

Anaesthetic precautions in Hydatid Disease

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Abstract

Since anesthesiologists deal with a wide range of patients, they need to acquire knowledge, abilities, and attitudes in their daily activities and should be prepared and trained to offer safety to their patients. To investigate third-year anesthesiology residents' knowledge about patient safety. A cross-sectional descriptive study with quantitative approach was carried out between June and August 2020, using a questionnaire with 17 questions divided into 7 topics (general knowledge on patient safety and 6 topics related to the international goals on patient safety established by the World Health Organization). The results were compiled in a Microsoft Office Excel spreadsheet, processed and analyzed by the statistical program R Version 4.0.2 and presented in tabular and descriptive form. The questionnaire was answered by 297 residents (40.8% of the total population). The topics related to WHO (World Health Organization) goals 4 (Safe Surgery) and 7 (Prevention of falls and pressure injuries) achieved the highest number of correct answers (84%). The topics related to goal 1 (Correct patient identification) had the highest number of mistakes (31%). The data found suggest a gap in the knowledge of third-year anesthesiology residents about the studied theme. Since only the knowledge competence was evaluated, further studies are necessary to analyze all other competencies necessary for anesthesia training related to patient safety.

Keywords: *Echinococcus Granulosis, found in dogs (Definitive Host), Sheep, cattle, goats*

Introduction

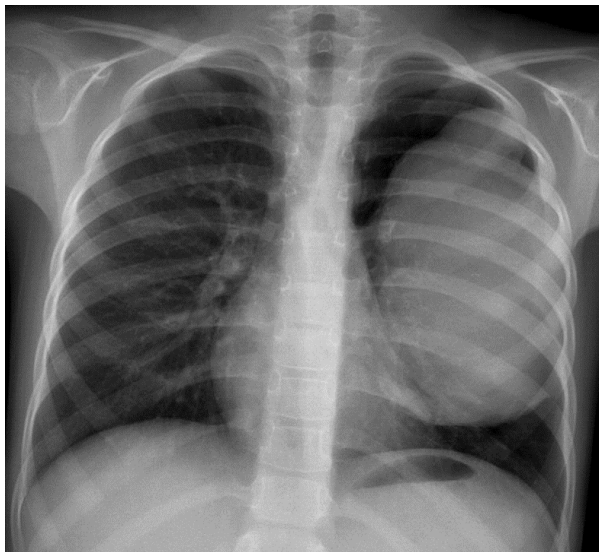
Hydatid disease is a serious parasitic infestation by a larval stage of tapeworm *Echinococcus Granulosis*, found in dogs (Definitive Host), Sheep, cattle, goats (1). It is also known as cystic echinococcosis. When a person comes in direct contact with the feces (infected via the eggs from the tapeworm) of an infested dog or consumes food and milk contaminated by the same, may develop hydatid disease (1). The cyst formed by the disease are, mainly found in liver (75%), lungs (30%). The spinal involvement is usually caused by direct extension from pulmonary or abdominal invasions and rarely begin primarily in the vertebral body. In the endemic areas, hydatid disease is one of the expected causes of spinal cord compression and the diagnosis may remain obscure until symptoms appear due to root and cord compression (2,3) Symptoms of hydatid disease are radiculopathy, myelopathy and local pain which can further result in destructive bony lesions,

pathological fracture and consequential cord compression. (4) Preoperative evaluation is necessary because the rupture of the cyst may result in anaphylaxis and recurrence. It may also produce and produce cough, chest pain, hemoptysis or hemodynamic instability.

Case Report

A 44-year-old man, presented with gradually increasing back pain and progressively increasing difficulty in walking for three months. Pain was insidious in onset, gradually progressive and was radiating towards bilateral lower limb. He also complained of numbness, altered sensations in both legs General physical examination revealed decreased Air entry on left lower lobe. On Neurological examination the power was reduced to Grade three in both the lower limbs and there was loss of sensations, especially to pain and fine touch. The superficial abdominal and cremasteric reflexes were present and plan tars were extensor bilaterally.

The knee and the ankle jerk were exaggerated with bilateral ankle clonus. On MRI multifocal lobulated cystic lesion with peripheral and septal enhancement in thoracolumbar (D10-L1) and lumbosacral canal (L5-S2) intradural location (? parasitic cyst) cystic multiseptated structures were also seen on right upper hemithorax, left hemipelvis, peri medullary cistern of brain. Chest x-ray also revealed a large rounded opacity with smooth wall in left upper and middle zone, which was s/o Hydatid cyst.



Patient went under T10-L1 + L5-S1 laminectomy procedure with total excision of cysts. They were multiple in number and grey coloured, soft in

consistency with highly Vascular, and densely adhered to cord and roots. 2 units of PRBC were arranged and high-risk consent was taken Patient was taken into OT, all monitors were attached Vitals- HR-86/min, BP128/84mmHg, SpO2- 100% Two 18 G cannula was secured on both the forearms. Induction was with- Inj FENTANYL 100 mcg + Inj XYLOCARD 60 mg + Inj PROPOFOL 100 mg IPPV was done Inj VECURONIUM 7 MG IV was given Laryngoscopy with blade #3 was done and flexometallic ETT was inserted #8.5/22/5 and secured in place. Patient was then taken into a prone position; All the IV cannulas were secured properly and all the bony prominences were padded adequately and procedure lasted for 2 hours. While removing the cysts due care was taken to prevent rupture of the cyst, epinephrine, atropine and sodium bicarbonate, dexamethasone, and salbutamol (inhaler) were kept handy to treat anaphylactic reaction if it presented intraoperatively. The other hand surrounding the surgical field, was packed with mops to prevent local leak. It was taken care of that Scolicidal solutions, such as hypertonic saline and hydrogen peroxide, were not used during surgery to prevent chemical injury to cord. After 1 hour of induction patient showed a sudden dip in blood pressure to 98/60mmHg which was immediately managed by giving Inj methylprednisolone 100mg IV Stat after which blood pressure was recovered within 15 min. Postoperative period was uneventful and tab Albendazole was given for a period of three months. There was complete regain of sensation in two to three weeks, although motor functions gradually over six weeks. Patient was successfully extubated and shifted to the recovery room. Postoperative period too remained uneventful. Patient had significant pain relief and reduced spasticity

Discussion

Anaphylactic reaction is a systemic event that affects many organs and can be life-threatening. Anaphylaxis during anesthesia and the per-operative period is rare. Anaphylaxis includes nausea, vomiting, urticaria, angioedema, bronchospasm, upper airway obstruction, cardiovascular collapse. The mortality rate due to anaphylaxis is between 3%-6% (4) During excisional surgery, an anaphylactic reaction may occur after the rupturing of the cyst. The cause of the death in hydatid cyst rupture is due to anaphylaxis related complications. The incidence of intraoperative anaphylaxis due to hydatid cyst has been reported as 0.2%-3.3%, and it has mediated by Ig E-mediated type 1 hypersensitivity reaction (4). General anesthesia is covering almost all the clinical symptoms of anaphylaxis. Urticaria, hypotension,

bronchospasm, bradycardia are the main symptoms that can be observed. Massive fluid resuscitation with crystalloid or colloid, vasopressor drugs (Adrenaline, noradrenaline), glucocorticoids, H1 and H2 receptor blockers are used in the treatment of anaphylactic reaction. If anaphylaxis develops, all medications should be used and the operation should stop, and 100% oxygen treatment should start. The first-line treatment of perioperative anaphylaxis is epinephrine (vasopressor). Glucocorticoids are used to reduce the late effect of anaphylaxis. Some studies reported that preoperative H1 and H2 receptor blockers are useful in hydatid cyst surgery to prevent anaphylaxis (1).

Conclusions

In conclusion the management of a hydatid cyst needs a thorough understanding of the physiology and the proper positioning of the endobronchial tube and continuous monitoring of the saturation, ventilation, hemodynamics and the blood gases to prevent any associated complications.

Conflict of interest

The author declares no conflict of interest.

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