

CASE REPORT

Pneumorrhachis

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ABSTRACT

The presence of air in spinal canal is called as “pneumorrhachis.” Nontraumatic, noniatrogenic spontaneous spinal air is an uncommon case. Peripheral alveoli burst due to the increased pressure in alveoli in the case of trauma, asthma, pneumothorax, or pneumomediastinum. Air pass to the mediastinum and then to retropharyngeal space and reaches to epidural space. In this paper, a 44-year-old female patient who has a spontaneous pneumorrhachis in the epidural space in the spinal canal L5-S1 lumbar level has been presented.

Key words: Air, pneumorrhachis, spinal canal

Introduction

Spontaneous pneumorrhachis (PR) is a very rare condition. Most studies and case reports have been indicated that spinal air syndromes have developed secondary to trauma, surgery, or disease. In general, they can be seen in cervical space and low frequency in thoracic and lumbar spinal space. In literature, most of the cases about the air in spinal canal is due to medical treatments, trauma, pneumothorax, or pneumomediastinum, and surgical procedures. In general, spontaneous resolution occurs so that conservative treatment is suggested. Lumbar and radicular pain has been reported although most of them are asymptomatic. There is still no algorithm for treatment. In this paper, a patient, who has a pain in the waist and leg, has been presented, with nontraumatic, noniatrogenic spontaneous PR.

Case Report

A 44-year-old female patient was consulted for the waist and leg pain. Neurological examination was intact. The patient had a spinal computed tomography (CT) scan because of claustrophobia. In the spinal CT, the air pack was seen at the level of L5-S1 spinal extradural midline space [Figure 1]. It

was seen that the air pack in the spinal canal compress the thecal sac anteriorly. The patient has no history of spinal trauma, surgical procedures, medical treatment, asthma, pneumothorax, or pneumomediastinum. The patient was treated with anti-inflammatory drugs and followed without any surgical procedures. At 3 months’ follow-up, her pain reduced and the air pack volume decreased in axial tomography scan [Figure 2].

Discussion

Air in the spinal canal was first defined by Gordon and Hardman in 1977.^[1] The term of “PR” was first used in 1987. The presence of air in the disc is a common condition. This case is called vacuum phenomenon in degenerated discs was found as 20% by Gershon-Cohen *et al.*^[2] PR can be classified internal (subarachnoid or subdural) and external (epidural). It is believed that external PR is innocuous. Internal PR is frequently associated with severe traumatic injury.^[3]

However, spontaneous extradural spinal air is a very rare condition. There are theories related to air entering to the spinal canal have been described. According to Coulier, gas accumulated in degenerated disc reaches to the spinal space by finding a gap from annulus fibrosus.^[4] From another perspective, according to Kim, the air in disc and microtrauma cause erosion in the annulus. This erosion serves as a pathway for spinal air.^[5]

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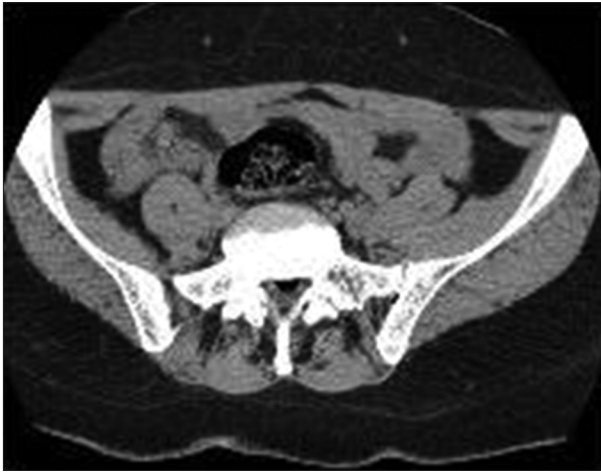


Figure 1: In axial tomography scan, the air pack that compressed the thecal sac has been seen

Peripheral alveoli burst due to the increased pressure in alveoli in the case of trauma, asthma, pneumothorax, or pneumomediastinum. Air pass to the mediastinum and then to retropharyngeal space and reaches to epidural space. In the study of Ford *et al.*, it was seen that gas contains 90% extracellular components and nitrogen.^[3] CT was accepted as a gold standard for demonstration of air in the spinal canal.^[6]

In the absence of neurological deficits, follow-up of the patient with conservative treatment is possible. Bosser *et al.*, proposed CT guided aspiration of air.^[7] However, in our opinion, as long as the defect in the annulus is present, the recurrence of the air will occur. Spinal decompression may be an applicable surgical treatment.

Conclusion

PR is often asymptomatic. The spontaneous air in the spinal canal is a very rare condition. However, when faced with such a situation, pneumothorax, infectious cases, and malignant conditions that can cause PR should definitely be investigated.

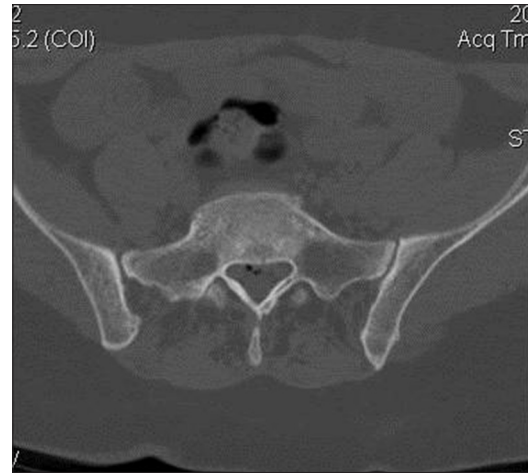


Figure 2: The air pack volume reduced at 3 months' follow-up in axial tomography scan

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Conflicts of interest

There are no conflicts of interest.

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