

# A Rare Mechanism Of Globe Injury In Badminton Player

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## Abstract

Closed globe injuries due to shuttlecock are reported, but open globe injury due to shuttlecock in a badminton player wearing glasses have not been reported. We report an unusual case of open globe injury due to shuttlecock breaking the spectacles of a player. A 22 years old male presented with sudden onset diminution of vision in the right eye following trauma by a shuttlecock which shattered his spectacles, while playing singles in badminton. He was diagnosed as a case of open globe injury with full-thickness corneoscleral tear. Primary globe repair was done under general anaesthesia. Postoperative visual recovery was good. This is a unique case resulting from the shuttlecock shattering the patient's glasses leading to an open globe injury. To the best of our knowledge, this is the first case report from India presenting with full-thickness scleral rupture indirectly from shuttlecock injury

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**Keywords:** Badminton, corneoscleral tear, Open globe injury, Shuttlecock injury

## Introduction

Badminton is a popular sport and is played by all age groups and socioeconomic segments. Badminton results in few injuries mostly minor like sprains, cramps, ankle fractures. Only 6% of all injuries are due to shuttlecock and 7% by racquet.<sup>1</sup> The incidence of ocular injuries is regionally dependent and is dependent on the popularity of the sport.<sup>2</sup> Fifty percent of patients suffer a permanent reduction in vision out of which 11% had a final visual acuity of 6/60 or worse.<sup>3</sup> The incidence of open globe injury is less than closed globe injuries in badminton. Double games are more prone to ocular injuries than single game.<sup>2,5</sup> Shuttlecock caused more accidents than racquets but injuries from racquets were severe producing enough force to knock someone down, break their eyeglasses or even rupture the eyeball. We report an unusual case of open globe injury which occurred in a singles game. The patient was wearing his spectacles and was hit by the shuttlecock in his right eye which led to shattering of eyeglass and open globe injury.

## Case Report

A 22 years old male presented with complaints of sudden pain and diminution of vision in the right eye following injury by a shuttlecock while playing a singles badminton game. The patient is an amateur badminton player. While trying to return the smash from his opponent close to the net, his spectacles were hit by the shuttlecock and he injured his right eye. His spectacle shattered and the patient had foreign body sensation, pain, watering, redness and diminution of vision in the right eye. On evaluation, his visual acuity was 5/60 in the right eye with no further improvement with pinhole and 6/36 in left eye improving to 6/6 with -3.25 Dsph correction. Torchlight examination revealed lid edema and periorbital ecchymosis in the right eye. Conjunctival congestion with subconjunctival haemorrhage seen along inferotemporal quadrant. Slit-lamp examination showed Zone III full thickness corneoscleral tear of 2 clock hours infero-temporally with iris prolapse (Figure 1). The anterior chamber was shallow. Pupil was irregular, sluggishly reacting to light with inferotemporal peaking. Lens clear and fundus was within normal limit. Left eye anterior and posterior

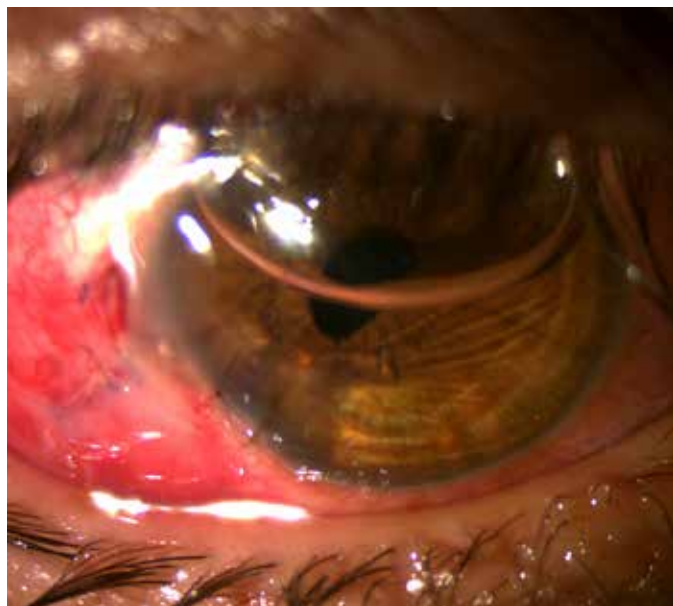


**Figure 1:** Open Globe Injury with scleral tear and iris tissue prolapse

segment examination was within normal limits. The patient was taken for immediate surgery under general anaesthesia. Conjunctival exploration was done and full thickness scleral tear was noted infero-temporally measuring 10mm in size. The scleral tear was sutured starting from the limbus and after that corneoscleral laceration was sutured carefully without touching the clear lens with 10-0 Nylon with repositioning of prolapsed iris tissue into anterior chamber (Figure 2). The overlying conjunctiva was also sutured with 8-0 Vicryl. Postoperatively the patient was treated with broad-spectrum systemic antibiotics, intravenous ceftriaxone 1 gm twice daily, intravenous amikacin 500 mg once daily, Injection Tetanus Toxoid IM stat and topical antibiotics and steroid eye drop (Gatifloxacin 0.3% and Prednisolone acetate 1%) two hourly. One week post operatively his visual acuity was 6/36 unaided improving to 6/12 with -2.0 DS and -1DC at 900. Slit lamp examination showed intact sutures and well-formed anterior chamber.

## Discussion

Badminton results in fewer injuries like cramps, blisters, sprains. Only 6% of all injuries are due to shuttlecock and 7% are due to racquet. Serious ocular trauma can occur in



**Figure 2:** well formed anterior chamber after corneo scleral tissue repair

sports like ice hockey,<sup>6</sup> squash,<sup>7-9</sup> tennis<sup>10</sup> and golf.<sup>11</sup> Doubles games players of Badminton are at higher risk of ocular injury than those in singles games. Most of the players were hit by their partners than by opponents, by shuttlecocks or racquets. In this case, the injury occurred in a singles game and by the shuttlecock hit by an opponent which is contrary to the general dictum. The different mechanisms of injuries associated with badminton are, injury due to: (1) a smash shot from an opponent with player at the net, which occurred in our case (2) shuttle bouncing off the player's racquet and hitting his eye, (3) racquet of partner hitting the player and (4) an uncommon mechanism due to shuttle injury during a smash shot from the doubles partner when the player turns around to look at the miss-hit shot. Closed globe injuries are more common in Badminton which occurs due to shuttlecock. Open globe injuries are relatively less common and occur due to racquet injury directly to the eye or to the spectacles worn by the player, resulting in shattering of the spectacle. Even frames itself causing serious eye injury has been reported.<sup>12</sup> In a thorough literature search open globe injury due to shuttlecock shattering the spectacles very rarely been reported.<sup>13</sup> Hence, we report this case to feature that open globe injury can result due to shuttlecock shattering the spectacles. It is also recommended that protective eye wear should be worn by all players in Badminton sports.

### Conclusion

This case call attention to the importance of wearing protective eyewear while playing racquet sports. American Academy of Paediatrics and the American Academy of Ophthalmology have recommended that all youth participating in organized sports wear eye protection. In the specific case of individuals who wear spectacles, they recommend several options, including polycarbonate lenses in a sports frame, contact lenses with appropriate sport-specific protective eyewear.<sup>14</sup> To the best of our knowledge, there is no official recommendation regarding protective eyewear while playing badminton at present. We strongly

recommend using protective eyewear even on the top of eyeglasses especially in untrained or young players.

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