by ruptured hydatid cyst of right lung and barotrauma induced pneumothorax of the contralateral lung

Sir,

We present a case of anaesthetic complications of ruptured hydatid cyst of lung causing obstruction of double lumen tube (DLT) by daughter cysts on the operative side as well as on the healthy side. A 22-year-old female was posted for cystectomy of the right sided hydatid cyst. Besides routine monitoring, invasive blood pressure was also measured. Anaesthesia was induced with intravenous fentanyl (100 μg), propofol (100 mg) and vecuronium (6 mg). The patient was intubated with 37 FG left sided, DLT in a semi-sitting position. The position of the tube was confirmed with a fibreoptic bronchoscope (FOB) in the supine position as well as in lateral decubitus position. Intraoperatively cyst was found ruptured, and during its handling, we found that hundreds of daughter cysts blocked the tracheal lumen. So we clamped the tracheal end of DLT and one-lung ventilation (OLV) was provided with 5–6 ml/kg of tidal volume and 100% oxygen and subsequently suctioned out hundreds of daughter cysts from the tracheal lumen. About 45 min after starting OLV, we found bronchial lumen also being obstructed by the daughter cysts; there was difficulty to ventilate with rapid onset of hypoxia and peak airway pressure rose up to 50 cm H_2O. We suctioned the cysts immediately. After cystectomy and capitonnage were being performed, we replaced DLT with appropriate sized single lumen tube. FOB revealed that left bronchial lumen was circumferentially compressed by bronchial mucosa, and there were no changes in bronchial dimensions during positive pressure ventilation. After extubation, there was a drop in oxygen saturation. Chest X-ray showed a left sided pneumothorax and chest drain was inserted which improved patient's oxygen saturation to 100%.

The clinical presentation, pre-operative and post-operative complications associated with pulmonary hydatid cysts depends on whether the cyst is intact or ruptured.[1] OLV does not guarantee a safe operation if either DLT is malpositioned intraoperatively, or contralateral lung is involved

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pre-operatively. In our case, cyst handling during surgery caused the escape of hundreds of daughter cysts causing obstruction of both the lumens of DLT and patient suffered from repetitive episodes of desaturation. This obstruction of major airways made ventilation difficult and led to increased airway resistance and pressures causing barotrauma of the ventilated lung. During surgery, it was not evident due to open chest cavity, but after closure it manifested as pneumothorax of the ventilated lung leading to intercostal drain insertion.

Barotrauma from excessive tidal volume and high airway pressure may occur if left sided, DLT is positioned distally such that the entire tidal volume is directed to only one lobe.[2] Nevertheless, peak airway pressures were not excessive in our case during initiation of OLV and FOB showed the tube to be in a good position. During the surgery, the malposition of DLT could not prevent the dependent lung against contamination of cyst contents and tube obstruction by hydatid cyst caused an excessive increase in airway pressure leading to barotrauma of the ventilated lung. It did not convert into tension pneumothorax due to open chest cavity at the time of surgery.[3] Patients undergoing thoracic surgery are at risk of increased airway resistance of dependent lung secondary to secretions and soft tissue obstruction. This produces potential for a ball valve effect, with limitation during expiration resulting in the overinflation of the lung.[4] We extubated the patient, which averted tension pneumothorax after chest closure. Spillage of laminated membrane could probably take place at any stage of anaesthesia, causing airway obstruction and further hypoxemia and asphyxia.[5] Hence, we conclude that one should be vigilant about post-operative pneumothorax in complicated ruptured hydatid cyst of the lung.

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