Alternative approach for the anesthetic management of a patient with large pulmonary bulla presenting with an intracranial tumor for surgery

Sir,

A 40-kg, 59-year-old woman presented with headache and vomiting of 40 days duration and left hemiparesis. There were no respiratory complaints. However, on auscultation of the lungs, there was no air entry in the left apical, axillary, and infraclavicular areas. Chest X-ray showed a large lucent area with no vascularity in the left upper and middle zones, suggestive of bulla measuring 13 × 7.5 × 12 cm [Figure 1a]. Computed tomography scan of brain revealed a right temporoparietal hypodense lesion with perilesional edema, midline shift, and mass effect on the ipsilateral ventricle [Figure 1b]. Pulmonary function tests revealed a restrictive pattern, but arterial blood gas on room air was unremarkable. An awake craniotomy was planned. Monitoring during the procedure included electrocardiogram, pulse-oximetry, noninvasive blood pressure, temperature, and end-tidal carbon dioxide. A scalp block was performed with 1% lignocaine with epinephrine and 0.25% bupivacaine. Dexmedetomidine 1 mcg/kg was administered over 10 min followed by 0.5 mcg/kg/h infusion during craniotomy. Intraoperatively, because of the distortion of the sulci and gyri, cortical stimulation was used to rule out edema/tumor extension into the motor cortex. Dexmedetomidine was reduced to 0.25 mcg/kg/h during stimulation and performance of motor tasks to commands. Near total decompression of the tumor was achieved, preserving the motor function. Postoperative chest X-ray did not show any signs of enlargement or rupture of the giant bulla.

Emphysematous bulla is an air-containing space within the lung parenchyma resulting from alveolar destruction and can lead to adverse lung mechanics and gas exchange. The management of such patients during extrathoracic surgery is therefore challenging. There are few reports on the anesthetic management for extrathoracic surgery in patients with pulmonary bulla.1-3 The anesthetic technique employed included general anesthesia with double lumen tube,1 laryngeal mask airway,2 and endotracheal anesthesia with O₂-air-halothane on spontaneous respiration3 The advantages of our technique were multifold: avoidance of positive pressure ventilation eliminated the iatrogenic risk of bulla rupture, awake patient cooperated for intraoperative neurological assessment, and dexmedetomidine-maintained stable respiratory and...
hemodynamic parameters. We however kept chest drains ready, for decompression of tension pneumothorax in case of inadvertent rupture of the bulla, and the patient was constantly monitored for dyspnea, desaturation, or reduced air entry.

This “no-airway-intervention” awake craniotomy technique resulted in better pulmonary and neurological outcome by minimizing the risk of rupture of the bulla and by facilitating intraoperative neurological monitoring.

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