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CASE REPORT

A Case of Empyema for Thoracotomy and Decortication-Anaesthesia Management

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ABSTRACT

Empyema requires careful planning and execution of anaesthesia management due to the complexity of the procedure and the patient's underlying condition. A 6-year-old patient presented with cough and fever progressing to distress diagnosed as empyema. She was posted for right thoracotomy and decortication.

Other investigations were optimal; except TLC which was 17,000 and INR of 1.36. Preoxygenated and premedicated with Inj Glycopyrrolate, induced with Inj Ketamine and Airway secured with 5 mm ID cuffed endotracheal tube under suxamethonium. Patient was put in lateral position and anaesthesia maintained with O_2 plus N_2O with Isoflurane; IV paracetamol and Inj Fentanyl was given after 1 hour.

Intraoperatively SpO2 was coming down to 85, so N_2O was stopped for some time; Isoflurane with Intermittent Propofol was given till the Decortication was done. Smaller tidal volume (5 ml/kg) with higher respiratory rate (24 per minute) was given initially.

The right lung expanded well after the procedure and O_2 and N_2O was restarted and PEEP of 5 cm of H_2O was given. After completion of surgery, the neuromuscular block was reversed with Inj Neostigmine and Inj Glycopyrrolate, O_2 supplementation with face mask continued in the postoperative period for 6 hours then nasal prongs overnight. Post-operative period continued with incentive spirometry and was uneventful.In a case of empyema with respiratory distress in a paediatric patient, meticulous planning is required and lung Isolation is difficult and we planned for low tidal volume technique and case was managed with-out any adverse events.

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KEYWORDS

• Decortication • Empyema • Low-tidal volume ventilation • Thoracotomy • Paediatric

INTRODUCTION

Thoracotomy and decortication in a case of empyema requires careful planning and execution of Anaesthesia management due to the complexity of the procedure and the patient's underlying condition. Goals are to facilitate lung isolation for surgical access, manage ventilation and oxygenation, control pain, and minimize complications. Paediatric patients pose a challenge for the anaesthesiologists in terms of anatomical and physiological differences and needs.

Case Report

A 6-year-old patient presented with cough and fever since 15 days, progressing to distress needing admission to hospital, ICD insertion to right side and diagnosed as empyema (Figure 1). She was started on multiple antibiotics, pleural fluid analysis was done, anti-tubercular drugs were started. She was posted for right thoracotomy and decortication.

Figure 1: X-ray showing Empyema Right Side

She weighed 16 kgs and moderately nourished, reduced air entry to right side and homogenous opacity of right upper lobe was seen. Other investigations were optimal; except TLC which was 17,000 and INR of 1.36. One packed cell was reserved and 18G and 20G cannula were secured with an informed high-risk consent for post-operative ventilation and intensive care need was obtained.

Preoxygenated and premedicated with Inj Glycopyrrolate 0.1 mg, induced with Inj Ketamine 30 mg and Airway secured with 5 mm ID cuffed endotracheal tube under suxamethonium 30 mg. Patient was put in lateral position and anaesthesia maintained with O_2 plus N_2O with Isoflurane; IV paracetamol and Inj Fentanyl was given after 1 hour.

Intraoperatively, HR, NIBP, SpO2 were monitored; IV fluids ISOLYTE-P was given. Initially SpO2 was coming down to 85, so N_2O was stopped for some time; Isoflurane with Intermittent Propofol was given till the Decortication was done. Smaller tidal volume (5 ml/kg) with higher respiratory rate (24 per minute) was given initially.

The right lung expanded well after the procedure and O_2 and N_2O was restarted and PEEP of 5 cm of H_2O was given (Fig. 2). Local anaesthetic (Inj Bupivacaine) was given along the line of incision. After completion of surgery, the neuromuscular block was reversed with Inj Neostigmine and Inj Glycopyrrolate, O_2 supplementation with face mask continued

in the postoperative period for 6 hours then nasal prongs overnight. Post-operative period continued with incentive spirometry and was uneventful.

Figure 2: X-ray showing post-operative lung expansion right side

DISCUSSION

In children empyema thoracis can be seen as complication of pleural effusion.[1]Early medical intervention and ruling out Tuberculosis and treating if present should be initiated. Chest tube draining of pleural effusion, Video assisted Thoracoscopy (VATS) and Decortication is the treatment.[2]

Our patient also presented with cough with difficulty in breathing and on investigating turned out to be Empyema Thoracis; treated with ICD and ATT and Posted for Thoracotomy and Decortication.

A Paediatric patient posted for Thoracotomy and Decortication needs a Multi-disciplinary -meticulous approach with Pulmonologist, Paediatrician, Surgeon and Anaesthesiologist.[3]

Due to non-availability of Double Lumen tube in paediatrics, the plan was to use regular ETT pushed to one side under the guidance of Fibreoptic intubating bronchoscope or use of Low Tidal volume Ventilation, as we choose in our patient. Desaturation is a possibility with isolating one lung; with low tidal volumesCO2 retention is a complication.

In our patient we used low tidal volumes with O_2 and N_2O, patient had a brief low saturation and we went on 70% O2 and Air with Inhalational Supplementation.

Pain is also a major concern in these patients, multimodal analgesia, epidural, intrapleural, ESPN can be tried.[4,5]

CONCLUSION

In a case of empyema with respiratory distress in a paediatric patient, meticulous planning is required and lung Isolation is difficult and we planned for low tidal volume technique and case was managed with-out any adverse events.

Conflict of Interest: Nil

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