Spinal epidural air following multiple thorax trauma

Sir,

A 67-year-old man was brought to the emergency room because of dyspnea after physical assault. He was awake and hypotensive. His airway was open and spontaneous breathing was insufficient. He was intubated and mechanically ventilated for multiple rib fractures, which caused an inability in inspiration. He had subcutaneous emphysema in his face, neck and thorax.

Saline were infused via peripheral and central venous route. After fluid replacement, his blood pressure had a normal range.

Chest X-ray revealed the presence of multiple rib fractures in his left side, generalized subcutaneous emphysema and bilateral pneumothorax with pneumomediastinum [Figure 1]. Chest tubes were put into both sides.
Lateral X-ray of cervical spine was normal up to the level of C5 because of the superimposition of shoulder. We could not see C6 and C7 cervical vertebrae. We decided to evaluate these levels by using axial CT scan. CT scan showed left-sided spinal epidural air between levels C6 and C7 [Figure 2].

He died because of severe respiratory tract infection after 38 days from admission.

In the literature, intraspinal air has been described secondary to basal skull fracture, instrumentation, epidural abscess or disc degeneration. However, intraspinal air occurring in association with a chest trauma is extremely rare. Scialdone and Wagle [1] have reported one case developing intraspinal air following a blunt chest trauma.

Intraspinal air is often due to iatrogenic causes such as spinal surgery, lumbar puncture or epidural anesthesia. Scialdone et al [1] have described the development of cervical subcutaneous emphysema following lumbar epidural anesthesia. These findings may point out the presence of a communication between the subcutaneous emphysema of the neck and the epidural space of the spinal cord. Finally, it is probable that because of the absence of a fascial barrier between the posterior mediastinum and neck, the air may migrate from these spaces into the spinal canal through the intervertebral foramina.[1,3] On the other hand, it is known that air can migrate into the venous system of the central nervous system from the environment in open-brain injury. In the epidural space of the spinal cord, the internal venous, which provides the venous drainage for the individual vertebrae of the spinal column is related to the veins of the neck.[4] Thus, in addition to the mechanisms mentioned above, based on these neuroanatomical characteristics, we also think that in our case, epidural spinal air may have migrated from subcutaneous emphysema in the neck to the epidural space via the venous system.

Chest X-ray (in the diagnosis of pneumothorax) and cervical subcutaneous emphysema is important in the suspicion of intraspinal air, because of this CT scan should be performed in the diagnosing of intraspinal air in the patients with traumatic pneumothorax and pneumomediastinum.

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