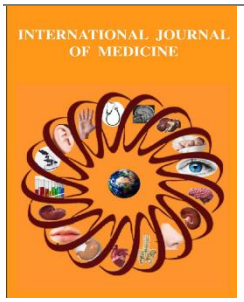

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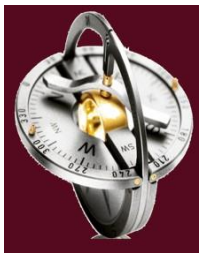

Original Research

A Rare Case of Pneumocephalus Secondary to Mastoiditis and Pansinusitis in A Returning Traveller

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Abstract

Background: Pneumocephalus is a rare, but life threatening complication, which may be result of trauma or surgical manipulation. Nevertheless, spontaneous pneumocephalus due to otogenic or paranasal sinus infections is an infrequent condition that requires a high index of clinical suspicion. ***Case Presentation***: A 68 year old female with past medical history of hypertension and hypothyroidism presented with history of fever, headache and ear fullness of 6days duration with recent travel history to California. There was no history of trauma in recent past or any other symptoms of vomiting, seizures or blurring of vision. Patient had history of hysterectomy in the past and was on regular medications for hypertension and hypothyroidism. On arrival in ER she was alert, primary assessment showed patent airway, breathing was adequate with respiratory rate of 18/min and SpO2 of 98% on room air. On examination all peripheral pulses were felt with a BP recording of 180/100mmHg. Patient had a GCS of 15/15 with no neurological deficits and a normal blood glucose level. ***Management And Outcome***: Blood workup showed elevated WBC of 15,200 with neutrophils of 84%. Other labs were within the normal range. Shortly after, an urgent non contrast CT brain was done in view of headache with red flag signs which revealed pneumocephalus in prepontine cistern, interpeduncular and suprasellar cistern with evidence of mastoiditis and pan sinusitis. Patient was admitted to ICU and was treated with intravenous antibiotics, IV fluids, antihypertensives, antiemetics and supportive care. On her stay in ICU patient became irritable hence MRI brain was done which showed leptomeningeal enhancement in the supratentorial and infratentorial region, suggestive of meningoencephalitis. CSF analysis confirmed the diagnosis with protein-1120mg/dl, RBC- 1107 cells/cumm, WBC count-2034cells/cumm, neutrophils-86% and lymphocytes-14%. CSF bio fire showed streptococcus pneumoniae organism. Antibiotics were escalated and strict neuromonitoring continued, ENT opinion was taken for sinusitis and it was managed conservatively, hearing evaluation was deferred until stabilisation. Serial CT brain done showed complete resolution of pneumocephalus. The patient responded well to treatment, with gradual improvement in sensorium and other vital parameters. ***Discussion***: This case illustrates a rare but critical progression from localised ENT infection to intracranial pneumocephalus and meningoencephalitis. The abrupt neurological deterioration emphasised the need for prompt neuroimaging and CSF analysis. The detection of streptococcus pneumonia guided targeted antibiotic therapy. Close collaboration with ENT and neurology teams was pivotal to successful management. ***Conclusion***: Otogenic pneumococcal meningitis accompanied by pneumocephalus, is a rare and life-threatening disease. ENT infections should not be underestimated, particularly when accompanied by neurological symptoms. Clinicians should consider the possibility of meningitis in all cases of sepsis associated with ear symptoms even ion the absence of typical meningeal signs. Early imaging, CSF diagnostics and aggressive antimicrobial therapy are crucial in preventing long term sequelae and mortality in such rare but severe presentations.

Keywords: Pneumocephalus, meningoencephalitis, mastoiditis, pansinusitis, streptococcus pneumoniae, emergency medicine.

Background

Pneumocephalus is a rare, but life-threatening complication, which may be result of trauma or surgical manipulation. Nevertheless, spontaneous pneumocephalus due to otogenic or paranasal sinus infections is an infrequent condition that requires a high index of clinical suspicion. ***Case Presentation:*** A 68-year-old female with past medical history of hypertension and hypothyroidism presented with history of fever, headache and ear fullness of 6days duration with recent travel history to California. There was no history of trauma in recent past or any other symptoms of vomiting, seizures or blurring of vision. Patient had history of hysterectomy in the past and was on regular medications for hypertension and hypothyroidism. On arrival in ER she was alert, primary assessment showed patent airway, breathing was adequate with respiratory rate of 18/min and SpO2 of 98% on room air. On examination all peripheral pulses were felt with a BP recording of 180/100mmHg. Patient had a GCS of 15/15 with no neurological deficits and a normal blood glucose level. ***Management And Outcome***: Blood workup showed elevated WBC of 15,200 with neutrophils of 84%. Other labs were within the normal range. Shortly after, an urgent non contrast CT brain was done in view of headache with red flag signs which revealed pneumocephalus in prepontine cistern, interpeduncular and suprasellar cistern with evidence of mastoiditis and pan sinusitis.

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Conclusion:
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