

## GOLF BALL INJURY TO THE EYE

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In the last fifty years, when golf became a popular sport, there have been periodic reports of ocular injury, resulting from the liquid centre of golf balls squirting into the eyes of persons who were adventurous enough to attempt to explore the inner core of the golf ball by unwinding the covering or cutting through it.

The earlier reports from explosion of a golf ball when cut open or the covering unwound were made by Nance, 1912; Carpenter and Baer, 1912; Langdon, 1912; Wood, 1912; Ohlemann, 1913; Crigler, 1913; Lowell, 1913; Thomason, 1913; Denig, 1914.

The most recent report was made in October, 1967, by Sluscher, Jaegers and Annesley of Pennsylvania, when they reported 4 cases. The present report is the first recorded case in Malaysia-Singapore.

### CASE REPORT

G.P., aged 21 years, a local golfer's wife on 9th July, 1967, out of curiosity decided to find out the composition of a Dunlop 65 golf ball. She peeled off the outer vulcanised coat and stripped away the tightly-bound rubber strand to reach the inner rubber core which she finally sliced open with a knife. The enclosed liquified rubber squirted into her left eye causing her severe pain and watering of the eye. Her husband immediately brought her to the Malacca General Hospital where she was seen at the Outpatient Department on the day of the injury. Her affected eye was washed with saline and attempts to remove a couple of foreign material tags stuck to her conjunctiva were without success. The patient was given a sedative and analgesic and was admitted to the hospital.

A doctor was called to see this patient urgently and found that the visual acuity of her right eye was 6/9 and the left eye was 6/60. On examination, her left eye was found to be congested with lacrimation and blepharospasm. Two elastic strands were stuck onto the bulbar conjunctiva on the supero-nasal and inferior aspects of the eyeball. There was a corneal abrasion which stained with fluorescein with oedema of the surrounding cornea.

In view of the corneal abrasion, no attempt was made to remove the rubber strands. Con-

servative treatment in the form of atropine 1% eyedrops, oxytetracycline eye ointment and pad and bandage to the affected eye, and analgesics and sedatives were prescribed.

The next day, the affected eye was still staining with fluorescein with corneal oedema and folds in Descemet's membrane. There was early chemosis with the foreign material appearing subconjunctivally by biomicroscopy and stuck to the episcleral tissues. The eyelids were found to be slightly swollen.

On the 11th of July (second day after injury) the corneal abrasion and corneal oedema subsided. There was slight chemosis and swelling of the eyelids and the patient was accordingly discharged with gutt atropine, ocular oxytetracycline and pad and bandage of the left eye. On 12th July, corneal abrasion was healed completely and there was no more staining with fluorescein. It was decided that the foreign material be removed under local anaesthesia with gutt amethocaine 1%. The conjunctiva over the foreign material was incised. They were dissected from the episcleral tissues and removed. The conjunctival edges were sutured with running silk sutures. Topical atropine, oxytetracycline and pad and bandage were applied to the left eye. The conjunctival sutures were removed on the 4th day. The chemosis was much improved and topical steroid-antibiotic prescribed. Convalescence was uneventful.

At the last visit on 12th August, the left eye was no longer congested and the visual acuity was 6/9 but was improved to 6/6 with -0.75 dioptres sphere.

A report on the central part of a Dunlop '65' made by Dunlop of London reads as follows:—

"Our Head Office, Petaling Jaya have written to our Dunlop Sports Co., Ltd. London, and herewith is an excerpt from them.

That nothing in the centre part of a Dunlop '65' is dangerous. However, in view of the pressure inside a golf ball it is likely that the eyeball has become abraded by hard particles of barium sulphate. It is doubtful whether sodium orthophenylphenate would cause any more than local irritation.

The composition of the centre core is as follows:—

Barium Sulphate (as Barytes)	73.5	% by weight
Bentonite Clay	2.125	
Glycerine	2.875	
Water	21.3125	
Sodium Ortho- Phenylphenate	0.1875	
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## DISCUSSION

Duke Elder (1954) and Penner (1966), reported that the main contents of liquid centres of golf balls included sulfuric acid, barium salts, zinc sulfide, silicone, gelatine, and corn syrup. The other significant observation was that the liquid centres were kept under high pressure of over 2,000 pounds per square inch. It follows that when the liquid centre is released either by unwinding the rubber covering or by cutting through the rubber covering with a knife, the high pressure can eject the core material at considerable force through the skin or conjunctiva without detectable damage to the skin or the conjunctiva. This present report illustrates how the core material penetrated the conjunctiva itself.

In the 4 cases reported by Slusher and Co. (1965), he described hyphema in one case, iritis in 2 cases and corneal involvement in 3 cases. In 3 cases, the material had to be removed surgically. All the cases described occurred in boys between ages of 9 and 15 years. Earlier reports did not describe loss of visual acuity and only a few reported corneal damage.

In this present report that the explosion injured both the cornea and the conjunctiva and although the patient had an initial loss of visual acuity (to 6/60) he did not suffer a permanent visual defect.

It was the view of Slusher, Jaegers and Annesley, that the liquid centre material embedded in the subconjunctival tissue should be removed surgically and that they have obtained good results by so doing. This was done in the present case and the result was excellent.

It may therefore be desirable for golfers to warn their families of the danger of unwinding the rubber covering of a golf ball or cutting through it as a means to prevent unnecessary injury.

## SUMMARY

The first recorded case of explosion of the liquid centre of a golf ball when cut open, occurring in Malaysia-Singapore, is reported.

Local excision of the liquid centre including the conjunctiva and the end line Tenon's capsule is recommended as an effective treatment.

Golfers are advised to warn their families of the danger of unwinding the rubber covering of a golf ball or cutting through it.

## REFERENCES

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