Penetrating diaphragmatic injury caused by a pencil

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ABSTRACT

Penetrating injuries caused by a pencil are not commonly reported, although they can lead to serious complications and sequelae. This report describes the case of a 6-year-old girl who accidentally sustained a penetrating injury to the left flank due to a pencil. The intra-abdominal, retroperitoneal and thoracic organs were spared but the diaphragm was penetrated. Surgical exploration and repair of the diaphragm were performed under general anesthesia and the patient could be discharged a few hours later.

KEY WORDS: Accident, diaphragm, pencil, penetrating injury to diaphragm

Penetrating injuries due to pencil are a rare occurrence. Nonetheless, injuries ranging from osteomyelitis of femur,[1] intracranial,[2] perineal,[3] lung,[4] and pharyngeal injuries[5] have been reported. Injuries are much more common than are reported as most of these injuries are minor. The diagnosis in most of the cases is easy but the management guidelines are still not clear.

We report a case of diaphragmatic injury due to pencil penetration. This type of injury due to a pencil has not been reported before in the available literature in English.

CASE REPORT

A 6-year-old girl presented to the casualty department with history of fall and penetration of a pencil in the left flank. There was no history of tachypnoea, loss of consciousness, hematuria, or abdominal pain.

Upon arrival in the casualty, her vitals were stable and respiratory rate was 20/min. There was no abdominal distension and air entry on both sides of the chest was equal. The stub of a pencil was seen penetrating the left flank with the entry point just below the 12th rib [Figure 1].

Plain X-ray revealed an oblique path of the penetrated pencil upwards, anterioly and medially [Figure 2]. There was no free air or pneumothorax. On ultrasound of the abdomen, no visceral injury was detected but there was doubtful penetration of the diaphragm. The child was taken up for local wound exploration under general anesthesia. The pencil was found to be traversing through

Figure 1: A pencil penetrating the left flank

Figure 2: Plain anteroposterior view X-ray of the upper abdomen and chest showing the pencil tracking obliquely upwards
the eleventh intercostal space and then penetrating the diaphragm [Figure 3]. The pencil was removed in toto and the diaphragm was repaired with continuous 3-0 vicryl sutures. The anesthetist was requested to inflate the lung while this was being done. Postoperative chest X-ray was normal. The child was discharged uneventfully 2 h after the surgery. She was well when she was last seen 2 weeks postinjury.

DISCUSSION

This report highlights how a commonly used and innocuous object like a pencil can result in a serious injury. Since the pencil is made of wood, which has high antigenicity and is an organic porous material, which is a natural reservoir for bacteria, safe, and complete removal is essential to avoid complications. Stab wounds or retained fragments have been reported to result in serious sequelae like pleural effusion,[6] osteomyelitis,[1] brain abscess,[7] and recurrent pneumonia.[4] Another common area of injuries due to pencil penetration is the oropharynx - called 'Pencil Point Injuries.'[8] Spreading parapharyngeal infection can rarely result in life threatening internal jugular vein thrombosis in such cases.[8]

In the present report, the child sustained a penetrating injury due to a pencil. It was fortunate that the pencil did not break or migrate totally inside into the chest, thus avoiding a major exploration. Due to the oblique course, injury to kidney or intra-abdominal viscera did not occur. The parents were intelligent enough to not remove the pencil and the child was brought to the casualty with the pencil in situ; this facilitated the evaluation of visceral injuries and the path taken by the pencil. Thus, it is recommended that the penetrated object should not be removed until a full evaluation has been done.

Though CT scan can help in delineating the course of the object in such cases, we planned only an ultrasound and it clearly showed that there was no visceral injury. Chest X-ray and abdominal X-ray were also essentially normal. Surgical removal is indicated in such cases as retained fragments can result in sequelae as discussed above. Complete removal ensures uneventful recovery.

REFERENCES