Letter to the Editor

Lethal head trauma caused by falling objects

Dear Editor,

We herein report a rare case of fatal head trauma induced by falling objects.

A 35-year-old male employee of a metalworking factory was engaged in lifting and carrying heavy steel materials using a machine without wearing a helmet. The steel materials fell and struck the patient in the head and face. When the rescue service arrived, the patient was found to be in a deep coma, with a weak radial pulse, labored breathing, and an open skull defect fracture associated with exposure of the frontal lobe. The patient was transported to our hospital by air ambulance. On arrival, he remained in a coma with a Glasgow Coma Scale score of 3, dilated pupils without light reflexes, and labored breathing. The findings of a physical examination carried out on admission included severe shock without a radial pulse and sinus tachycardia with a heart rate of 160 b.p.m. Following cricothyroidotomy and aggressive fluid resuscitation, computed tomography of the head revealed an open skull defect fracture, contusion of the bilateral frontal lobes, traumatic subarachnoid hemorrhage, and the disappearance of the basilar cistern with intraventricular hemorrhage, suggesting brain herniation (Fig. 1). A computed tomography scan of the chest also showed ground glass opacity, which was considered to indicate neurogenic pulmonary edema. The patient died shortly thereafter, despite supportive therapy.

Head trauma is primarily caused by traffic accidents and falls.¹ Head injuries caused by falling or flying objects induced by a typhoon, tornado, or earthquake have been rarely reported.^{2–4} Atique *et al.* prospectively studied all admissions regarding patients injured by falling objects in Qatar from 2008 to 2010. There were 185 patients, the mean age was 29 years, and 97% were men. All injuries occurred at construction sites and only 32 patients (17.3%) were using safety devices. Of the total number of patients, 67 had head injury (solitary, 23; multiple injuries, 44) and 22 patients required craniotomy. All of the 16 mortality cases were reported with multiple injuries. This report did not describe whether or not head injury was the main cause of death. The difference in the incidence of head injury due to falling objects between Japan and Qatar may therefore be associated with the fact that Japan has strict laws that require the wearing of a helmet and the use of safety nets at all work sites where a risk of falling objects exists. In contrast, in Qatar, only 17% of the reported cases of injury due to falling objects were described as including the use of safety devices.⁵ However, the Japan Construction Occupational Safety and Health Association reported 29 fatalities in 2012 due to falling objects at construction sites; therefore, such

Fig. 1. Computed tomography of the head of a 35-year-old male who suffered head trauma from falling steel materials. The scan reveals an open skull defect fracture, contusion of the bilateral frontal lobes, traumatic subarachnoid hemorrhage, and the disappearance of the basilar cistern with intraventricular hemorrhage, suggesting brain herniation.

fatal cases due to falling objects might just not be reported medically in Japan. In order to avoid head injury due to falling objects, establishing safety nets and/or the wearing of a helmet is therefore considered to be necessary in environments in which there is a high risk of falling objects, in addition to effectively carrying out safety measures to prevent objects from falling.

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CONFLICT OF INTEREST

NONE.

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