From the clinic

Blinding choroidal rupture in a karateka

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A case of unocular visual loss secondary to trauma sustained during a competitive karate bout is reported.
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Keywords: choroidal rupture; karate

A 34 year old male, with previously documented 6/5 vision in each eye, attended an ophthalmic casualty department complaining of distortion in the central vision of the left eye. Three weeks earlier he had been competing in a karate tournament fought under World Union of Karate Organizations rules during which he had been punched on the left cheek. According to observers, he was instantly knocked unconscious and fell to the floor. Due to the consequent lack of protective reflexes he struck his head forcibly on the wooden floor and remained unconscious for some 30 min. Following this event he was observed in hospital overnight and discharged the next day with no apparent ill effects other than left periorbital bruising, a headache, and retrograde amnesia for the event.

Over the subsequent three weeks the patient noticed increasing distortion of the central vision of his left eye. On examination he had a visual acuity of 6/4 in the right eye and 6/12 in the left. Retinal examination showed a small choroidal rupture superotemporal to the fovea (*Figure 1*). There was no other ocular abnormality. Over the following two months his vision in the left eye deteriorated to 6/60 with a dense central scotoma on central visual field assessment. Clinical examination during this period showed an untreatable leash of subretinal neovascularization, with new blood vessels growing through the split in Bruch's membrane (the boundary between the choroid and the retina) from the underlying choroidal vasculature. This was confirmed by fluorescein angiography (*Figures 2 and 3*). At the time of discharge he had a disciform scar at the left fovea and an acuity of 3/60 with no possibility of improvement.

Discussion

To the best of our knowledge, this is the first blinding eye injury reported in a karateka. However, rather than view this as an interesting but isolated case, we feel this incident should remind all involved in the martial arts of the risks involved.

There are numerous published reports detailing both the frequency and severity of injuries sustained.^{1–4} One

study in Scotland¹ showed that over 25 % of contestants in a karate competition sustained some type of injury and 41 % of these injuries were to the head and neck. An

Figure 1. Left foveal scar, as seen ophthalmoscopically

Figure 2. Early phase fluorescein angiogram, showing a fine web of subretinal neovascularization

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Figure 3. Late phase fluorescein angiogram, leakage of fluorescein from a subretinal neovascular membrane

American study of the Tae Kwon Do national championships, found that 52% of all injuries involved the head and neck region.² During the first European knock-down karate championships 53% of the competitors were injured and 30% of these injuries were to the head and neck.³ These previous reports suggest that under tournament conditions the distinction between those martial arts disciplines that permit full contact and those that do not becomes blurred. This is consistent with previous work that has found that injuries tend to be more severe under tournament conditions than when training.⁴

There have been several recommendations aimed at reducing both the rate and the severity of injury. The presence of trained ringside physicians for early diagnosis and treatment is usually recommended,² but

severe traumatic maculopathies, such as described here, may result from a single blow, and their complications may not be treatable even if there is early diagnosis. The use of protective padding of the fists, forearms, shins, and feet has been recommended,² but their use did not prevent injury in this case. Additionally, a previous biomechanical study has shown that target acceleration is not significantly affected by the use of such padding.⁵ Floor padding has also been recommended to prevent injury to a contestant when hitting the floor.⁶ Lack of such padding may well have been a factor in the prolonged unconsciousness sustained in the case we describe. However, the most likely way of reducing these types of injuries is to exclude the head as a target area, as others have already suggested,² although this case proves that even this would not be infallible.

Martial arts are an increasingly popular sporting pastime, with a proliferation of tournaments over the years. It is apparent from published reports and the case we describe here that injuries to karatekas can be both common and severe. The medical profession should continue to lead the debate on sporting injuries and remind sporting governing bodies both of the continuing levels of injury and of ways to make sport safer.

Acknowledgements

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Spontaneous rupture of the anterior cruciate ligament after anabolic steroids

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Anabolic steroids remain popular among body builders and power athletes despite numerous warnings about their side effects. A case of spontaneous rupture of the anterior cruciate ligament is reported in a bodybuilder taking steroids. While there are many published reports of tendon rupture associated with steroid intake, the authors could

find no report relating to ligament disruption. (*Br J Sports Med* 1995; **29**: 274–275)

Keywords: anterior cruciate ligament, spontaneous rupture, anabolic steroids

Case report

A twenty two year old body builder presented one week after an apparently trivial injury to his right knee.

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