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Sir,

Corneal injury from a fishing line: a new mechanism

Fishhooks[1] and sinkers[2,3] are well recognised to cause severe trauma to lids and cornea.[4] Other sequelae to such injuries include retinal detachment[5–7] and endophthalmitis.[1] In the commercial fishing sector, fish bile and fish picks (used in handling heavy fish and crates) are a form of occupational eye morbidity.[8,9]

We report the findings in a patient who, while fishing for salmon (*Salmo salar)* on a river, was struck in the eye by the fishing line alone, apparently without involvement of the hook, a mechanism we believe not to have been reported before. We discuss the mechanisms of injury and treatment options.

Case report

A 52-year-old man presented with an injury to his left eye sustained while fishing for salmon on a river. He was struck on his left eye when he lost control of the back cast. It was only the moving line that hit him and not the treble hook fly. Systematic questioning revealed no significant past ophthalmic or medical history.

At presentation, the visual acuity (VA) in the right eye was 6/6 and hand movements in the left eye. A linear partial thickness lid laceration involved the medial portion of both left upper and lower lids, and it was superficial to the lacrimal canaliculus. The wound edges were well apposed and did not require suturing. The corneal injury was a well-defined linear partial thickness laceration involving the nasal portion from which a thin strand of monofilament nylon (fluoro-carbon) was removed (Figure 1a). Seidel's test was negative. The anterior chamber (AC) was slightly shallower nasally and clouded with hyphaema. The pupil was slightly dilated, and the iris appeared traumatised nasally. There was no relative afferent pupillary defect. The lens showed early cataractous changes with mild phacodonesis. Posterior segment details were not clear because of the haziness of the cornea, hyphaema, and lens changes. B-scan ultrasonography showed choroidal haemorrhage nasally consistent with shallow anterior chamber leading to ciliary body rotation.

He was managed conservatively on topical ofloxacin 0.3% q.d. for 10 days, topical prednisolone 0.5% q.d. for 2 weeks and oral ciprofloxacin 750 mg b.d. for 1 week. A formal vitreo-retinal and ultrasound opinion was sought from a tertiary centre, and this confirmed supra-choroidal haemorrhage only.

After 10 days VA had improved to 6/18 LE. Both lids and corneal laceration were almost healed. The choroidal haemorrhage was noted to be resolving.

By 3 months, the VA had become reduced to 6/60 LE. The IOP was 12 mmHg in LE. The cataract was now moderately dense and with mild phacodonesis. Gonioscopy showed multiple peripheral anterior synaechiae and 2 clock hours of angle recession in the inferonasal quadrant. The choroidal haemorrhage had resolved.

A decision to proceed to elective cataract surgery was taken and biometry was performed based upon different techniques of assessing keratometry. On axis phacoemulsification with PCIOL acrylic lens (Sensar OptiEdge™) and intracapsular tension ring (Morcher™: Type 14c MR–1420) was performed successfully without further loss of zonular integrity. There has been no evidence of secondary glaucoma or vitreoretinal problem in the postoperative period. A 3-month postoperative review revealed stable refraction: LE:$-0.25/+1.00\times 10=6/5$. He has been discharged from our care with the relevant cautions for vigilance regarding long-term sequelae. He has been advised to visit his optician on yearly basis for IOP check.

Comment

We believe this is first report of an injury from a fishing line rather than fishhook. The eye suffered from injury by two mechanisms: laceration and blunt trauma. We presume the laceration was due to cheese wiring effect and thermal changes from friction of a thin, but tough, line. The line is also partly abrasive (braided leader). It is apparent that while elements of the line might have relatively low mass (although some salmon lines, especially the sinking type used here have significant mass relative to an eye), it travels at high speed and hence carries significant momentum, and this is directly related to the high speed through the air that is necessary for casting the line. The evidence of blunt trauma is the presence of cataract, choroidal haemorrhage, and angle recession.

The corneal scarring sustained induced irregular astigmatism that potentially affected biometry calculation. The true corneal power measurement may be quantitatively assessed with keratometry (Von Helmholtz type, eg Bausch & Lomb or Reichert, Java-Schiotz or hand-held Nidek™). Alternatively, computerised corneal topography or contact lens over refraction may be used to assess corneal power. Cua

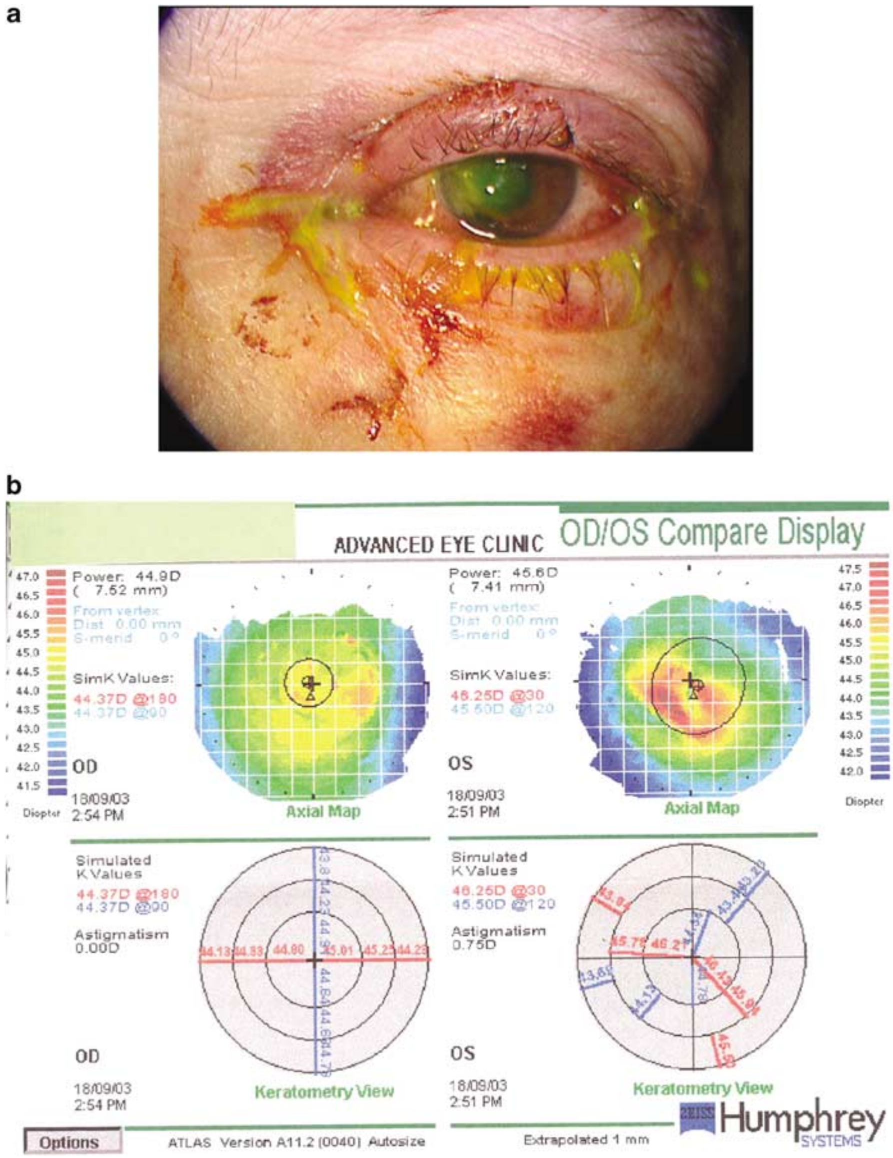

Figure 1 (a) Left eye at day 2 after injury. Note the linear partial thickness laceration involving left upper lid, lower lid, and cornea nasally. (b) Corneal topography—note the central irregular steep dimple, and asymmetry from the fellow eye. Corneal topograph showing irregular astigmatism with difference of 0.75 D at 30 and 120 in the left eye.

et al[10] propose that these latter methods provide the most reliable results, although this depends on VA $\geq 6/18$. It is well-recognised that corneal scarring and surgery (eg LASIK and PRK) affect biometry and requires special keratometric consideration.[11]

We obtained data from refraction, keratometers (manual and automated), and topography (Eyesys, Humphrey), and elected to use the 'SimK' topography result because of corneal scarring (Figure 1b).

Our refractive aim was −1.0 dioptre (D) to balance the right eye in which refractive error is −1.5 D. (A full preoperative discussion was held with the patient discussing the options.) We used SRK-T formula to calculate IOL power using K-readings measured by different methods to achieve refractive error of −1.0 D (Table 1).Using the SimK method, we ended with a refractive error of +0.50 D spherical equivalent, which was +1.50 D hyperopic compared with the target refraction. Assuming all other surgical factors to be identical, we can calculate that the predicted refraction error from target would have been +0.83 using a 20.0 D lens as per Nidek™ topographer, that is, postoperative refraction of ∼−0.3 D; while using the Reichert (von Helmholtz type) keratoscope and a 20.5 D lens, the

Table 1 The individual keratometry methods are compared by calculating the predicted spherical equivalent refractive error, assuming the surgical technique would have been the same for whatever lens used

Keratometry method	*K1/D*	*K2/D*	*Axis*	*Axial length/mm*	*Calculated intraocular lens for target refraction −1.0 D*	*Outcome refraction spherical equivalent/ dioptres*	*Error from prediction/ dioptres*
SimK topograph	46.25	45.50	30	23.43	19.5	+0.50	+1.50
Nidek	46.04	44.12	33	23.43	20.0	−0.30[a]	+0.83
Reichert (von Helmholtz)	45.00	45.00	180	23.43	20.5	−0.75	+0.25

Von Helmholtz keratometer would have been the best choice for this particular patient.
[a]Simulated values.

spherical error would have been +0.25 with a final refraction of ∼−0.8 D. The Reichert (von Helmholtz type) keratoscope would in retrospect have been the better choice, but in the event the patient is happy and our case is anecdotal—a 'series' too small to be statistically robust.

Our patient has achieved BCVA of 6/5, although naturally is slightly myopic in the fellow eye, and is pleased with visual outcome. His result is within his own expectation and no further intervention is sought.

It has been suggested that people should use goggles prophylactically while fishing, but the author's experience is that these are little used though many anglers wear spectacles especially Polaroids™ to enhance visualisation of fish below the surface of the water.

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Sir,

Kingella kingae **orbital cellulitis in a 3-year-old**

Orbital cellulitis requires prompt diagnosis and treatment to prevent visual or life-threatening complications. We report an unusual case and cause of orbital cellulitis in a 3-year-old, managed conservatively with a good outcome visually and systemically.