

CASE REPORT

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Sudden Death Due to Ruptured Hydatid Cyst of the Liver

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ABSTRACT: The cyst stage of *Echinococcus granulosus* is commonly located in the liver, which frequently results in a long symptomless period. We present a sudden death due to a freshly hemorrhagic hydatid cyst following blunt trauma to the liver in a 19-year-old boy. The possible mechanism was thought to be an anaphylactoid reaction to the leakage of the cyst fluid.

KEYWORDS: pathology and biology, sudden death, hydatid cyst, forensic medicine

Hydatid cyst is an important parasitic infestation in places where dogs are used to herd grazing animals and also have intimate contact with people. Signs and symptoms vary depending on the anatomical location and dimension of the cyst. The most frequent location is in the liver [1-3].

An anaphylactoid reaction may occur due to the leakage of the cyst fluid [1-3]. We present a case that showed intracystic fresh hemorrhage resulting in sudden death after a blunt trauma to the abdomen.

The Case

A 19-year-old boy, who was previously healthy, suddenly became unconscious following a blunt trauma to his abdomen. The trauma was a trivial blow from his friend. He was taken to the intensive care unit where he was found to have irregular respiration with apneic periods and the blood pressure could not be measured by sphygmomanometer. The CBC showed the following values: Hb 7 g/dL, Hct 37%, WBC 11.200/ μ L. There were no pathological findings in the chest X-ray, ECG, computerized tomography of central nervous system and lumbar puncture.

Even though the patient was given artificial ventilation he died within several hours

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after admission following a cardiac arrest. The case was referred to the medico-legal center for the investigation of the cause of death.

External postmortem examination was not remarkable, there were no external signs of trauma. The autopsy showed brain and lung edema with congestion in brain vessels. During the examination of the abdominal organs a 3 cm subcapsular protrusion with a smooth surface in the right lobe of the liver was seen. Upon sectioning a hemorrhagic cystic lesion that had white opaque cuticular membrane was found. No other lesions were detected in further examination of the internal organs.

Evaluating all the clinical history and findings along with postmortem examination, the cause of death was determined to be a fatal outcome of this hemorrhagic lesion, which resulted in an anaphylactoid reaction due to leakage of cyst fluid into a vessel.

Discussion

One of the most important cestode infestation in humans is *Echinococcus granulosus*, which results in cystic lesions at various anatomical sites. Echinococcosis is endemic to Turkey, most of the patients harboring the granulosus species, *alveo laris*, have been seen in restricted areas [4]. The most common site for cyst formation is in the right lobe of the liver. Approximately 70% of the patients have only one cyst [1–3]. There may be the symptom of the feeling of pressure, but generally the cyst does not cause any clinical symptoms for a long time [1,2]. The cysts increase in size, commonly reaching a sizable mass over several years. The mass may produce symptoms and signs related to pressure. The fluid inside the cyst has highly antigenic properties, which may result in anaphylactoid reactions due to leakage either into a vessel or body cavity [1–3,5,6]. For this reason, diagnostic aspiration is not recommended [2]. During anaphylaxis the biologically active substances result in severe bronchospasm as well as capillary dilatation along with increased permeability [7]. These, in effect, cause severe hypotension and tissue hypoxia. In our case, severe hypotension and respiratory distress following a trivial trauma to the abdomen resulted in sudden death. Either in the clinical assessment or in the laboratory work-up this could not be specifically related to any hemodynamic, metabolic, neurologic disorder. At the postmortem examination the remarkable pathological features were brain and lung edema with congestion in brain vessels. The freshly hemorrhagic cystic mass in the liver showed laminated cuticular membrane of *Echinococcus granulosus*.

The cause of death was determined to be a fatal reaction to the leakage of hydatid cyst fluid. This must be due to the anaphylactic shock that came on very quickly and resulted in death several hours after the trauma.

We suggest that in this sort of clinical presentation—without any relevant history to explain the deteriorated condition—anaphylaxis due to the leakage of hydatid cyst fluid must be considered in communities where this infestation is prevalent [5,6]. The diagnosis could have been made if eosinophilia and increased Ig E levels had been determined [2]. The measurement of mast-cell-derived tryptase levels and allergen specific Ig E antibody levels are recommended in this regard [7].

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