OUTCOME OF SURGICAL MANAGEMENT OF HYDATID LUNG DISEASE-PESHAWAR EXPERIENCE OF 580 CASES

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ABSTRACT

Objective: To evaluate the surgical management of pulmonary hydatid disease.

Study Design: Retrospective observational study.

Place of Study: Cardiothoracic Surgery Unit, Lady Reading Hospital Peshawar

Duration of Study: June 2002 to December 2014.

Methodology: Computerized clinical record of diagnosed cases of pulmonary hydatid admitted to cardiothoracic unit from June 2002 to December 2014 was retrospectively analyzed. Patients of all age both sexes and with pulmonary hydatid were included in this study. We excluded intrathoracic extrapulmonary hydatid cysts, transdiaphragmatic transmission and patients not fit for open surgical procedure.

Results: Out of 580 patients, 381 were men and 199 were women.Age ranges from 16-69 years with a mean age of 34.5 years. Three hundred and thirty nine (58.4%) patients were symptomatic, most commonly with hemoptysis and chest pain, 82/580 (14.1%) patients presented with ruptured hydatid cyst. 159/580 (27.41%) patients were asymptomatic, found to have hydatid cyst incidentally. There were 296 (51%) hydatid cysts on right side, 236(40.6%) on the left side and 48 (8.27%) patients had bilateral hydatid. Hydatid cystectomy and wedge resection of pulmonary parenchyma were the chief operative procedures. Lobectomy was done in 35 patients, bilobectomy in 6 patients and pneumonectomy in 2 patients. Albendazole was prescribed to all patients postoperatively. Patients were followed up for a period of 6 months. Thirty one patients had post operative complications including wound infections in 22 patients, Bronchopleural fistula 5 patients and recurrence in 4 patients. Mortality was 2.06% including respiratory failure 08 and septicemia in 04 patients.

Conclusion: Lung-preserving surgical intervention is the treatment of choice in hydatid lung disease however, lung resection can be carried out after assessing viability of the residual lobe. Antihelmentic medical regimen post operatively is also important to prevent recurrence.

Key words: Hydatid disease; Hydatid cyst; Lung; Surgery

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INTRODUCTION

Hippocrates was the first person in ancient times who described the human echinococcosis as "Cysts full of water" in a human liver.[1] Hydatid cyst disease is endemic in many part of the world including Indian subcontinent. It is caused by the larval stage of the parasite echinococcus (E) tapeworm.[1, 2] Infection with *Echinococcus granulosus* is the most common form of echinococcal infection in humans.[1,3] The parasite involves dogs (the definitive host) and sheep (the intermediate host).[1] Man is an occasional intermediate host.[1-3] Ingesting embryonated eggs through hands, food, drinks or materials contaminated with parasite eggs infects humans; the larvae reach the blood and lymphatic circulation and reach the liver, lungs and other organs Cystic hydatid disease may develop in almost any part of the body,[2] although the most commonly involved organs are the liver (60%) and the lung (30%).[3]

Pulmonary sites are the most common site of intrathoracic hydatid cyst development; there, they are called pulmonary hydatid cysts. Conversely, cysts in the diaphragm, pleura, mediastinum, pericardium, myocardium, fissures, and chest wall are called intrathoracic extrapulmonary cysts.[4,5]

Surgical treatment of pulmonary hydatid involves removal of cyst, obliterating the space and closing the small bronchial communications, or if the cyst is very large with no salvageable lung parenchyma then lung resection surgery is indicated.[6]

The aim of this study is to share our experience in the surgical management of pulmonary hydatid cysts.

METHODOLOGY

This study was carried out in Cardiothoracic surgery unit, Lady Reading Hospital Peshawar, from. June 2002 to December 2014. We prospectively collected the data in a data-base and retrospectively analyze it.

Patients admitted to Cardiothoracic unit with intra thoracic hydatid cysts were evaluated as to age, sex, symptoms, diagnostic procedures, anatomic location of cysts, surgical procedures, complications, and outcomes. Total of 580 patients were having cysts in the pulmonary parenchyma. We excluded the patients having cysts in intrathoracic extrapulmonary locations, patients who had experienced transdiaphragmatic transmission, and patients not fit for open surgical procedure from our study.

Most patients were symptomatic, most commonly with chest pain, cough and hemoptysis. Along with routine investigations, x-ray chest and ultrasound chest & abdomen had been performed preoperatively in all of them while computed tomography was done in selected cases. Spirometry was performed in all patients for assessment and operability. If hydropneumothorax and cystic rupture developed preoperatively, the pleural cavity was first drained by means of a tube thoracostomy.

All patients underwent operation as soon as conditions were optimal. A posterolateral thoracotomy was performed on all patients. Surgical Removal of cyst and obliterating the space and closing the small bronchial communications performed in most of the patients, in few patients lung resection was also performed.

Albendazole (10 mg/kg) was prescribed to all patients for as long as 3 months with 14 days interval between each course postoperatively.

Follow up was done in all cases.

RESULTS

The preoperative diagnosis was mainly based on plain chest X-ray. In 438 patients the disease was diagnosed by chest X-ray and ultrasound was done to confirm its cystic consistency. In the remaining cases where the diagnosis was not possible with plain chest X-ray, the diagnosis was confirmed by CT.

Out of 580 patients, 381 were men and 199 were women. Age ranges from 16-69 years with a mean age of 34.5 years. Three hundred and thirty nine (58.4%) patients were symptomatic. Out of 339 symptomatic cases, 141(24.31%) patients had dry cough, 113 (19.48%) chest pain , 110 (18.96%) patients presented with hemoptysis and 31(5.34%) patients presented with sputum. 82/580 (14.1%) patients presented with ruptured hydatid cyst. 159/580 (27.41%) patients were asymptomatic, found to have hydatid cyst incidentally. There were 296 (51%) hydatid cysts on right side, 236 (40.6%) on the left side and 48 (8.27%) patients had bilateral hydatid. Hydatid cystectomy and wedge resection of pulmonary parenchyma were the chief operative procedures in 92.58% (537/580) cases. Lobectomy was done in 35(6.03%) patients, bilobectomy in 6 (1.02%) patients and pneumonectomy in 2 (0.34%) patients, who had giant hydatid cysts involving almost the entire area of the lung or most of the lung tissue severely damaging lung parenchyma. Decortication was performed in 82 (14.1%) cases with ruptured and infected hydatid resulting in empyema formation. Albendazole was prescribed to all patients postoperatively. Patients were followed up for a period of 6 months. Thirty one (5.34%) patients had post operative complications including wound infections in 22 (3.79%) patients, Bronchopleural fistula 5 (0.86%) patients and recurrence in 4 (0.68%) patients. Mortality was 2.06% (12/580) including respiratory failure 08 (1.37%) and septicemia in 04 (0.68%) patients.

DISCUSSION

Hydatid cysts are the most common parasitic disease of the lungs. They are a major health problem in agricultural countries that lack satisfactory preventive medicine, environmental health, and veterinarian services. Echinococcosis is rare in developed countries, greater population mobility and migration may portend an increase in the frequency of this clinical entity.[7] Our country is also a developing country and the disease is not uncommon. Although the liver and the lungs are the usual sites of the disease, cysts can also form elsewhere in the body.[7,8]

Due to the elasticity and compliance of the lung parenchyma, hydatid cysts typically grow faster in the lung than in other organs. Therefore, larger cysts are more common in the lung, where they can grow from a few millimeters to 5 centimeters in 1 year.[9]

Hydatid disease is seen in subjects of any age and sex, although it is more common in those aged 20-40 years.[10] Sixty percent of our patients were in the second and third decades; this finding was similarly reported by Sarsam.[11] In our study, hydatid cysts were more commonly seen in patients aged 35 years and younger.

As shown in our study the prevalence of hydatid cysts was greater in the right lung and in the lower lobes of

both lungs. This is in accordance with some other studies,[12,13] Pulmonary cysts can increase in size substantially without symptoms; but, in general, symptoms depend on the size and location of the cyst, on the amount of pressure the cyst exerts on surrounding tissues, and whether or not the cyst is ruptured.[14] Although most patients who present with hydatid cysts are symptomatic, in our study patients with giant cysts were more frequently symptomatic than were patients with smaller cysts.

We call the surgical procedure a cystectomy because the laminated membrane, germinative membrane, and cystic fluid are removed. Surgery remains the treatment of choice for hydatid cysts of the lung, and a parenchyma-saving operation is usually possible. Preservation of the parenchyma is fundamental to the surgical management of these cysts. However, in cysts that cause parenchymal damage by involving more than 50% of a lobe or that are associated with such sequelae as chronic abscess, bronchiectasis, or severe hemorrhage, lobectomy is performed.[15] Often, it can be difficult to predict preoperatively whether lobectomy will be required. Only after the cystic fluid has been aspirated, the bronchial openings closed, and the lung inflated, do we decide whether to perform resection.

In our study, the percentages of cysts that caused parenchymal damage was 14.1%%, slightly higher than the rates of 7% to 13% [16] reported in the literature.

In the medical literature, morbidity rates for all hydatid cyst surgery range from 3.5% to 27%, whereas mortality rates range from 0 to 2%.[12,13,17-20] If there are less complicated cysts , the bronchial openings are firmly closed, and cavity properly closed, the morbidity rate of hydatid cyst surgery can be very low and the mortality rate almost zero. In our study, the overall morbidity rate was 5.3% and mortality 1.9%.

There are some reports that small cysts can be cured with albendazole.[17, 21] However, we have observed that patients who do not undergo surgical therapy develop ruptures, infections, and hemoptysis after isolated albendazole treatment. That is why we prefer surgical treatment of hydatid cysts.[22,23] In our study Albendazole (10 mg/kg) was prescribed to all patients for as long as 3 months with 14 days interval between each course postoperatively. Four (0.68%) patients had recurrence during follow up in bilateral hydatid lung disease which was operated successfully.

CONCLUSION

Lung-preserving surgical intervention is the treatment of choice in hydatid lung disease however, lung resection can be carried out after assessing viability of the residual lobe. Anthelmintic medical regimen post operatively is also important to prevent recurrence.

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