Successful treatment of a penetrating pulmonary artery injury caused by a Japanese sword in a patient transported by a physician-staffed helicopter

Sir,

We herein present a case of successful treatment of a penetrating pulmonary artery injury caused by a Japanese sword (katana) in a patient transported by a physician-staffed helicopter. A 91-year-old male stabbed his chest and abdomen and cut his head with a katana and was found in a coma by his family. His history included dementia, schizophrenia, hypertension, and diabetes mellitus. A physician transported by a helicopter checked the patient at a rendezvous point in an ambulance and found that the katana had penetrated the patient’s body from the fourth intercostal of the left anterior chest to the back [Figure 1]. The patient was in a deep coma and also a state of severe hemorrhagic shock. His venous route and airway were secured, and he was transported to our hospital. He remained in a coma with shock and demonstrated left pneumoderma in the left chest; therefore, he underwent placement of an indwelling chest tube, followed by drainage of 500 ml of hemorrhagic fluid. Permissive hypotensive therapy to maintain the systolic blood pressure from 60 to 80 mmHg was selected with transfusion of blood type O, and emergency thoracotomy was performed in the operating room.

The patient temporally exhibited pulseless electrical activity due to massive hemorrhage, and fluid resuscitation resulted in spontaneous circulation. Injuries of the lingual, left pulmonary artery, and diaphragm were found, and primary closure of the pulmonary artery with clamping of the pulmonary hilum, primary closure of the diaphragm, and lobectomy of the lingual region were performed. The abdominal stab wound did not reach the intra-abdominal cavity and was also closed. After the operation, the patient developed pyothorax and was treated with antibiotics. He achieved a full somatic recovery and was transferred to a psychiatric hospital. The patient was successfully treated, despite his advanced age and severe shock state resulting from injury of major thoracic vessels. The key to success was a multidisciplinary approach, including early medical intervention, transportation using a physician-staffed helicopter, and the administration of permissive hypotensive treatment and emergency thoracotomy with clamping of the pulmonary hilum.

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Sir,

Ectopia lentis refers to subluxation or dislocation of the lens secondary to dysfunction or disruption of zonular fibers. Delayed or missed diagnosis may be due to lack of awareness or concentrating on other injuries biased by the clinical history. We highlight two interesting cases of isolated unilateral lens dislocation which was picked up on initial computed tomography (CT) scan, referred to the emergency radiology department for head injury.

The first case is of a 45-year-old male with a history of road accident who was referred for CT scan of the head to rule out head injury. On CT examination, no intraparenchymal or skull injury was seen. There was isolated complete dislocation of lens of the left eye, which was lying posteriorly into the vitreous humor [Figure 1].

The second case is a 51-year-old male with a history of a fall from the stairs. This patient was also referred for CT scan of the head to rule out head injury. CT examination revealed left lateral subluxation of lens of the left eye [Figure 2].

The burden of orbital trauma in the US healthcare accounts to approximately 3% of all emergencies. [1] Orbital trauma is usually associated with polytrauma. According to the US healthcare census, it is estimated that 40% of cases of monocular blindness in the US are caused by trauma. [2]

A partial dislocation of lens is termed lens subluxation and a complete dislocation of a lens is termed lens luxation. Lens dislocation results from stretching or tearing of the zonular fibers that hold the lens in normal position. The most common dislocation is posterior. Very rarely, the lens may dislocate anteriorly. This is because the iris impedes anterior subluxation of the lens. On imaging, complete posterior dislocation is diagnosed when the lens is lying in the dependent portion of the vitreous humor. Partial dislocation or subluxation is diagnosed if one end of the lens is in its normal position just behind the iris and the other end is angled posteriorly projecting into the vitreous humor. [3,4]

Usually the diagnosis of dislocated/subluxated lens is based on clinical and ophthalmologic examination. But in cases of polytrauma, when one is not sure of the extent of injury and organs involved, CT scan images play a critical role in diagnosing this entity as well as any associated injuries.

Trauma is the most common cause of unilateral lens dislocation. If the dislocation is bilateral, the radiologist should suspect an underlying systemic condition like Marfan syndrome, Ehlers-Danlos syndrome, homocystinuria, Weill-Marchesani syndrome, sulfite oxidase deficiency and hyperlysinemia and syphilis. Complications of lens dislocation include glaucoma, corneal injury and iridal injuries.

The learning messages from these cases highlight the old saying of looking at all the four corners of radiograph and to have a holistic approach rather than limiting to only the clinical context and indication.