A Rare Cause of Pleural Effusion; Cerebrospinal Fluid Leakage

Dear Sir,
Although firearm injuries are rare among penetrating traumas in children, they are very important in terms of their complications. Many thoracic complications may arise during spinal trauma caused by gunshot wounds. Cerebrospinal fluid (CSF) leak is one of the serious complications of gunshot wounds.[1] Here, we present a 10-year-old girl admitted to our Pediatric Intensive Care Unit with spinal trauma after being shot on the shoulder.

She was admitted in critical condition. The patient’s Glasgow Coma Score was six with hemiplegia in her legs. She had anisocoria and reduced lung sounds on the left side of the chest. She was intubated and stabilized in Pediatric Intensive Care Unit. Chest tube inserted because of pneumothorax and hemothorax in the left lung. The entry hole of the bullet was in the left shoulder, and the exit hole was in the interscapular region. In computerized tomography of the chest, there was partial fracture in T2, T3, and T4 vertebrae [Figure 1] and almost complete transection.

Figure 1: Coronal reformatted computerized tomography image shows multiple fractures of T2 and T3 left laminas
in magnetic resonance images (MRIs) of the spinal cord [Figure 2]. Horner’s syndrome was detected on the left ophthalmologic examination. During the follow-up, hemothorax improved, but serious pleural effusion persisted in the thorax tube. Pleural fluid sample was found to be compatible with CSF. MRI was done to evaluate the possible CSF leakage. MRI showed a fistula at T2 level and a fluid collection with air intensities extending from the left laminae to the apex of the lung [Figure 3]. The dura mater defect at T2 level was repaired with a 7.5 cm × 7.5 cm graft by neurosurgery. After the operation, the amount of fluid draining from the thorax tube reduced gradually and ceased. The thorax tube was removed. The patient was extubated and discharged.

As a result, the indication of the surgery is limited in the penetrant injuries of the spinal cord. The aim of the surgical treatment is to prevent complications such as infection, CSF fistula, and spinal instability.[2] However, in patients with spinal trauma due to gunshot, it should be kept in mind that the pleural effusion may be related to the CSF leakage. The patients with pleural effusion should be evaluated for possible cerebrospinal leakage.

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Conflicts of interest
There are no conflicts of interest.

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Figure 2: Sagittal short T1 inversion recovery magnetic resonance image shows complete transection of the spinal cord

Figure 3: Axial T2-weighted magnetic resonance image demonstrates cerebrospinal fluid fistula tract extending from the spinal canal to the posterior mediastinum at the fracture level. Note the associated air within the cerebrospinal fluid-like fluid collection

REFERENCES

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