

Perioperative management of a giant solitary fibrous tumor of Pleura

Madam,

Solitary fibrous tumor of the pleura (SFTP) is a rare mesenchymal neoplasm which accounts for <5% of all pleural tumors with an incidence of 2.8 per 100,000 registered hospital patients.^[1] We report perioperative challenges encountered in an adult patient who underwent excision of this tumor.

A 39-year-old female presented with a 5-month history of breathlessness at rest, associated with cough, expectoration, chest pain (left side) along with the loss of appetite and weight. A diagnosis of a giant solitary fibrous tumor of left hemithorax was made and she was posted for left posterolateral thoracotomy and pleural mass excision. Review of preoperative contrast-enhanced computed tomography thorax showed a mass lesion in the left hemithorax with a complete collapse of the left lung and mediastinal shift towards the right side [Figure 1]. The pulmonary function test showed severe restriction with predicted forced vital capacity (FVC) was 25%, predicted forced expiratory volume in 1 s (FEV_1) was 23%, and

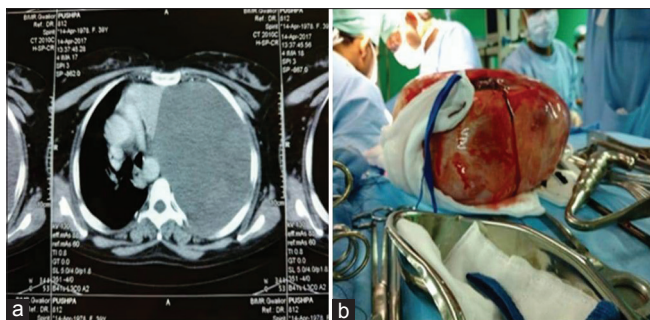


Figure 1: (a) Contrast-enhanced computed tomography scan demonstrates a heterogeneously enhancing soft tissue giant mass on the left hemithorax with mild pleural effusion and collapsed left lower lobe. (b) Removed giant solitary fibrous tumor of the pleura measuring 27 × 18 × 12 cm and weighing 3.7 kg

predicted FEV₁/FVC ratio was 99%. Tc^{99m} macroaggregated albumin lung scintigraphy showed faintly visualized left lung. Preoperative transthoracic echocardiography was normal. She was advised steam inhalation, incentive spirometry, and nebulization with salbutamol and budesonide in the preoperative period. Standard anesthesia induction and maintenance were done. SFTP measuring 27 × 18 × 12 cm and weighing 3.7 kg was removed [Figure 1]. The intraoperative course was uneventful. After the neuromuscular reversal, the patient's tidal volume was inadequate, and her end-tidal CO₂ increased to 50 mm Hg. So, the patient was not extubated and shifted to intensive care unit (ICU). She was extubated the next day, but soon was unable to maintain her saturation on oxygen and was re-intubated. A chest x-ray revealed left lung collapse and right lung basal atelectasis [Figure 2]. Rigorous chest physiotherapy and bronchoalveolar lavage helped to extract the mucus plug from the left lung. Subsequently, the patient was tracheostomised to facilitate weaning. She was kept on Continuous positive airway pressure mode and gradually weaned to T-piece and room air. However, within 2 h off ventilation, left lung collapsed again. Bronchoscopy was done and bronchomalacia was ruled out. Mucoïd secretions were found for which mucolytics were added and intensive physiotherapy was continued. The patient subsequently recovered completely with full chest expansion and got discharged from the ICU on the 12th postoperative day with the tracheostomy tube *in situ*. Regular follow-up with physiotherapy was done and decannulation performed after 2 weeks from discharge. Six months after surgery, the patient is asymptomatic and has no disease recurrence.

SFTP is a rare neoplasm and en-bloc resection of the tumor using an anterolateral or posterolateral thoracotomy is the mainstay of the treatment. Faint visualization of the lung on preoperative lung perfusion scintigraphy highlights poor gas exchange. Thoracotomy *per se* causes basal atelectasis in the postoperative period,^[2] which got exaggerated in our case because of nutritional depletion, lung parenchymal changes in the form of inflammation, disuse atrophy, and poor strength

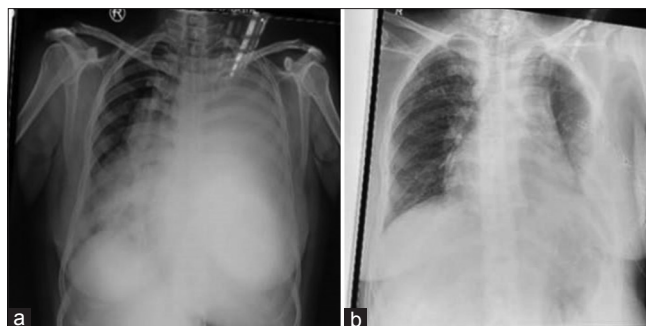


Figure 2: (a) Preoperative chest x-ray showing the opacified left hemithorax with mediastinal shift to the right. (b) Postoperative chest x-ray at the time of discharge with a tracheostomy tube *in situ*

of bronchial cartilages because of long-standing compression by the tumour^[3] leading to poor exercise tolerance and inability to generate adequate tidal volume. All these factors combined can lead to dynamic airway collapse and repetitive desaturation episodes. These perioperative complications can be averted by nutritional supplementation, aggressive chest physiotherapy, incentive spirometry, steam inhalation, use of bronchodilators, and mucolytics along with antibiotics and good perioperative analgesia. Another concern with large mass compressing the lung is re-expansion pulmonary edema which develops within 24 h of surgery. The collapsed lung expands, and it leads to patchy or diffuse alveolar infiltrates, decreased pulmonary compliance, and acute arterial hypoxemia. The treatment is supportive of the use of positive-pressure mechanical ventilation postoperatively, diuretics, and hemodynamic support.^[4] Preoperative steroid has no significant role in the management of SFTP. It may be helpful if there is airway inflammation because of instrumentation and/or bronchospasm.

In conclusion, giant SFTP is a rare neoplasm. Perioperative management, in this case, illustrates requirement of a multidisciplinary approach involving anesthesiologist, critical care specialist, pulmonologist, and physiotherapist to formulate an individualized perioperative plan to obviate the potential catastrophic complications such as hypoxia associated with these masses.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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