

Golf Buggy Related Head Injuries

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ABSTRACT

Our department has recently managed three cases of serious head injuries resulting from falls from golf buggies. One of them sustained moderate head injury with a small cerebral contusion and skull fracture. Two of them sustained severe head injury with extensive cerebral contusions, extradural haematoma requiring craniotomy. Of the three patients, two made good recoveries whereas the third remained vegetative. We feel that instruction on the safe use of golf buggies is inadequate and should be intensified.

Keywords: Golf buggy, Head injuries

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INTRODUCTION

In South East Asia, the game of golf has gained great popularity with the rising affluence of its peoples. New golf courses have proliferated to cope with the increasing number of golfers. Golfing equipment have been noted to be a significant cause of head injuries in the past. As a result of a classic article by Lindsay, et al.⁽¹⁾, which pointed out that the percentage of severe head injuries in sports per participant was highest in golf, the following was included in the Rule Book⁽²⁾: "prior to playing a stroke or making a practice swing, the player should ensure that no one is standing close by or in a position to be hit by the club, the ball or any stones..." In the home, golf clubs should be kept away from youngsters who, while attempting to imitate adults, have been known to inflict serious head and ocular injuries by swinging golf clubs at others^(3,4,5,6).

Falling off golf buggies, to the best of our knowledge, has not been reported in the literature as a cause of head injuries. Three cases of head injuries sustained from golf buggies have been treated at the Department of Neurosurgery, Singapore General Hospital during the years 1995-1997.

CASE REPORTS

A. Mdm S, a 21-year-old executive, was admitted on 27/2/97 following a fall from a golf buggy when it was negotiating a turn on the course. Although she

did not lose consciousness immediately, she became progressively more drowsy and started to vomit. Examination showed that she was amnesic, drowsy but could obey simple commands. Externally there was a scalp haematoma. Skull x-rays showed a linear occipital fracture on the right side. The initial CT brain scan did not show any intracranial haemorrhage but a repeat scan on 1/3/97 showed a small right frontal cerebral contusion. She was treated symptomatically and observed. Apart from bilateral anosmia, she made a good recovery and was back at work 3 months following her injury.

- B. Mr T, a 48-year-old accountant, was admitted on 2/11/97 following a fall from a golf buggy when it overturned. At the time of admission, he could open his eyes to speech and obey commands, but the lower limbs were weak. There were bruises over the forehead, occipital scalp and a left periorbital haematoma. The CT brain scan revealed very extensive bifrontal cerebral contusions. (Fig. 1) He underwent craniotomy and evacuation of the clots. Post-operatively he made a good recovery. Following a course of rehabilitation, he was able to return to part-time work. He still has mild cognitive impairments.
- C. Mr H, a 45-year-old businessman, was admitted on 4/3/97 following a fall from a golf buggy, which had overturned while going down a slope. He had no eye opening, no verbal response and was localizing pain on the left side. The left pupil was unreactive to light. There was bleeding from the left ear. CT brain scan showed a thin left acute subdural haematoma, traumatic subarachnoid haemorrhage and a contused left parietal lobe. There was also a left parieto-occipital fracture. Shortly after admission, his right pupil became dilated and unreactive. A repeat CT brain scan showed a left parieto-occipital extradural haematoma as well as contusions of both frontal lobes. He underwent emergency craniotomy to evacuate the extradural haematoma. He was subsequently treated for brain swelling (intracranial pressure monitor inserted and craniectomy), epileptic seizures,

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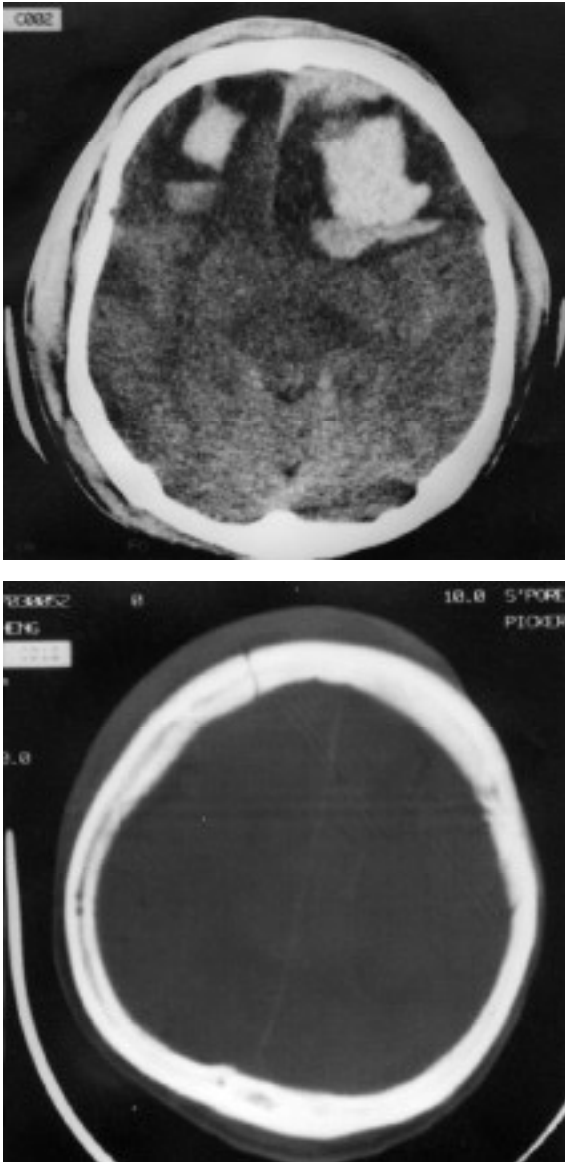


Fig. 1 CT Brain scan of Patient B, Mr.T: Extensive Bilateral frontal cerebral contusions with frontal skull fracture (linear, undisplaced) shown on the bone window.

entrapped and dilated right lateral ventricle (external ventricular drain and later, ventriculo-peritoneal shunt) and tracheotomized. He remained vegetative and required placement in a nursing home.

DISCUSSION

These three cases were middle-aged, productive members of our society. One made a good recovery. One of them could resume work but only on a part-time basis. The third became vegetative and continues to be admitted periodically for poorly controlled seizure, urinary tract and chest infections.

Having seen several such injuries, we feel that the use of golf-buggies can be made safer. Electric-powered golf buggies locally have a built-in speed limit of 19 kilometres per hour. Although the authors feel that this is a safe speed

limit for golf buggies, this speed can be exceeded when driving down a slope. A copy of “*Correct Use of Buggy and Safety Aspect*” from a club in Singapore reads:

“*Correct Use of Buggy and Safety Aspect*”

1. *To always engage the hill brake*
2. *Do not speed*
3. *Avoid driving fast downhill*
4. *Always travel up and down hills directly*
5. *To be extra careful when driving across an incline*
6. *Avoid steep slopes*
7. *Keep feet, legs, heads and arms inside the buggy*
8. *Avoid extreme rough terrain*
9. *Check area behind the buggy before reversing*
10. *Check the Forward-Neutral and Reverse level before starting buggy*
11. *Slow down before driving around bends*
12. *Maximum of 2 players per buggy*⁽⁷⁾

The hill brake should always be engaged when parking to prevent a stationary buggy from rolling down an incline. Driving a buggy across an incline causes it to tilt sideways, increases its chance of overturning and is strongly discouraged. An optional feature known as DriveControl System™ with Regenerative Braking⁽⁸⁾, has been introduced into certain golf buggies, prevents speeding when moving downhill. This particular feature senses when excessive speeds are reached on steep hills, throttling the motor back to a safer speed, even if the key switch is on or the accelerator is pressed. Should the driver exit the golf cart without engaging the hill brake, the DriveControl System™ automatically restricts the car’s rolling speed while sounding a warning beep. This also restricts rollback on steep hills when the accelerator is pressed⁽⁹⁾.

Accidents involving golf buggies can result in serious injuries. Strict compliance with safety rules and incorporating safety features to golf buggies will reduce these injuries.

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