SURGICAL MANAGEMENT OF HYDATID LUNG DISEASE: EXPERIENCE IN GULAB DEVI HOSPITAL, LAHORE

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ABSTRACT

OBJECTIVE: To evaluate the outcome of surgical intervention for hydatid lung disease in our set up.

METHODOLOGY: This cross sectional study was conducted at department of Thoracic Surgery, Gulab Devi Chest Hospital, Lahore, Pakistan on 72 cases of Hydatid lung disease, operated from 2009 to 2011. Patients of any age of either gender, hospitalized for surgical intervention for Hydatid lung disease were included in the study. Patients declared unfit for surgery or anesthesias were excluded. Standard thoracotomy was the procedure adopted in majority of cases. Sternotomy and Abdomino-thoracic approach was adopted in a smaller group of patients on requirement of location of cysts. Data were collected and analyzed by SPSS version 20.

RESULTS: Male female ratio was 40/32 and most of them belonged to age group 31-50 years. Fifty six (77.8%) patients were symptomatic at presentation. Unilateral cysts were seen in 45 (62.5%) csases, multiple cysts in 15 (20.8%) and bilateral cysts in 12 (16.7%) cases. Ruptured hydatid encountered in 24 (33.3%) cases. Cystectomy and obliteration of space was done in 58 (80.5%), lobectomy in 10 (13.9%) and wedge resection in 4 (5.6%) patients. Postoperative course was uneventful in 60 (83.3%) cases, major complication were observed in 06 (8.3%) patients, minor complications in 06 (8.3%) patients and one (1.4%) patient died. No recurrence was reported during one year of follow up.

CONCLUSION: Surgery for hydatid lung disease is safe in majority of cases as it involves very little morbidity/ mortality and provides complete cure of the disease.

KEY WORDS: Ecchinococcus, Hydatid cyst, Tapeworm.

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INTRODUCTION

Hydatid disease, parasitic infection caused by Echinococcus Granulosus is a zoonotic disease involves human beings accidentally.[1] More than 1 million people are affected with echinococcosis at any one time. It is caused by larvae, which are the metacestode stage of the tapeworm Echinococcus. Out of four forms of Echinococcosis (cystic echinococcosis, alveolar echinococcosis, polycystic echinococcosis, and unicystic echinococcosis), cystic echinococcosis and alveolar echinococcosis are clinically important for human beings.[2] Hydatid disease is endemic in countries where sheep and cattle are raised.[3,4] Dogs and other canines are the definitive hosts while sheep, cattle, horses and pig are intermediate hosts.[5] E. granulosus is the most widespread of the species, with areas of high endemicity in southern South America, the Mediterranean coast; the southern part of the former Soviet Union; the Middle East; southwestern Asia and northern Africa Australia.[5] In Pakistan, a high prevalence of hydatidosis has been reported in the lungs and livers of sheep and goats.[6]

Hydatid cyst can be found virtually in any organ (primary Echinococcosis) and 85-90% show single organ involvement. Lung (25%) is the second most commonly involved organ after liver (63%).[7] Thoracic involvement can occur through transdiaphragmatic route (0.6-16% of cases of hepatic disease) as well as haematogenous spread.[8] Pulmonary cysts need surgical removal as their size can compromise the lung to a great extent. Furthermore, their rupture can lead to death of a patient either due to anaphylactic shock or due to obstruction in respiratory passage because of coughing out of cyst. Surgery is considered the treatment of choice since the parasite can be completely removed and the patient cured.[9] Surgical options for lung cysts include cystectomy, lobectomy and Decortication. Cystectomy is safest possible procedure.

Very few studies are available from Pakistan on pulmonary hydatid cysts.[10,11] Hence this study was planned to evaluate the outcome of surgical intervention for hydatid lung disease in our set up.

METHODOLOGY

This cross sectional study was conducted at department of Thoracic Surgery, Gulab Devi Chest Hospital, Lahore, Pakistan on 72 cases of Hydatid lung disease, operated from 2009 to 2011.

Sample collection criteria

- **Inclusion criteria**
  - Patients of any age of either gender for thoracic surgery for Hydatid diseases.
- **Exclusion criteria**
  - Patients unfit for general anesthesia

Data Collection methods

All 72 cases were operated after taking informed consent from patients/parents/attendants. Basic demographic history like age and gender along its clinical presentation and surgical management was taken from Thoracic surgery department, Gulab Devi hospital Lahore.

Investigations

- X-ray chest PA & lateral view
- Ultrasound abdomen & chest
- CT Scan thorax
- Haemagglutination test

Haemagglutination test was done in all the patients because it is claimed to be positive in cases of hydatid cyst.

Surgical procedure

All the patients were operated at Thoracic surgery department, Gulab Devi hospital Lahore. Standard thoracotomy was the procedure adopted in majority of cases. The approach to the lesion had to be changed in a few. Sternotomy and abdomino-thoracic approach was adopted in a smaller group of patients on requirement of location of cysts.

Statistical analysis

All data was entered and analyzed using SPSS 20 version. Frequency and % were used for qualitative data while mean ± S.D was used for quantitative data.

TABLE I: DEMOGRAPHICAL, CLINICAL PRESENTATION AND MANAGEMENT OF PATIENTS

Characteristics		No. of patients	Percentage
Age (years)	<10 years	4	5.5%
	10-20 years	6	8.3%
	21-30 years	9	12.5%
	31-40 years	32	44.5%
	41-50 years	18	25.0%
	> 50 years	3	4.2%
Location & Site	Unilateral cysts	45	62.5%
	Bilateral cysts	12	16.7%
	Multiple cysts	15	20.8%
Clinical manifestation	Cough	56	77.7%
	Heamoptysis	24	33.3%
	Fever	42	58.3%
	Routine investigations	16	22.2%
Surgical Approach	Standard Thoracotomies	65	90.2%
	Sternotomies	3	4.2%
	Abdomino-thoracic	4	5.5%

TABLE II: PROCEDURE PERFORMED AND OPERATIVE FINDINGS

		Frequency (n=72)	Percentage
Procedures Performed	Enucleation	58	80.5
	lobectomies	10	13.9
	Wedge Resection	4	5.6
Operative findings	Intact cyst	48	66.7
	Ruptured cyst	24	33.3

RESULTS

Out of 72 cases, 40 (55.5%) were males and 32(44.5%) were females. Majority of the patients (n=32; 44.5 %) belonged to age group of 31-40 years while 18(25%) patients were in 41-50 years age group (Table I). Forty-five (62.5%) patients had unilateral cyst and 12 (16.7%) patients had bilateral cyst. Fifty six (77.8%) patients were symptomatic at presentation. Cough (n=56; 77.7%) and fever (n=42; 58.3%) were the commonest presenting complaints. Standard thoracotomy was done in 65(90.2%) patients. Enucleation was done in 58(80.5%) patients and intact cyst was removed in 48(66.7%) cases (Table II).

Postoperative course was uneventful in 60 (83.3%) cases, major complication like prolonged air-leak, pneumonia and empyema were observed in 06 (8.3%) patients and minor complications in 06 (8.3%) patients. One patient died, showing mortality rate of 1.4%. No recurrence was reported during one year of follow up.

DISCUSSION

"When the liver is filled with water and bursts into the epiploon, in this case the belly is filled with water and the patient dies."[12] This 55th Aphorism (Sect. VII) of Hippocrates is probably the first

description of Hydatid disease. Since then, hydatid disease is still prevalent across the globe, involving multiple organs including liver and lung. Infrequently, the lung cysts heal by spontaneous rupture and evacuation into the bronchus. Complications such as infection, abscess formation, bronchogenic spread, and anaphylactic shock occur more frequently.[13-15]

Treatment with drugs like mebendazole, albendazole have been reported.[16-20] but surgery is taken as the gold standard treatment. In 1884 Thomas suggested a technique that consisted of incising the lung parenchyma and removing the cyst.[16] Enucleation was reported by Ugon et al in 194621 and Barrett in 1947.[22] In the same year Allende described simple enucleation of the cyst without capitonnage of the residual cavity.[23] After cystotomy a potential cavity remains, which might permit abscess formation. Although some authors recommend leaving the cavity open,[13,24] we prefer to obliterate it because of the risk of infection after hematoma formation. As a rule the lung parenchyma should be preserved as far as possible in patients with pulmonary disease and radical procedures avoided. If, however, bronchiectasis or severe inflammation is present the affected lung should be excised. In our study the same principle was adopted and resection was done only when lung was fairly diseased.

When bilateral cysts are present some surgeons prefer a two stage thoracotomy, operating on the side with the larger cyst first, but others perform simultaneous bilateral thoracotomies.[25] We performed sternotomy for bilateral cysts on patients choice. The same has been recommended by Cetin G et al.[26] Amer Bilal et al presented data of 200 patients operated in 10 years.[11] This shows that the incidence of disease is almost similar in different parts of Pakistan. Larger number of patients in their series did not have to go for resection surgery and same stands good in our study too. However decortications in our study are nil. The reason for this could be that we received patients without pleural involvement. A simultaneous right lung and liver disease was managed by a single incision in our study. The same is supported by Riza Dogan et al.[27]

The successful treatment with surgical approach is documented by most people. We also received a 100% cure with no recurrence at the same site in one year follow-up. There was 1.4%. mortality in our study. Four out of 200 cases (2%) have been reported expired in contemporary study.[11] This shows that surgical management is pretty safe in treating this disease. We conclude that surgical management is safe in a proper setup for hydatid lung disease. It has a little morbidity/mortality with 100% success with no recurrence during one-year's follow up.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

GSP: Study design, acquisition of data, drafting the manuscript, critical revision, final approval of the version to be published

SS & FAL: Acquisition and analysis of data, drafting the manuscript, final approval of the version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declare no conflict of interest

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