, and a central, full-thickness horizontal corneal laceration that extended from the limbus at 9 o'clock through the visual axis. The anterior chamber was shallow with a 2+ flare, 2+ cells, fibrin, and a 1 mm hyphema. The pupil was irregular, and the iris adhered to the cornea and partially sealed the corneal laceration. Fundus examination revealed a blurry view with no details clearly visible, and a good red reflex. Ultrasound examination showed an attached retina. The examination of the left eye revealed nothing remarkable. A tetanus toxoid injection was given

and the results of a complete blood cell count and chemistry blood tests were normal.

Under general anesthesia, reposition of the iris tissue was performed, the corneal laceration was sutured using interrupted 10/0 nylon sutures, and the anterior chamber was reformed. A subconjunctival injection of betamethasone and garamicin was given at the conclusion of the ocular surgery. The lid lacerations were sutured using 6/0 prolene sutures.

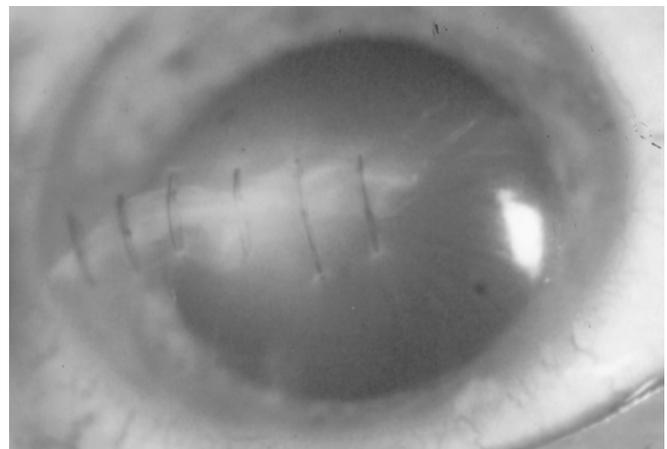
Following the operation, the patient was given intravenous amoxicillin-clavulanate and a topical broad-spectrum fortified antibiotic treatment prepared by the hospital's pharmacy: vancomycin (33 mg/ml) and ceftazidime (40 mg/ml) eye drops, topical steroid and cycloplegic eye drops. Public health officials were notified of the case. Following a consultation with the hospital's Infectious Disease department, rabies prophylaxis was started because the dog's immunization record was not known. This included a series of active and passive rabies vaccinations.

On examination 5 days after the operation, the patient's visual acuity was 6/120. The lids were less swollen

and the periorbital hematoma was reabsorbing. There was a mild conjunctival irritation. The sutured corneal laceration was sealed with no signs of leak; a few Descemet's folds were observed around the sutures. The anterior chamber was deep, with minor flare reaction and microhyphema, the iris was intact and the pupil was round. The lens was clear and fundus examination was normal [Figure].

Five months after the injury, best spectacle-corrected visual acuity was 6/120 and best-corrected visual acuity with a rigid contact lens was 6/12. A large horizontal corneal scar was observed in the area of the laceration, the anterior chamber was deep and quiet and anterior subcapsular lens opacity was revealed.

One year after the injury, best-corrected visual acuity with the rigid



Right eye: 5 days after reposition of the iris tissue, suture of the corneal laceration and reformation of the anterior chamber.

contact lens was 6/12. Unfortunately, the patient could not tolerate wearing the contact lens and achieved a spectacle-corrected visual acuity of only 6/120. A large central corneal scar was observed, along with development of both a mild anterior and posterior subcapsular cataract. The patient underwent penetrating keratoplasty 18 months after the severe eye trauma. Unfortunately, 3 months after the surgery she had a graft rejection that was treated by topical steroids. On her last examination, a mild edema was noticed on the lower third of the corneal graft and her visual acuity was 6/60.

Comment

Dog bites in the face area are commonly associated with facial soft-tissue lacerations, and in extreme cases, bone fractures. Orbital dog bites, though quite rare, occur most frequently in children, and can be associated with severe adnexal injuries such as lid lacerations, cannalicular avulsion, ptosis from levator transaction, and facial nerve damage [1,2]. Wise et al. [3] reported five cases of dog bite syndrome: palsy of the superior oblique muscle and a paradoxical inability to elevate the eye in adduction. Our case shows unique features of a very unusual dog bite injury, causing

serious intraocular injury, involving perforation of the cornea, iris incarceration in the laceration and hyphema. Follow-up examination after 1 year showed a visual acuity of 6/12 when corrected with a rigid contact lens. However, due to contact lens intolerance a poor spectacle-corrected visual acuity of 6/120 was achieved. The patient developed a large central corneal scar and a mild anterior and posterior subcapsular opacification of the lens and, eventually, underwent penetrating keratoplasty surgery 18 months after the severe eye trauma. Most dog bite injuries in the facial area involve the ocular adnexae, lids and lacrimal apparatus. Generally, the dog's blunt canine tooth will push the globe out of the way. Injuries sustained in the area of the ocular adnexae and lids probably protect the globe itself from injury. The blink reflex causes the ocular adnexae, lids and lacrimal apparatus to bear the brunt of a dog bite injury while protecting the globe. In our patient's case, either she had a delayed blink response or the dog bit her so unexpectedly that her eye was injured directly, without being protected by her closed lids. Most of the cases reports in the literature describe dogs that usually bite family members or family friends [2,4] and not strangers, as hap-

pened in the case of our patient. Our management included surgical repair of traumatized tissue, systemic and topical antibiotics treatment, appropriate tetanus and rabies prophylaxis, and notification of public health officials. This is the accepted management of dog bites as described by Herman et al. [5].

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