Comparison of Surgical Approaches in Neurosurgical Patients Experiencing Venous Air Embolism in the Sitting Position

The Editor,

Sir,

Neurosurgery in the sitting position offers advantages for certain posterior fossa operations. However, these approaches are associated with potential complications, particularly venous air embolism (VAE), cerebral and myocardial ischaemia secondary to hypotension, and complications of the positioning itself (1). There is no study comparing the paramedian and median approaches for the risk of VAE. We aimed to find out the incidence of VAE according to the type of the surgical approach as paramedian and median incision.

Records of 73 patients who underwent neurosurgical procedures in the sitting position were reviewed in order to classify the morbidity and mortality related to surgical procedure as well as the clinical appearance of VAE. Patients were assigned into two groups according to the type of the surgical approach as paramedian (Group I, n = 37) and median incision (Group II, n = 36). Before the induction of anaesthesia, routine monitoring was started. End-tidal carbon dioxide ($ETC0_2$) tension was monitored to diagnose VAE. A sudden and sustained decrease in $ETC0_2$ of more than 5 mmHg in the absence of sudden hypovolaemia was presumed to be the result of VAE. The incidence of VAE was found to be 37.8% (14 patients) in Group I (paramedian) and 13.9 % (five patients) in Group II [median] ($p < 0.05$).

Venous air embolism in neurosurgical procedures done in the sitting position is not rare. It depends on the type of surgery and the mode of ventilation. Also, the degree of tilt, intrathoracic and intracardiac pressures (right auricle) and the gas mixtures administered (nitrous oxide increases their size owing to its poor blood solubility) are other components that affect the risk of VAE (2). Venous air embolism, which is one of the perioperative complications in neurosurgery, is not only related to the sitting position but also may be related to the surgical approach. Paramedian surgical approach in the sitting position has a higher risk of VAE episodes which significantly increased the perioperative morbidity. The use of the sitting position should be limited in the neurosurgeon's choice because of the disadvantage of VAE.

Keywords: Air embolism, median incision, neurosurgery, paramedian incision

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Multiple Rib Stress Fractures Associated with Chronic Coughing Caused by Untreated Bronchial Asthma in a Premenopausal Woman

The Editor,

Sir,

Muscular forces of severe coughing may cause stress fracture of the rib. Since rib stress fractures usually occur on a single rib, stress fractures of multiple ribs are extremely rare. We describe herein a case of cough-induced multiple (15 ribs) rib stress fractures in a premenopausal woman with untreated bronchial asthma.

A 46-year old Japanese woman showed multiple nodular lesions on screening chest radiography during medical screening examinations at her office. Although she had a one-year history of chronic cough attended by sudden intense pain in the back, she had not sought medical attention. On examination, wheezing was noted on exhalation. Plain chest radiography revealed multiple peripheral nodular lesions on the ribs. Chest computed tomography (CT) showed multiple rib fractures, right 2^{nd} to 9^{th} ribs and left 2^{nd} to 8^{th} ribs, with hyperostoses at the posterior axillary line (Figure). These

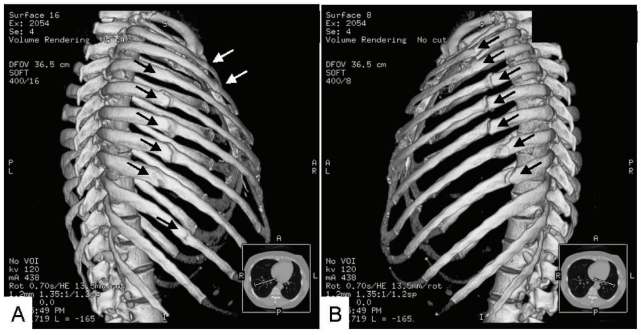

Figure: Multiple fractures (arrows) of the right 2nd to 9th ribs (A) and left 2nd to 8th ribs (B) on three-dimension computed tomography.

fractures showed various degrees of healing. Cough-induced multiple stress fractures of the ribs caused by untreated bronchial asthma was diagnosed. One-month treatment with fluticasone propionate (400 µg/day) resolved symptoms completely. Her menopause was normal and additional examination showed the normal bone density.

This case is very instructive because such multiple rib stress fractures are rare. Moreover, chest CT confirmed the predilected sites for rib stress fractures. Although fractures of the right 2nd and 3rd ribs are situated anteriorly, other fractures were seen on the posterior axillary line, which is the predilected site for cough-induced stress fracture as serratus anterior and the external oblique muscles attach at this region (1, 2).

Physicians need to consider the possibility of rib stress fracture when diagnosing unusual nodular lesions in the lung fields or cough-related chest pain. As mentioned previously, CT offers a useful tool for correct diagnosis (1, 2). Physicians should also be aware that reduced bone density will be a risk factor. However, cough-induced rib fractures can occur in the presence of normal bone density (2).

Keywords: Computed tomography, cough, rib, stress fracture

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Nightmare of a Breastfeeding Mother: Aortic Valve Endocarditis due to *Streptococcus salivarius* after Breast Engorgement

The Editor,

Sir,

A 25-year old postpartum woman was admitted to our hospital complaining of continuous remittent fever (max 38.7 °C) and musculoskeletal symptoms including arthralgias and myalgias. Past medical history included uncomplicated normal spontaneous vaginal birth six months ago. Additionally, just before admission to hospital, she had been diagnosed with breast engorgement and mastitis with no purulant discharge. She said that she kept breastfeeding while taking antibiotics (amoxicillin 2 g/day) for mastitis.

On admission, physical examination showed body temperature of 38.3 °C , blood pressure of 110/60 mmHg, pulse rate of 105 bpm, respiratory rate of 22/minute and oxygen saturation of 98.0% and 3/6 early diastolic murmur at mesocardiac focus with prominent S4. The extremities were normal. There were also no peripheral stigmata of infective endocarditis. Laboratory tests revealed haemoglobin level of 10.2 g/dL (normal range: 12–15.5 g/dL) and leukocyte count of 14 000/mm^3 (normal range: 3900–11 700/mm^3). Renal and liver function tests were within normal limits. In addition, erythrocyte sedimentation rate (ESR) was 42 mm/hour (normal range: 0–20 mm/h), C-reactive protein (CRP) was 87 mg/L (normal range: 0–8 mg/L) and urinalysis revealed microscopic haematuria.

In view of the detection of diastolic murmur and fever, repeated blood cultures were taken and transthoracic echocardiogram (TTE) revealed left ventricular (LV) ejection fraction of 45%, LV end-diastolic diameter of 60 mm, vegetation with 1.1 × 0.7 cm largest diameter on the bicuspid aortic valve and severe aortic insufficiency (Figure). Until the precise results of blood cultures were known, the patient

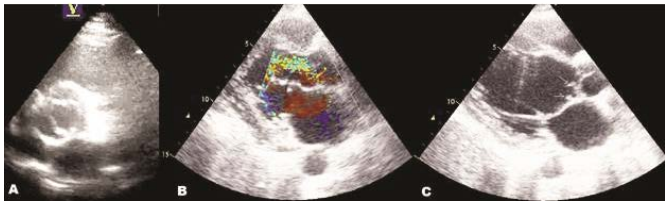

Figure: Transthoracic echocardiography on admission of the patient revealed bicuspid aortic valve (A) with severe aortic regurgitation (B) and vegetation (arrow) at left ventricular side of the aortic valve with maxiumum 11 mm diameter (C).