

Case	(159) Where do those air bubbles come from?
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CASE PRESENTATION

Patient suffered a knife attack on the side of the neck. On examination, he presented paresis of the right upper limb. There was no active bleeding from the wound.

An enhanced CT scan was performed, observing a fracture line affecting pars interarticularis and pedicle of the left vertebral arch in C3, transverse trajectory and a small bone fragment, which was introduced 3 mm into the medullary canal. Pneumorachis and pneumoencephalon were also visualized, as well as gas in the subcutaneous tissue, following the path of the wound.

After CT, the patient presented weakness in the lower right limb and urinary retention. Given the evolution of the neurological symptoms, the patient is transferred to another centre and the study is completed with MRI of the cervical spine. MRI showed the existence of an acute spinal cord injury with a horizontal linear trajectory projected on the level of the C3-C4 interspacio.

DISCUSSION

Pneumoencephalus describes the presence of air in the intracranial cavity⁴. Causes of pneumocephalus are well described in the literature, commonly, due to trauma.

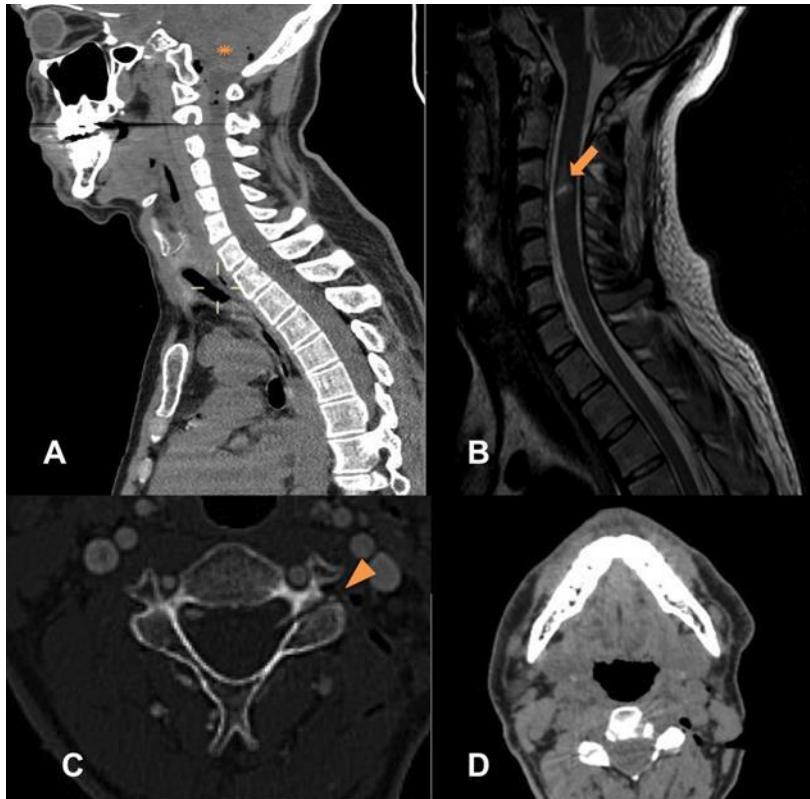
However, pneumorachis refers to air within the spinal canal. This finding has been rarely described in the published work. The etiologies are iatrogenic, traumatic, and atraumatic.

This case report describes an unusual case of pneumorrhachis secondary to fracture in cervical vertebra, in which a bone fragment from the articular process penetrated into the dura mater and arachnoid membrane, causing the air followed knife's path in neck to enter the subarachnoid space, surrounding spinal cord and eventually, reaching cisterns.

Besides, MRI showed the existence of an acute spinal cord injury with a horizontal linear trajectory, as a consequence of the small bone fragment rising from the medial aspect of pars interarticularis.

CONCLUSION

Pneumorrhachis or air in the spinal canal is a rare finding, related to traumatic, nontraumatic or iatrogenic causes. We present this case of acute spinal cord injury and pneumorrhachis due to vertebral fracture after knife assault.



There are gas bubbles located in medullary canal, cistern magna, suprasellar cistern, perimesencephalic, third and fourth ventricle. **B.** MRI showed the existence of an acute spinal cord injury with a horizontal linear trajectory projected on the level of the C3-C4 interspace, seen as hiperintense lineal tear in T2 weighted image. Image courtesy of Dr. Rafael Ocete, Hospital Universitario Virgen del Rocío, Sevilla. **C.** A fracture line affecting pars interarticularis and pedicle of the left vertebral arch in C3, with a transverse trajectory and a small bone fragment, which was introduced 3 mm into the medullary canal. **D.** Gas is observed at the subcutaneous cellular tissue level, which dissects the different planes, locating posterior to the carotid space until reaching the perivertebral and posterior cervical space. No involvement of vascular structures is observed.

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