

Lung Hydatid Cysts Surgery: Results of Complicated and Uncomplicated Cases

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Received: November 22, 2021; **Published:** January 31, 2022

Abstract

Objective: We report our experience with complicated and uncomplicated hydatid cysts and discuss the results of surgical treatment.

Methods: The clinical courses of 241 cases with thoracic hydatid cyst were reviewed. Study group was 71 patients with complicated hydatid cyst. Results were compared with previous studies. Cyst specifications were determined by means of conventional radiograph, computerized tomography, intraoperative findings and postoperative pathological diagnosis.

Results: (100%) of the cases were symptomatic in the complicated cyst group. Cystotomy and capitonnage or capitonnage only (70.3%) was the most frequent performed operation procedures. Resection was performed on in 10 patients and calculated ratio was 14% while of all 241 patients, 18 underwent resection with the ratio of 7.5%. The complication rate was within 18% in study group, and 10% in all 241 patients. Correlation could not find between cyst localization and operative complications, as well as hospital stay.

Conclusion: Complicated lung hydatid cysts must be speciosity as a different clinical entity because of their more serious symptoms, with frequent operative complications, and the need for prolonged care with higher costs.

Keywords: Lung Hydatid Cysts Surgery; Uncomplicated Cases

Introduction

Echinococcosis is a parasitic disease and delaying in treatment may cause complications and serious morbidity and treatment difficulties. Ruptured and/or complicated hydatid cysts are called as complicated hydatid cysts. Complicated cyst can cause more morbidity than uncomplicated cysts. These can destruct the tissue causing extra work and overspend. A few studies on complicated hydatid cysts of the lung were found in the surgical literature. More series are mixed in the mean that they include both uncomplicated and complicated hydatid cysts and no comparison each other. Thus, we reviewed our complicated lung hydatid cyst operations recorded in the last 18 years.

Material and Method

We reviewed the archive records of 241 cases that underwent operation for hydatid lung cysts in thoracic surgery clinic from January 2003 to January 2021. Preoperatively, chest x-rays in all patients, computerized tomography selectively respecting to chest x-ray findings and symptoms were studied. Final diagnosis was established by postoperative pathologic examination. Casoni and Weinberg tests were not studied, because they have low speciosity.

Seventy-one cases (28.3%) with ruptured and/or infected of all 251 hydatid cyst patients were regarded as a complicated hydatid cyst (study group). A patient who had both complicated and uncomplicated cysts, was included the study group also. Cyst specifications were

determined by means of conventional radiograph, computerized tomography, intraoperative findings and postoperative pathological diagnosis. Results were assessed together with similar studies. The statistical significance was explored between study group and all 241 patients. Paired samples t-test and Pearson's test for correlation coefficients was used.

Results

Seventy-one cyst (28,3% of all 241) was pathologically and intraoperatively confirmed as complicated. Among the complicated cases, 41 (57%) were male and 30 (43%) were female. The ages were ranged between 3 and 57 (mean 24.7) years. The mean age was 23.3 years in 241 patients ($p = 0.52$). One patient's daughter and one patient's father had been operated for hydatid cyst.

All (100%) of the cases were symptomatic in the complicated cyst group. The most common symptoms were fever 19 (24%), hemoptysis 14 (19.7%), cough 14 (19.7%), thoracic pain 12 (16.9%), dyspnea 8 (11.2%), respectively. Germinative membrane expectoration (hydatoptysis) was detected in anamnesis in 4 (5.6%) patients. On the other hand, only 32% of all 241 patients were symptomatic ($p < 0.05$). Forty-five (63.4%) of cases were in the right, 20 (28.2%) were in the left hemithorax, and six (8.4%) were located bilaterally. Three (4.2%) patients had multiple perforated cysts. The complicated cysts were frequently found in the lower lobe in 46 (64.8%), in the upper lobe in 31 (43.6%), and 10 (14%) in the middle lobe. Six cases (8.4%) had also liver hydatid cysts. Eosinophilia was observed 89% in study group and 35% in all 241 patients ($p < 0.05$).

Insision was the posterolateral thoracotomy in all cases. To prevent cyst fluid dissemination, the pleura was covered with compresses soaked in povidon-iodine (Betadine). The applied operation types were; cystotomy and capitonage (47.8%), cystotomy (without capitonage) (22.5%), cystotomy and capitonage and decortication (15.5%), segmentectomy (4.2%) and lobectomy (9.8%). Cystotomy and capitonage or capitonage only (70.3%) was the most frequent performed operation procedures.

Resection was performed on in 10 patients and calculated ratio was 14% while of all 241 patients, 18 underwent resection with the ratio of 7.5% ($p < 0.05$). Of 6 cases with bilateral hydatid lung cysts, 3 underwent contra-lateral thoracotomy in 2 3 weeks and other 3 underwent median sternotomy.

Seven (9.8%) cases had air leakage duration for more than 10 days. All had resolved by the treatment of bronchoscopic aspiration and negative pressure application for chest tube. Two (2.8%) patients had atelectasis needing bronchoscopic aspiration. One patient (1.4%) had empyema, underwent decortication 23 days after operation. One patient (1.4%) had wound infection, took antibiotic treatment according to culture. Within 2 weeks, his infection was resolved. One patient (1.4%) had pneumonia, took antibiotic therapy according to sputum culture and resolved within 3 weeks. One patient (1.4%) had bronchopleural fistula, treatment with chest tube, respiratory physiotherapy and antibiotic therapy was successful. Two cases received reoperation, one from postoperative massive air leakage and other from postoperative excessive bleeding from chest tube (950 ml for 3 hours). In re-operations, it was found open bronchi and intercostal artery bleeding respectively. Two cases (3%) were lost, one due to respiratory failure in third postoperative day and other due to cardiorespiratory failure when she was under respiratory treatment. The complication rate was within 18% in study group, and 10% in all 241 patients ($p < 0.05$).

The hospital stay after operation was between 7 and 51 (mean 9.6) days. It was 8.4 days in all 241 patients ($p = 0.09$). No recurrence was recorded in study group while one of non-complicated patient came with recurrence within mean 3.6 years of follow up period.

No correlation between the cysts localization and postoperative complications as well as hospital stay ($p = 0.4$ and 0.35 respectively). The age was neither correlated with operative mortality nor hospital stay ($p = 0.25$ and 0.2 respectively). Operation type had correlation with complications. Lung resections had the higher morbidity than other operative methods (cystotomy, capitonage, etc) ($p < 0.05$).

Associated hepatic hydatid cyst is located on the diaphragmatic surface of the liver, was treated with trans-diaphragmatic approach and by laparotomy.

Discussion

In Turkey, hydatid cysts is well known and no diagnostic difficulties is lived due to being endemic of the disease, especially for non-complicated hydatid cysts of the lung. Radiology, even simple chest X-ray and computerized thoracic tomography generally establishes the diagnosis [1,2]. An exact diagnosis needs pathological study done postoperatively. The criteria for perforation of hydatid cysts were as follows: history of cough with haemoptysis, blood stained sputum, salty fluid in taste on expectoration with or without membrane and radiologically cavity filled with air, fluid level in the cavity and waterlily appearance within cavity [2]. All cases were symptomatic in present study with fever and hemoptysis as frequent symptoms.

No inoperable (cardiac or pulmonary insufficiency) case was present in all of our cases. Surgical treatment of lung hydatid cysts must be performed in the manner of parenchyma protecting [3-5]. Most surgeon, like us, were preferred this (cystotomy and capitonnage). In the cases with bilateral involvement, either median sternotomy or posterolateral thoracotomy in the manner of different operations can be successfully used [6,7]. We performed on median sternotomy in three cases and consecutive thoracotomies in other three cases that had bilateral cysts. It must be emphasized that in cysts with posterior location, posterolateral thoracotomy must be preferred. Resection of the lung must be avoided for two reasons; the compressed lung parenchyma is generally healthy and should be expanded postoperatively, and the second reason is the possibility of recurrence of hydatid cyst. Lobectomy procedure must be performed when the complications such as suppuration, pulmonary fibrosis and bronchiectasis consuming more than 50% of one lobe [8]. The resection rates are not low and variable in different studies (4.3% to 48.3%) [1,3,7,9,10]. All of these studies include both complicated and non-complicated hydatid cysts together with. In our study, resection rate was 14% in complicated hydatid lung cyst group, and 7.4% in all 241 patients. These percent have statistically significant difference.

Postoperative complications were influenced by neither the type of operation nor the age of the patient. The complication rates were reported between 13% and 19% in literature; death from respiratory insufficiency and empyema had been encountered after operation [1,2,3,8]. Recurrence was not detected. Two cases died postoperatively. We found that, the morbidity was approximately 18% in study group There was a statistical difference between study group and entire group. Also, correlation was absent between the cyst's placement and the age. Additionally, no correlation was found cyst's placement and between postoperative complications as well as hospital stay. Lung resection for the lung hydatid cyst have higher complication rate than cystotomy and/or capitonnage.

Authors suggest medical treatment in only inoperable cases due to cardiac and/or pulmonary performance status or in preventing postoperative recurrences. A perforation may be occurred in the time of medical treatment. It has been found no correlation between cyst diameter and intracystic pressure [11]. Sudden rupture is harmful as the disease might spread, death may occur due to anaphylactic shock [12] and may have serious allergic, obstructive or infective sequele [11]. Prophylactically, postoperative Albendazole at 10 mg/kg per day for 1-3 months was prescribed in some patients.

Conclusion

Complicated lung hydatid cysts must be accepted more dangerous than uncomplicated ones. They are idiosyncratic, having different clinical and surgical specifications. They have more serious, as symptoms as well as more frequent and higher operative complications. They may need for prolonged hospital stay and even intensive care. Thus, management may be more costly. This study mentions the risks of perforation and importance of the speedy treatment.

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Volume 11 Issue 2 February 2022

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