

## Child with multiple pneumatoceles posted for right hip arthrotomy – anesthesia concerns

Swati Jindal\*, Satinder Gombar\*\*, Pooja\*

\*Assistant Professor; \*\*Professor and Head

Department of Anesthesia and Intensive Care, Government College & Hospital, Sector 32, Chandigarh, Punjab (India)

**Correspondence:** Dr Swati Jindal, Assistant Professor, Department of Anesthesia and Intensive Care, Government College & Hospital, Sector 32, Chandigarh, Punjab (India); Cell: 09646004171; E-mail: drswatijindal@rediffmail.com

Pneumatocoles in patients undergoing non pulmonary surgery enhances the inherent risk of the procedure and can complicate the anesthetic management.

A 12 year old child came to pediatric emergency with difficulty in breathing and a history of fever, nonproductive progressive cough for 10 days. Her chest x-ray revealed left sided effusion with consolidation. A provisional diagnosis of left sided pneumonia and tuberculosis was made and given appropriate treatment. On day four of admission, she was shifted to ICU due to increasing respiratory distress. CT chest showed multiple cavities (pneumatocoles) on left side with left sided effusion and consolidation (Figure 1).

A left sided intercostal drain (ICD) was inserted. On day five, patient developed pain and swelling in the right hip. MRI revealed 15 mm hyperintense collection in the right iliacus and obturator muscles as well as in muscle plains of the proximal anterior thigh. A right hip arthrotomy was planned. Clinically child was febrile with respiratory rate of 24/min and heart rate of 98/min. On auscultation, there was decreased air entry on left side and left ICD was in situ but air column was not moving. Spinal anesthesia was planned. It was difficult to position the child optimally for regional anesthesia because of severe hip pain so he was sedated with inj. fentanyl 60 µg and midazolam 0.5 mg IV. As the patient was positioned laterally, EtCO<sub>2</sub> rose above 65 mmHg. The child was turned supine, ventila-

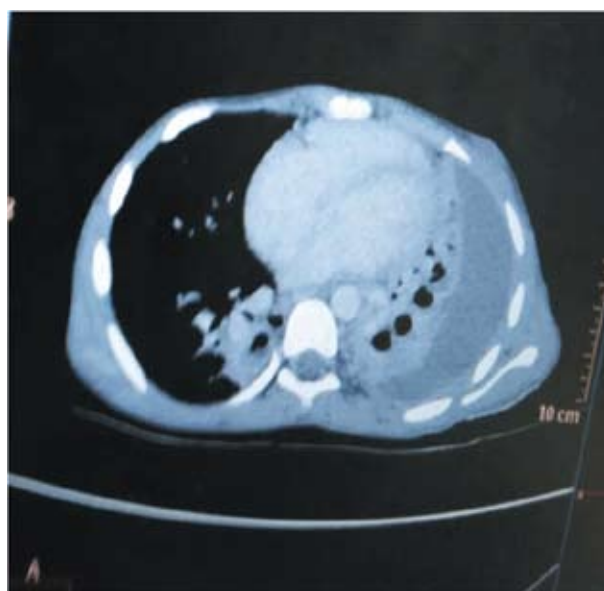


Figure 1: Scan showing collapse, consolidation and multiple pneumatoceles in left lung

tion assisted and general anesthesia (GA) was induced with inj. propofol and atracurium. Trachea was intubated with 6.0 mm ID endotracheal tube; bilateral air sounds were present with decreased air entry on left side. Gentle positive pressure ventilation with pressure control mode was done but EtCO<sub>2</sub> remained in higher range of 50-60 mmHg. SpO<sub>2</sub> was 100% on FiO<sub>2</sub> 1.0. Since child remained hemodynamically stable, surgery was allowed to proceed and lasted 1.5 hours and was uneventful.

correspondence

In view of rising EtCO<sub>2</sub> and increased resistance to ventilation, surgeon was called to reposition the ICD. After repositioning, there was large gush of air out of ICD and EtCO<sub>2</sub> improved to 34 mmHg. The child was then reversed and extubated.

Pneumatocele under GA can lead to pneumothorax formation, tension pneumatocele or formation of bronchopleural fistula. To avoid these complications, regional anesthesia should be used wher-

ever possible. Under GA it is recommended to use high FiO<sub>2</sub> and avoid nitrous oxide. High-frequency oscillatory ventilation<sup>1</sup> or single lung ventilation by double lumen endotracheal tube or bronchial blocker at the left main bronchus are attractive options. We kept our patient on pressure controlled ventilation to minimize the possibility of increased intrathoracic pressure. Thus precautions should be taken while giving anesthesia for non-pulmonary surgery in patients with pneumatoceles .

## REFERENCE

1. Shen HN, Lu FL, Wu HD, Yu CJ, Yang PC. Management of tension pneumatocele with high-frequency oscillatory ventilation. *Chest* 2002;121(1):284-6 [PubMed][Free full text]

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