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CASE REPORT

Spontaneous Tension Pneumocephalus as a Rare Cause of Acute Confusional State

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Abstract

Introduction: Spontaneous pneumocephalus is a rare cause of acute delirium which is characterized by the presence gas within the cranial cavity. It is a condition which requires immediate management which can be conservative and surgical.

Case Presentation: An 87-year-old lady who is a known case of moderate dementia presented with a one week history of delirium. A week prior she experienced one episode of urinary incontinence, a non-productive cough and a frontal headache which was worse on standing up and rhinorrhoea. No other physical symptoms were present. A computed tomography (CT) scan of the brain revealed a spontaneous tension pneumocephalus. Immediate neurosurgical advice was sought. This lady was not a candidate for surgery in view of her advanced frailty and moderate dementia. Conservative management was instituted with 100% oxygen at 15L/min via a non-rebreather mask, head elevation at 30˚, supportive care and analgesia. Despite conservative management, the spontaneous tension pneumocephalus persisted and appropriate palliative care was instituted to provide patient comfort. Conclusion: This case illustrates the importance of performing an early CT scan of the head in a patient with acute delirium in the absence of physical findings to rule out neurological causes of confusion in a patient with dementia. Early recognition of the condition and involvement of the multidisciplinary team in the management of spontaneous tension pneumocephalus allows for prompt institution of treatment.

Keywords

Pneumocephalus, Tension, Multi-disciplinary, Delirium

Introduction and case description

The patient is an 87-year-old lady with a past medical history of moderate dementia who presented with a one week history of altered mental status. One week prior she experienced an episode of urinary incontinence, acute delirium and non-productive cough. She had no past history of head and neck surgery, recent travel or trauma. She had occasional frontal headache on standing up over the preceding week accompanied by rhinorrhoea. She had a clinical frailty score [1] of 6 at baseline and she deteriorated to scale 7 during this medical episode. A full comprehensive geriatric assessment was carried out which revealed an abbreviated mental test 4 [2] score of 0. The patient was unable to follow commands during a neurological examination however, she had expressive and receptive dysphasia and no facial or tongue deviation. All her parameters and blood investigations were normal.

A CT scan of the brain revealed evidence of extensive pneumocephalus with multiple pockets of gas in the subarachnoid, the subdural spaces and within the ventricular system. There was also mass effect on the frontal lobes and a bone defect in the posterior wall of the sphenoid sinus which was filled with fluid-like content and gas bubbles. The findings were in keeping with extensive spontaneous tension pneumocephalus (Figure 1, Figure 2).

A neurosurgical consultation was immediately sought and in view of her pre-morbid moderate dementia, dependence in activities of daily living and high risks

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