Intraspinal air after blunt thoracic trauma

A. Krasoudakis, S. Marathianos, N. Tsiminikakis, E. Chavredakis, G. Arhontakis
Neurosurgery Clinic, General Hospital of Chania Creta, Greece

Correspondence: Antonis Krasoudakis, 15 K. Voulgaridi Street, Chania - 73133, Greece. E-mail: akr@otenet.gr

ABSTRACT

Presence of intraspinal air (pneomorachis) is usually iatrogenic after epidural injections or spinal manipulations. It may also be associated with degenerative disc disease, epidural abscess and synovial cysts. Presented herein is a case of a child with pneomorachis following blunt thoracic trauma.

KEY WORDS: Intraspinal air, pneumorachis, thoracic trauma

INTRODUCTION

The presence of air in intraspinal (pneumorachis) is usually iatrogenic after epidural injections. We report a case of pneumorachis after blunt thoracic trauma.

CASE REPORT

We present a case of a 7 years old boy, who suffered a closed thoracic trauma. The child was hidden inside of an abandoned hut in school. It seems that the wall collapsed on its thorax. The boy was transferred to the Emergency Department. The initial blood pressure was 100/60 mmHg, GCS:15/15, SpO\textsubscript{2}: 93% and tachycardia (110 p/min) and no neurological deficit. He was complaining of severe pain of the right chest and paraspinal muscles of the back at the level of T1-T2, rest of the examinations were normal.

Chest X-ray did not reveal pneumothorax or rib fractures and abdomen U/S did not show any intraperitoneal collections or injuries. The boy underwent computed tomography (CT) examination of cervical spine thorax and abdomen and pulmonary lacerations of lungs were revealed.

The interesting finding was the presence of air bubbles inside the spinal canal on the epidural space of levels C6-C7-T1-T2 with no evidence of spinal fracture [Figures 1-2]. The boy was admitted in the surgical department for observation.

Repeated CT, a few days later revealed complete...
absorption of intraspinal air. The patient discharged one week after hospitalization in very good condition.

**DISCUSSION**

In most cases, intraspinal air is associated with degenerative disc disease, epidural abscess or synovial cyst or as a follow of iatrogenic manipulation. The presence of epidural air (pneumorachis) is reported rarely in the literature in particular in association with closed thoracic trauma.

Pneumorachis is usually asymptomatic although sometimes radiculitis or myelopathy symptoms can occur depending of air quantity. As a possible pathogenetic mechanism, the rupture of alveoli after hyperpressure of the thorax with the glottis closed (Valsava manoeuvre) is reported.[1]

The augmentation after sudden intrapleural compression may lead to rupture of lung alveoles. The air is possible to spread next by pneumodissection through vascular sheath and accumulate in the mediastinum, the pericardium and retroperitoneum and more rarely into the spinal canal.[2]

Also unsuspected pneumothorax due to rib fracture (not revealed by simple X-ray evaluation) is reported as a causative factor.[3] In our case, repeated control with CT did not reveal pneumothorax and the absorption of intraspinal air [Figures 3, 4] confirmed the diagnosis. So no further rule out was needed.

Since the air inside the canal did not produce any neurological deficit by pressure of the notochord there was no reason of any treating procedure.

This observation suggests a wider indication for CT scans of thorax in blunt chest trauma and in addition, whenever intraspinal air is found in the diagnostic assessment of a traumatized patient, a possible pneumothorax should be suspected.

We think that repeated evaluation with CT of chest and spine is necessary for observation of these patients and in most cases conservative treatment is enough with no further manipulations for the absorption of air. If there is an evidence of pressure due to air bubbles causing neurologic deficit a percutaneous CT-guided treatment could be considered.

**REFERENCES**


**Source of Support:** Nil, **Conflict of Interest:** None declared.