



ANESTHETIC MANAGEMENT IN A PATIENT UNDERGOING FOR EXCISION OF LEFT LUNG AND LIVER HYDATID CYST

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ABSTRACT Hydatidosis is a parasitic infection caused by the encysted larvae of Echinococcus granulosus, commonly called as hydatid cyst, most commonly involving liver & lung. The anaesthetic concerns for surgery of hydatid cyst of lung and liver includes possibility of rupture of the cyst causing anaphylactic reaction and problems due to one lung ventilation. We present our experience in the successful management of a 44 year old female with hydatid cyst in lung and liver. On the day of surgery, after taking high risk informed consent; nebulization was done. Thoracic Epidural catheter for perioperative analgesia was inserted, followed by induction and intubation with Left sided double lumen tube. After completion of the surgery patient was extubated. The patient was unable to maintain the saturation was reintubated; after diagnosed with right sided pneumothorax right sided ICD was inserted. Patient was shifted to ICU on T-piece and extubated after proper ABG Analysis. Patient was extubated on the next day after ABG analysis. Later patient was discharged uneventfully. Hence early diagnosis and vigilance is important for management of complications.

KEYWORDS : Hydatid Cyst , Double Lumen Tube, One Lung Ventilation, Anaphylaxis

INTRODUCTION

Hydatidosis is a parasitic infection caused by the encysted larvae of Echinococcus granulosus, commonly called as hydatid cyst, affecting liver (55%–70%) followed by the lungs (18%– 35%). The anesthetic management will be very challenging if these cysts are in or near the vicinity of vital organs.

CASE REPORT

44 year old female presented with, on and off fever for 7 days, breathless in supine position but comfortable in sitting position. On examination, Pulse-72/min, BP-120/70 mm Hg spo2-99% on air.

Airway examination -mouth opening 3 fingers, mallampatti grade I. Neck extension normal, teeth normal. R/S - RR – 19-22/min. Air entry absent, in left middle and lower zone, right side air entry normal. CVS, CNS, Per abdomen examination: No abnormality detected.

INVESTIGATIONS :

All routine blood investigations were normal, Chest X-ray-radio opacity in left Para cardiac and retro cardiac opacity.(figure 1) Ct scan:11.28*10.6*12.1cm cyst involving right upper lobe of liver.

PFT–FEV1/FVC-81.99%,FVC-2.61 lit,PFER-6.86 l/s (Restrictive stage of copd) Preoperative ABGA was within normal limits.

ANESTHETIC MANAGEMENT :

Patient posted for surgery under general anaesthesia after keeping NBM for 8 hours, informed and written high risk consent taken, patient shifted to operation theatre and all routine monitors were attached. Thoracic Epidural catheter inserted for perioperative pain relief. Premedication done with Inj Glycopyrrolate 0.2mg iv, ondansetron 4mg iv, fentanyl 50 mcg iv, Inj Hydrocortisone 100 mg, Inj. Dexamethasone 0.4mg. Preoxygenation done for 5 mins and patient was Induced with Inj. Thiopentone sodium 4-5 mg/kg and Inj.succinylcholine 2mg/kg. Patient was intubated with 32 no. Left sided double lumen tube. Bilateral air entry checked by inflating bronchial and tracheal cuff after clamping both the lumens one by one, air entry was again checked separately through proximal bronchial and tracheal lumen respectively and both lungs were separated.(figure 2)

Maintenance with inj.Vecuronium 0.1 mg/kg loading and 0.02mg/kg incremental dose.O2 and sevoflurane {2-3%}.Patient was given 10cc of 0.25% of bupivacaine through epidural catheter. One lung ventilation through double lumen tube during whole procedure.

Intermittent suctioning was done. Patient was haemodynamically

stable during operation.Left sided ICD was inserted after left sided thoracotomy. Patient was extubated after giving inj.neostigmine 0.05 mg/kg iv as patient was alert, fully conscious, following verbal command with adequate muscle tone and power. After extubation the patient was not maintaining the saturation and hence was reintubated after giving inj. Propofol 2mg/kg. Immediate post extubation ABGA suggestive of acidosis-Po2-85,Pco2-54,pH-7.29,Hco3-24. After that air entry was decreased on the right side. Clinically right sided hydro pneumothorax was diagnosed for which the surgeon was asked to insert right sided inter coastal drain(ICD). Post ICD patient was able to maintain saturation and was shifted on to T- piece and shifted to Intensive Care Unit for further monitoring.

The patient was extubated the next morning with ABGA: Po2-111.2,PCO2-51.8, pH-7.355, HCO3-19.8, O2saturation-97. Patient was shifted to ward and discharged uneventfully after proper chest physiotherapy.(figure 3)



Figure 1.chest X-ray showing radio opacity in left Para cardiac and retro cardiac opacity.



Figure 2. Left sided double lumen tube in situ.



Figure 3. After proper chest physiotherapy patient was discharged.

DISCUSSION

Hydatid disease or Echinococcosis is an infection of humans caused by the larval stage of *Echinococcus granulosus*, *Echinococcus multilocularis*, or *Echinococcus vogeli*. *E. granulosus*, which produces unilocular cysts, is prevalent in areas where livestock is raised in association with dogs [1]. The definitive hosts are dogs that pass eggs in their faeces. Human infestation occurs after ingestion of the eggs as embryos escape from the eggs, penetrate the intestinal mucosa, enter the portal circulation and are carried to various organs, most commonly to the liver and the lungs. The echinococcal cyst expands slowly over a period of time but usually remain asymptomatic until their expanding size elicits symptoms due to the mass effect. Hepatic hydatid cyst manifests as abdominal pain or a palpable mass in the right upper quadrant [1]. Rupture of a hydatid cyst may produce fever, pruritis, urticaria, eosinophilia, or anaphylaxis. Pulmonary hydatid cysts may rupture into the bronchial tree or pleural cavity and produce cough, chest pain, or hemoptysis [1]. Traditionally, surgery has been the mainstay method of treatment but the risks involved during surgery includes dissemination of infectious scolices from leakage of fluid as well as anaphylaxis.

Anesthetic implications of a case of hydatid cyst of the lungs is a challenge for anesthesiologist, which include the problems associated with one lung ventilation (OLV) and rupture of the cyst and dissemination. Operative manipulations can also force fragments of small daughter cysts into the bronchial tree. These solid fragments lodge in bronchi of the same or opposite lung, resulting in acute obstruction of the airways. Inadvertent spillage of cyst contents may cause secondary pleural or bronchogenic hydatidosis. Such complications can be avoided by isolation of lungs by OLV technique. Intentional collapse of the lung on the operative side facilitates most of the thoracic procedures but performing these manoeuvres can make it all the more challenging. The most frequent complication during OLV is due to ventilation-perfusion mismatch, resulting from the combination of position, OLV, and lung disease [3,4,5]. Moreover, malpositioning of DLT results in failure to collapse the operative lung; difficulty in ventilating one or both the lungs; and air trapping and unsatisfactory deflation of the lung. Tracheobronchial trauma and haemorrhage are the other associated complications associated with DLT. A hydatid cyst of lung warrants double-lumen tube intubation of the trachea during surgery not only to control ventilation but also to prevent contamination of normal lung with cysts.

In our patient as there was Hydatid cyst of liver, rupture of which lead to hydropneumothorax on right side. Which was diagnosed immediately after extubation and patient was intubated immediately and right side ICD was inserted. Presence of liver Hydatid cyst can lead to perioperative complications such as intraoperative rupture of cyst into pleural space, pneumothorax, transient post operative jaundice and congestive heart failure [3].

The other main complication is anaphylactic reaction which occurs most commonly due to spillage of the cyst contents. The magnitude of allergic reactions ranges from mild hypersensitivity to anaphylactic shock. The estimated incidences of this complication varies between 1 in 5000 to 1 in 20000 [2]. The symptoms vary from mild urticaria to anaphylactic shock. Under anaesthesia cardiovascular signs like hypotension, tachycardia and arrhythmias occur predominantly. Bronchospasm is rare, whereas cutaneous symptoms like rash, flushing and urticaria occur more commonly on the neck, face and anterior chest. The treatment of anaphylaxis includes massive fluid resuscitation, vasopressors and corticosteroids. Epinephrine is the first line of treatment perioperatively [2,5].

CONCLUSION:

Management of hydatid cyst requires understanding of respiratory physiology of one lung ventilation with proper positioning of double-lumen tube, thoracic epidural analgesia for continuous monitoring of the saturation, ventilation and blood gases to prevent the associated complications.

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