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Pediatric Surgery

Hydatid Disease in Children, Our Experience at Queen Rania Al Abdullah Hospital

Gaith Khassawneh[1*], Waseem Almefleh[1], Hiba Abbady[1], Adnan Bawaneh[1], Amer Elbrahem[1], Ahmad Alraymoni[1]

[1]Department of Pediatric Surgery, Jordan Royal Medical Services, Queen Rania Hospital, Amman, Jordan

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***Corresponding author:** Gaith Khasawneh

Abstract **Original Research Article**

Background: Hydatid disease in children is one of the commonest proplems in pediatric age group in Jordan. It is complications is the main concern of pediatric surgeons in Queen Rania Alabdullah Hospital for children. ***Objective:*** The aim of our research is to represent our experience in dealing and management of children with hydatid disease in Queen Rania Al Abdullah Hospital for children. ***Materials and methods:*** Retrospective study was conducted over period from Feb 2011 till Sep 2019, the medical records of 63 patients with hydatid disease who were treated in our centre were collected. Demographic data, site of disease, complications, and outcome were demonstrated and analysed. ***Results:*** 63 patients with hydatid disease were seen in our centre since 2011 till 2019. 39 were males and 24 females with male to female ratio (1,6:1) Mean age was 8,5 years, ranged from 2,3 to 14,8. Single organ involvement was seen in 55 patients versus 8 patients with multiple organs. ***Conclusion:*** Hydatid disease is a common proplem in our country. Lung involvement is the most common involved organ in pediatric age group. Surgery is the main modality of treatment with high success rate and low complications.

Keywords: Hydatid disease, pediatric surgery, lung and liver cyst.

INTRODUCTION

Hydatid disease is a zoonotic disease with Echinococcus spp. (tapeworm) is the main cause [1].

This worm lives in dogs and domestic animals, and transmitted to humans who are the intermediate host through ingestion of contaminated food with tapeworm eggs [2].

Hydatid disease is a world wide proplem and endemic in agricultural areas such as Africa and Australia [3].

In Jordan it is endemic in rural areas like Mafraq and Irbid, where a lot of families take care of animals.

In contrast to adults where liver is the most common involved organ, lung is the main infected organ in children, and more common in right lower lobe [4].

Hydatid disease is usually asymptomtic and discovered accidentally, The symptoms are usually related to the site and the size of the cyst, and it is complications if started to appear [5].

Hydatid disease may involve any organ, but in 90% of cases it affect liver and lung [1].

Diagnosis of hydatid cyst is usually difficult, due to non specific symptoms, but usually we depend on radiological modalities such as ultrasound, computed tomography scan, and serology test [5, 6].

Despite the advances in interventional and cystoscopic modalities, still open surgery is the main method of treatment for patients with hydatid disease [1].

Medical treatment with albendazole for 3-6 months is still the worldwide accepted protocol till now [7].

In our study we reviewed the medical records for patients with hydatid disease who were treated in our centre to show our experience and analyze the epidemiology of this disease and our results in the

management, as we are considered the main referral centre in Jordan.

MATERIALS AND METHODS

A retrospective study was conducted at Queen Rania Al Abdullah Hospital for children, Amman, Jordan from February 2011 till Septemper 2019.

63 patients were diagnosed to have hydatid disease over this period and surgical intervention was done in all of them.

All of those patients were diagnosed via clinical assessment and serology test for the Echinococcus titre plus imaging modality, mainly Computed tomography scan (CT) before surgery.

Preoperative treatment with albendazole was started for all our patients for 3-4 weeks before sending them for surgery, with exclusion of cases which were presented with rupture.

Hospitalization for 1 day preoperative for baseline investigation (complete blood count, Chemistry), and blood preparation was the rule in the elective cases.

A consent form was signed by parents after the explanation of the risk of surgery and possible complications.

Under general anaesthesia, either postlateral thoracotomy for lung cyst, or right transverse laporatomy incision for liver cyst are the usual approach.

Injection of the cyst with hypertonic saline 3%, before doing cyst deroofing and edge marsipalization was our main intraoperative policy.

All patients with lung hydatid cysts were admitted to the intensive care unit for 1-2 days post thoracotomy, and to general pediatric surgery floor post laporatomy. The usual hospitalization for our patients range from 5-7 days.

Demographic data, results, and outcome were analyzed for all patients to review our experience in managing hydatid disease in pediatric age group.

DISCUSSION

Pediatric hydatid disease is a major health proplem worldwide especialy in endemic countries8. The diagnosis based on clinical presentation, immunoglobulin, and imaging modalities like ultrasound and computed tomography scan [9].

39 males 24 females were infected with hydatid cyst in our study with slight male predominance in Jordan(1,6:1), although Gulun8 reported an equal sex distribution in his study and this variation may be due to our cultural habits as males deal with animals more than females [8].

In our study we reported lung is the most frequent organ to be involved in children, although in adult liver is the most common affected organ, and also Bakal 10 reported in his study that lung is the most common affected organ in children [10].

Aslanabadi 11 reported that right lung is more commonly involved than lt lung, and this support our study results as we also found that right lung is more commonlyh involved than lt lung in children [11].

12,7% of lung hydatid patients were presented to our centre with ruptured cyst , and were admitted to intensive care unit, and this percentage is considered high in comparison to Gulson 8 study who reported a 9,3 % patients with lung hydatid cysts presented with rupture.

And this is mostly due to delayed presentation of our patients to medical staff as they live in rural areas and usually they did not seek medical care.

In our series we reported morbidity in eight patients (12,7%). Air leak was the the commonest, which was seen in four patients, and all of them presented to our hospital with ruptured hydatid cyst and treated conservativey except one case, which underwent reexploration, and one case of lung hydatid cyst recurrence, Two cases with liver recurrence and one case with bile leak which were treated surgically. So we did redo surgery in five cases (7,9%).

Balci 12 reported in his series a morbidity of (25,4%) which is higher than our results and he also he mentioned that air leak is the commonest postoperative complication.

So we can say that our results are excellent and also we did not report any mortality in comparison with Balci who reported a mortality of 4,7% [12].

Shamsier 13 reported in his research that surgical approach remains the cornerstone in hydatid cyst disease management.

In our centre we still depend on open surgical approach with cyst injection intraoperatively with hypertonic saline for 10 minutes and evacuation of cyst and marsupilization, followed postoperatively with albendazole for 6-12 months, and this lead to high sucess rate and low morbidity.

RESULTS

63 patients with hydatid disease were seen in our centre since 2011 till 2019, 39 (61,9%) were males

and 24 (38,1%) females with male to female ratio (1,6:1). Mean age was 8,5 years (ranged from 2,3 to 14,8 years).

55 (87,3%) patients presented with Single organ involvement, and the lung was the most frequent organ to be involved in 29 cases (52%) followed by liver in 26 cases (47%). Regarding multiple organ involvement we had eight patients, seven of them presented with two organs involvement (liver and lung), and one with three organs involvement (liver, lung, and brain).

The endemic cities for hydatid disease are Mafraq and Irbid which consistute around 60% of cases.

All patients were treated post surgery with albendazole for 6-12 months ,and all patients were followed in clinic with ecchinococus titre, abdomen ultrasound, chest x-ray, and liver function test every six weeks till finishing albendazole treatment, then every three months for the second year.

Ecchinococus titre becomes negative up to 90% after one year of medical treatment.

Eight (12,7%) patients of lung hydatid cysts presented with complication of rupture, and they were admitted to intensive care unit before surgery , and scheduled for emergency surgery after stabilization, four of them had persistent air leak postoperative, three managed conservatively, while the fourth one underwent second look thoracotomy. In contrast to liver hydatid cyst where none of our patients presented with rupture.

Five (7,9%) patients of all our study underwent redosurgery, three cases were liver hydatid cysts ,while the other two cases were lung hydatid cysts. Regarding lung cysts, the redo surgery was for recurrence in one case and for air leak in the other case.

Regarding redo surgery for liver hydatid cysts, two patients had recurrence while the third one had bile leak that failed to respond to conservative treatment.

CONCLUSION

Hydatid cyst disease is a common problem among children in Jordan.

Clinical diagnosis with radiological and immunological serology is our approach to diagnose hydatid disease.

Surgical cyst evacuation, and long term medical treatment with albendazole remain the best choice with excellent results and low morbidity.

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