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Pneumocephalus and Pneumorrhachis After Spinal Surgery

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Summary

Background:

Pneumocephalus and pneumorrhachis are rare complications of neurosurgery. When a closed system such as the head and spinal area get injured, it becomes open and the air can come in through that opening. In this case, we present a case of pneumocephalus and pneumorrhachis after spinal fusion surgery.

Case Report:

Herein we present a case of diagnosis and treatment of pneumocephalus and pneumorrhachis after spinal fusion surgery.

Conclusions:

Our patient developed postoperative pneumocephalus and pneumorrhachis as a late complication secondary to an infection. We wanted it to be considered as an important problem.

MeSH Keywords:

Pneumocephalus, pneumorrhachis, spinal surgery, late complication

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Background

Pneumocephalus and pneumorrhachis are rare complications of neurosurgery. When a closed system such as the head and spinal area get injured, it becomes open and the air can come in through the opening. Herein, we present a case of pneumocephalus and pneumorrhachis after spinal fusion surgery.

Case Report

A 62-year-old female patient admitted to the neurosurgery outpatient clinic with a complaint of lower back pain. In magnetic resonance imaging (MRI) L5-S1 spondylolisthesis was detected. We performed L5 total laminectomy, L5-S1 bilateral foraminectomy and posterior fusion operation. Two and a half months after the operation the patient was admitted with complaints of discharge in the operation area, severe headache and fever. The infection parameters were high. Prophylactic antibiotic therapy was started

after the discharge culture. Computed tomography (CT) of the cranium and the whole spine was performed due to the development of confusion during follow-up. In cranial CT, there was diffuse pneumocephalus, and in cervical and lumbar CT there was pneumorrhachis (Figures 1, 2). She was operated on again due to ongoing fever despite the antibiotic. Duraplasty was performed. Discharge culture was positive for staphylococcus aureus and vancomycin was started and continued for 14 days. The clinical signs of the patient improved within a week. Control tomographies were carried out after vancomycin treatment. Pneumocephalus and pneumorrhachis were resolved. After treatment the patient recovered completely and was discharged from hospital.

Discussion

In pneumocephalus and pneumorrhachis there is air in the intracranial cavity and spinal canal, respectively, and they are very rare conditions [1–3]. Pneumocephalus can be seen

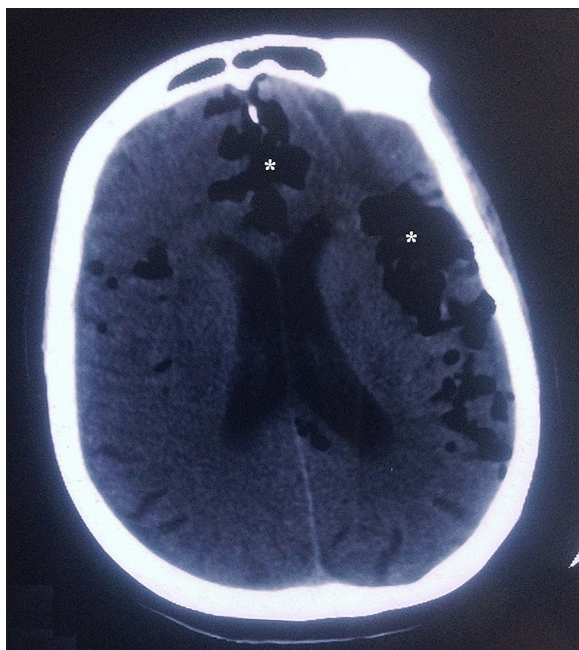


Figure 1. An axial computed tomography image of the brain. Asterixes indicate the scattered localized air collections in the parenchyma of the brain.

in the intracranial cavity: in the epidural, subdural, subarachnoid, intraventricular or intraparenchymal area. The causes of pneumocephalus include traumas, tumors, infections, cerebrospinal fluid fistulas, nitrous oxide (N₂O) anesthesia and cranial surgeries [4]. Pneumocephalus usually manifests itself with nonspecific symptoms such as headache, nausea, vomiting, dizziness, lethargy, meningeal irritations. These symptoms may vary according to the distribution of intracranial air. The disappearance of symptoms is usually related to the absorption of intracranial air completely [5]. Conventional X-ray, CT, and MRI can be used to diagnose pneumocephalus and pneumorrhachis. The emergence of symptomatic pneumocephalus and pneumorrhachis after lumbar disc surgery is a rare complication.

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Figure 2. An axial computed tomography image of the lumbar spinal canal. Asterixes indicate the localized air collection in the spinal canal.

Conclusions

Our patient developed postoperative pneumocephalus and pneumorrhachis as a late complication secondary to infection. We wanted it to be considered as an important problem.

Conflict of interest

There is no conflict of interest concerning this manuscript.