A fatal Myocardial Hydatid Cyst
As A cause
Of Sudden Natural Death

إعداد

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Abstract:
Hydatid disease of the heart is rare, but a potentially fatal pathology. We report a case of Hydatid cyst in the wall of left ventricle in a sixty year old man, which was found the main cause of sudden natural death.
60% of the Hydatid cysts are found in liver, 30% in lungs, 2.5% in kidneys, 2.5% in heart and pericardium and 5% in other areas. A 60 year old male presented to Medico Legal Institute – Baghdad, (MLI) as sudden death, at autopsy it was noted that a well localized intramural Hydatid cyst measuring 1.2 cm in largest dimension occupied 2/3rd of the wall thickness of the left ventricle. Hydatid cyst of the heart can cause valvular dysfunction, conducting disturbance or may lead to congestive heart failure depending on the site of involvement. The symptoms may be non specific and hence, establishing an early diagnosis is difficult and it may remain asymptomatic and may be discovered incidentally or it may lead to sudden death as in our presented case.
It dose not appear to be any age limit at diagnosis. The left ventricle is involved most frequently (55-60%). Hydatid cyst of the left ventricle is usually localized sub-pericardial and rarely ruptures into the pericardial space. In our case, the cyst was localized in the wall of the left ventricle and it was found the main cause of death after doing formal autopsy.
Introduction:

Hydatid disease is a very ancient human disease, it was mentioned in the Talmud and recognized by Hippocrates over two thousand year ago when he described the (liver filled with water) (1). Galen also recognized it, so did AL-Rhazes, the Arab physician who made reference to hydatid cyst of the liver in AD 900. (2) The nature of the lesion was unknown and was considered to be growth or tumor until Tyson in 1687 gave the first suggestion of its parasitic nature.

Because there is usually a period of silent growth in the natural history of this parasite when no clinical manifestation occurs, (3) the infection may remain symptomless for many years if it happens to grow in a large cavity e.g. the peritoneal or pleural cavities. Pressure symptoms, however occur earlier when the cyst grows in a small cavity such as the orbit or the skull. (4)

Hydatid cysts have been found in various organs and soft tissue, the liver being the commonest organ affected (60%) followed by the lung (30%), kidneys (2.5%), (2.5%) in the heart and pericardium and (5%) in other organs and soft tissue. It was not possible to trace a previously reported case of hydatid cyst occupied the wall of the left ventricle but it was reported in other parts of the heart and pericardium.
Patient and Methods:
A 60 years old man was referred by the police to our medico legal institute as sudden death. After performing full autopsy it was noted that a well localized intramural hydatid cyst measured 1.2 cm in largest dimension occupied 2/3rd of the wall thickness of left ventricle.
Several sections were taken from different parts of the heart including the coronaries for histopathological examination which revealed well circumscribed cyst in the wall of left ventricle composed of an ectocyst surrounded by fibrous septa and infiltrated by mixed inflammatory cell predominantly eosinophils and an endocyst composed of laminated elastic layer and adjacent myocardial tissue showed foreign body giant cell reaction, Fig.1, 2 & 3.
Hydatid disease of the heart is rare, but a potentially fatal pathology. It may cause valvular dysfunction, conduction disturbance or may lead to congestive heart failure. (5) The symptoms may be nonspecific and hence establishing an early diagnosis is difficult, and may remain asymptomatic and may be discovered incidentally or it may lead to sudden death as in our presented case.
Discussion:

Hydatid disease (echinococosis) is caused by larvae of *chinococcus granulosus*. Larvae reach the right side of the heart through thoracic duct and superior venacava; from the right ventricle the embryo passes through the pulmonary capillaries into the left ventricle, from where it could reach any part of the body through the systemic circulation. Some authors have suggested transmigration of embryo through the interatrial & interventricular septum to the left side of the heart. Larvae reach the myocardium through the coronary circulation. Cardiac infestation may be asymptomatic or may present with clinical findings depending upon the localization and number of cysts. Hydatid disease of the heart occurs in 0.5% to 2.5% of all hydatidosis in man and it does not appear to be any age limit at presentation. Cyst may cause obstruction in the chamber of the heart or induce conduction disturbance. Rupture of a cardiac cyst may result in anaphylactic shock, pulmonary embolism and systemic metastasis. (5-6), the cyst may remain asymptomatic and may be discovered incidentally. The left ventricle, the part of the heart has the most abundant blood supply is involved most frequently (55 – 60%). Hydatid cyst of the left ventricle is usually localized sub-epicardial and rarely ruptures into the pericardial space. Cardiac hydatid cysts are rare and comprise 0.5% to 2% of all hydatid cyst cases. They are usually situated in the left or right ventricle and are only rarely found in the pericardium (6). The condition is often painless and silent, and does not become symptomatic until the cysts grow to a large size. In our case, the cyst was localized in the wall of the left ventricle.
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Fig. 1: Low power section showed laminated membrane of hydatid cyst in upper right with myocardial muscle in lower left separated by sheets of mixed inflammatory cells aggregate
Fig. 2: Laminated membrane of hydatid cyst which looks like the coats of an onion in adjacent to mixed inflammatory cell aggregate.

Fig. 3: Sheets of mixed inflammatory cells predominantly eosinophils infiltrating myocardial muscle.
References: