

## CASE REPORT

# Pediatric Giant Hydatid Lung Cyst: Solving the Dilemma of Lung Isolation

<sup>1</sup>Karthika Rajan, <sup>2</sup>Raylene J Dias, <sup>3</sup>Dilip Jain, <sup>4</sup>Nandini Dave

## ABSTRACT

**Aim:** The utility of fiberoptic bronchoscopy to formulate the best airway management plan in a child with giant hydatid lung cyst

**Background:** Management of hydatid cyst of lungs is a challenge for the anesthesiologist due to problems associated with airway and one lung ventilation, the potential for rupture of the cyst, dissemination, and anaphylaxis.

**Case description:** We report an 11-year-old boy who was posted for video-assisted thoracoscopic removal (VATS) of a giant hydatid cyst of the left lung.

**Conclusion and clinical significance:** Flexible fiberoptic bronchoscopy provides a quick real-time visual assessment of the airway with minimal discomfort and risk to the patient and is a valuable tool in formulating the best and safest plan for securing the airway.

**Keywords:** Hydatid cyst, Lung, Pediatric.

**How to cite this article:** Rajan K, Dias RJ, Jain D, Dave N. Pediatric Giant Hydatid Lung Cyst: Solving the Dilemma of Lung Isolation. *Res Inno in Anesth* 2018;3(2):54-55.

**Source of support:** Nil

**Conflict of interest:** None

## BACKGROUND

Management of hydatid cyst of lungs is a challenge for the anesthesiologist due to problems associated with airway and one lung ventilation, the potential for rupture of the cyst, dissemination, and anaphylaxis.

## CASE DESCRIPTION

An 11-year-old boy was posted for VATS of a giant hydatid cyst of the left lung. He had no history suggestive of airway compromise. Chest radiograph (Fig. 1A)

revealed a large 10 × 10 cm dense homogenous well-defined opacity occupying nearly two-third of the left hemithorax. The left bronchus was obscured by the lesion and could not be visualized. Computed tomography (CT) imaging (Fig. 1B) confirmed the above findings but failed to quantify the left bronchial compression as all bronchial level cuts were not included.

Injection fentanyl 2 µg/kg IV was administered, and anesthesia was induced with IV propofol 2 mg/kg. Flexible fiberoptic bronchoscopy was performed to ascertain patency of left main bronchus and feasibility of using a left-sided double lumen endotracheal tube (DLT). There was a complete collapse of the left main bronchus with pooled secretions. IV vecuronium 0.1 mg/kg was administered to facilitate tracheal intubation and we proceeded with the placement of right-sided DLT 26 Fr. 1000 mL of fluid was aspirated from the cyst followed by deroofing. Measures to prevent anaphylaxis were taken. Postprocedure ultrasound guided erector spinae block with 10 mL of 0.25% bupivacaine was administered. The patient was comfortable with a visual analog score of 3 on the first postoperative day.

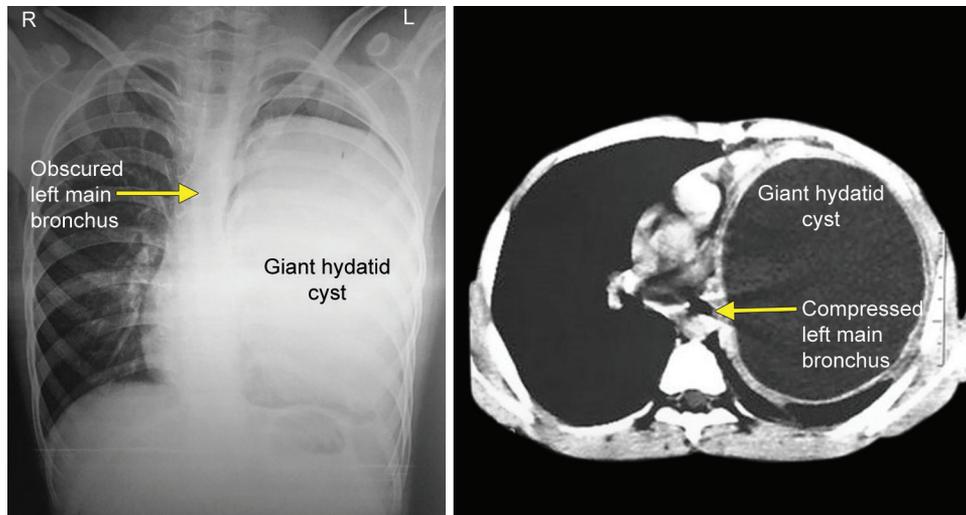
## DISCUSSION

Hydatid disease is endemic in certain parts of Central Asia including certain states of India. 10 to 40% of cysts are located in the lung.<sup>1</sup> Due to more elastic lung tissue, cysts in children grow at a faster rate. VATS for hydatid cyst is developing rapidly in practice. However, this requires an efficient technique for one-lung ventilation, not only for deflation of the operative lung but also to prevent inadvertent contamination of the contralateral healthy lung. Options for lung isolation in children are limited by patient size. They include the use of single lumen tubes, bronchial blockers, double lumen tubes, and univent tubes. DLT is most preferred whenever possible, as it offers the advantage of individual suctioning in addition to lung isolation and easy conversion to two lung ventilation when the need arises.<sup>2</sup> In this case, a left-sided DLT would be the preferred choice to isolate the left lung which contained the cyst. We were concerned regarding the placement of a right-sided DLT as it offers less margin of safety. However,

<sup>1,3</sup>Registrar, <sup>2</sup>Assistant Professor, <sup>4</sup>Professor and Head

<sup>1-4</sup>Department of Pediatric Anesthesia, Seth Gordhandas Sunderdas Medical College and King Edward Memorial Hospital, Mumbai, Maharashtra, India

**Corresponding Author:** Raylene J Dias, Assistant Professor, Department of Pediatric Anesthesia, Seth Gordhandas Sunderdas Medical College and King Edward Memorial Hospital, Mumbai, Maharashtra, India, e-mail: raylene.dias@gmail.com



**Figs 1A and B:** (A) Chest radiograph showing giant hydatid cyst; (B) CT image at tracheal bifurcation

fiberoptic bronchoscopy helped to finalize the airway management plan.

Computed tomography (CT)/magnetic resonance imaging (MRI) is an important modality for evaluating the airway. But usually, the plates have too many images and interpretation warrants a certain level of expertise. Softwares like digital imaging and communications in medicine (DICOM) viewer help to procure customized images of the airway and gives a better idea of the level and extent of narrowing.<sup>3</sup> For this to be possible one requires a soft copy of the CT plates. This was not feasible in our case since the child had undergone the CT from a rural area. Further subjecting him to a repeat scan was not ethical considering the risk of radiation exposure and cost. Three-dimensional reconstruction of the airway and simulated virtual bronchoscopic movie<sup>4</sup> using CT images have been described in difficult situations but is quite a time to consume and its use is often limited by the cost factor.

## CONCLUSION

Flexible fiberoptic bronchoscopy provided a quick real-time visual assessment of the airway with minimal discomfort and risk to the patient and was a valuable tool in formulating the best and safest plan for securing the airway.

## REFERENCES

1. Sadrizadeh A, Haghi SZ, Masuom SF, et al. Evaluation of the effect of pulmonary hydatid cyst location on the surgical technique approaches. *Lung India* 2014;31:361-365.
2. Brodsky JB, Lemmens HJ. Left double lumen tubes: Clinicalexperience with 1,170 patients. *J Cardiothorac Vasc Anesth* 2003;17:289-298.
3. Ahmad I, Millhoff B, John M, et al. Virtual-endoscopy – A new assessment tool in difficult airwaymanagement. *J Clin Anesth* 2015;27:508-513.
4. Nagamine Y, Kurahashi K. The use of three-dimensional-computed tomography images for anticipated difficultintubation airway evaluation of a patient with Treacher Collins syndrome. *Anesth Analg* 2007;105:626-628.