



INTRA-OPERATIVE ANAPHYLACTIC SHOCK WITH POST-OPERATIVE BILE LEAK IN A CASE OF HEPATIC HYDATID CYST

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ABSTRACT Anaphylactic reactions during surgical procedures are rare but can pose significant challenges for patient management and result in mortality. We present the case of a young male with hepatic hydatid cyst who underwent anaphylaxis during surgery. During surgery, on puncturing the hydatid cyst with needle, patient's heart rate dropped to 40 and blood pressure plummeted to 60/40 mm hg with increased peak inspiratory pressure to 45 cm H₂O. The patient was administered adrenaline, dexamethasone, pheniramine and started on noradrenaline infusion. Patient's vitals stabilized and surgery was completed. In the post operative period, he developed bile leak and atelectasis which was managed medically. This case underscores the importance of recognizing potential anaphylactic reactions in the perioperative setting, as well as the need for vigilant postoperative monitoring for complications. We discuss the clinical implications of this rare occurrence, review existing literature on anaphylaxis and highlight strategies for preventing and managing such incidents.

KEYWORDS : hepatic hydatid, anaphylaxis, bile leak, daughter cyst

INTRODUCTION

Hydatid disease is caused by the tapeworm *Echinococcus granulosus*. It is transmitted by ingestion of tapeworm eggs in contaminated water and food by intermediate host like sheep and humans. It involves the formation of cysts primarily in the liver (60-70%), lung (20-25%) and occasionally in other organs. Intraoperative anaphylaxis is a rare but critical event that can significantly complicate surgical procedures. It is characterized by an acute hypersensitivity reaction that can occur in response to various triggers, including medications, anaesthetic agents, and latex. The incidence of intraoperative anaphylaxis is estimated to be approximately 1 in 10,000 to 1 in 20,000 anaesthetic procedures, making it a relatively uncommon phenomenon but one that requires prompt recognition and management due to its potential to jeopardize patient safety.

Hydatid cyst can result in anaphylactic reaction spontaneously, during surgery or intervention and due to trauma or rupture. It may result in mild hypersensitivity reaction to anaphylactic shock. Microscopic or macroscopic rupture of cyst contents into peritoneum or blood triggers the reaction. The highly antigenic cyst fluid activates IgE secretion and then histamine release. It occurs in the first 1 to 15 minutes after leakage.

CASE REPORT

38 yrs old male came with complain of pain in right hypochondriac region and epigastric region since a year. Pain was dull aching in nature radiating from right hypochondriac region to epigastrium and increased in intensity after meals. He also complained of occasional episodes of vomiting. He had no history fever, weight loss, jaundice, abdominal distension or breathlessness. He had no comorbidity or past surgery. There was no similar episode in the past.

On general examination, vitals were normal. There was no pallor, icterus, lymphadenopathy or oedema. Abdomen was soft on palpation without any tenderness or guarding. Liver was palpable just below the costal margin. All routine blood investigations were within normal limit. Ultrasonography showed a thick walled multiloculated lesion with multiple daughter cysts and central matrix of size 8.1 x 6.5 cm in right lobe of liver suggestive of hydatid cyst.



Figure 1A & 1B: Preoperative ultrasonography showing liver with multilocular hydatid cyst with daughter cyst within

Computed Tomography (CT) scan of abdomen was done to plan further intervention. A large approximately 7.2 x 8.7 x 6.5 cm sized thick walled, well defined, spherical lobulated, hypodense, multi loculated multi cystic lesion with heterogeneously enhancing septae with few peripheral areas of calcification in segment V and VI of right lobe of liver was seen. A small partially exophytic outpouching 2x2x1 cm seen communicating to above mentioned lesion through right inferolateral wall was suggestive of contained rupture. The findings were suggestive of hydatid cyst WHO stage CE 3A- Transitional stage (Gharbi Stage 2).

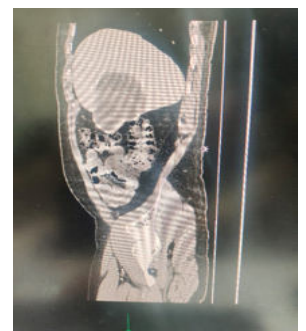
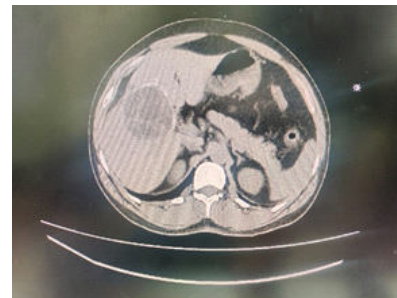


Figure 2A, 2B & 2C: showing pre-operative CT images of multiloculated hydatid cyst with daughter cysts in axial, coronal and sagittal view respectively.

After evaluation and workup, the patient was posted for laparoscopic hydatid cyst excision. Patient was started two weeks preoperatively on oral albendazole 400 mg twice a day.

Before incision, the patient was preemptively administered hydrocortisone and pheniramine. Hypertonic saline was used as scolical agent and soaked mops were placed in peritoneal cavity. Hydatid cyst was punctured with aspiration needle which resulted in anaphylactic shock.



Figure 3: showing intraoperative laparoscopic image of the hepatic hydatid cyst being held and aspiration needle pierced through it.

Patient went into bradycardia till 40/min, hypotension till 60/40 mm hg and increased inspiratory peak pressure till 45 cm H₂O. The patient was immediately administered stat injections of Hydrocortisone 300mg, Dexamethasone 6mg, Pheniramine, and Adrenaline 1mcg/kg. Injection Noradrenaline 12ml/hr via infusion pump was started. Bolus intravenous fluid was given, and patient was stabilized.

Intra-operative decision taken to convert the surgery from laparoscopy to open for further steps. Hydatid cyst with daughter cyst excision done with necessary precautions. No biliary communication was seen. The cavity was filled with omentum. He was vitally stable at end of surgery and extubated next day after observation. Steroid and antihistamines were continued for 5 days.

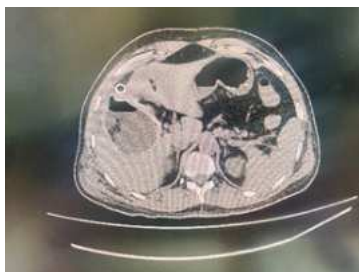


Figure 4A, 4B and 4C: showing post-operative CT where the cyst stroma and daughter cysts being replaced by the omentum placed inside it during surgery in axial, coronal and sagittal view respectively.

On postoperative day 3, he developed bile leak (40ml) in drain. It increased for the next two days to 70 ml and 100ml. He also complained of breathlessness and was requiring supplemental oxygen. CT chest and abdomen were done to look for any infection or collection. Chest showed lower lobe atelectasis. Aggressive chest physiotherapy was given. Gradually the drain output decreased and stopped at post op day 9. The drain was removed, and patient discharged on oral albendazole. Patient is doing well on follow up.

DISCUSSION:

Hydatid disease is caused by larval form of the parasite *Echinococcus*. Most patients remain asymptomatic. As the cyst grows, pain occurs due to stretching [1].

The hydatid cyst is mainly found in the liver (75% of the cases), being asymptomatic in most cases and discovered accidentally on a routine

abdominal ultrasound or an ultrasound performed for diagnosing other pathologies. The hepatic hydatid cyst therapy is multimodal, including medical, surgical, and, lately, minimally invasive techniques depending on site, stage and size [2].

Anaphylactic and anaphylactoid reactions during anesthesia are a major cause of concern for anesthesiologists. During the perioperative period, any symptomatology relating to sudden-onset hemodynamic collapse or increased airway pressures during certain surgical procedures should raise suspicion of anaphylaxis. In anaphylaxis, urticaria, rash, bronchospasm, laryngeal oedema, wheezing, hypotension, bradycardia, tachycardia, cardiovascular collapse, abdominal cramp can be seen. Under general anesthesia, only hypotension, arrhythmia, rash and urticaria are seen [3].

Anaphylaxis due to hydatid is a known complication. Preoperative awareness of probability of anaphylaxis, good venous access and early resuscitation is of utmost importance. Patients should start on antihelminthics weeks prior to intervention. Steroids should be administered preoperatively. Precautions should be taken to avoid intraoperative spillage and appropriate scolical agents used. Adrenaline should be kept loaded and patients' vitals should be monitored. During surgery, any hemodynamic instability should raise suspicion of anaphylaxis and early resuscitation instituted. In endemic areas, hydatid cyst should be kept in mind when patients come to emergency with anaphylaxis without any cause [4].

Postoperative bile leaks lead to significant morbidity after surgical management of hydatid cysts of liver. A majority of them resolve spontaneously [5]

CONCLUSIONS:

Intraoperative anaphylactic reactions, though rare, pose significant challenges during surgical procedures. The immediate recognition and management of anaphylaxis are crucial to ensure patient safety and optimize surgical outcomes. When dealing with any hydatid cyst, the whole team must be aware and ready to always treat anaphylaxis.

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