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"Clinical Profile and Management of Hydatid Cyst of Liver in Igmc: A Prospective Study"

Dr. Gopal Singh, Prof. R. S. Jhobta, Dr. Sumala Kapila, Dr. Siva Rahul Vunnamatla*.

Department of Surgery, Indira Gandhi Medical College, Shimla, Himachal Pradesh, India.

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ABSTRACT: Background: Hydatid cysts are often encountered in sheep rearing communities including the Indian subcontinent. This is due to the common occupation of farming and cattle rearing of the people belonging to the rural areas. Most commonly effected organ is liver (~65%), in which right lobe is predominantly involved in 50-70%, especially segment VII of liver. Cyst size of >10cm tend to form cystobiliary communication (CBC) and cyst wall thickness of <2mm tend to rupture spontaneously or even on trivial trauma leading to disseminated abdominal hydatidosis.

Material and Methods: A prospective study of 50 patients, who were admitted, managed medically or surgically over a period of 2 years was included in the study for Hydatid Cyst Liver (HCL) at Indira Gandhi Medical College (I.G.M.C.), Shimla. Among the 50 patients, 29 patients under gone surgical management and 21 patients were managed medically.

Results: In this study, ultrasonography (U.S.G.) was done in 100% of the patients with 98% sensitivity and 96% specificity. Computed tomography (C.T. scan) was also done in 100% of the patients to get information about the cyst site (segment), character of the cyst, size and communication if any. Magnetic Resonance Cholangio-Pancreatography (M.R.C.P.) was done in 5 patients who had deranged liver function tests (LFT) and dilated common bile duct (CBD) on U.S.G. Cyst size >10 cm and wall thickness of <2 mm was present in 5 patients out of which 2 had CBC. Out of 50 patients, 29 patients were taken up for surgery, which comprised of enucleation (90%), cystopericystectomy (7%), pericystectomy (3%) and residual cavity was managed with captionnage (40%), omentopexy (30%), external drainage of cavity (25%) and deroofing with evacuation of cysts (5%). CBC was managed by taking sutures in the cavity (under-run) in 3 patients (60%) and CBD was explored with T-Tube drainage in 2 patients (40%). 21 patients were managed conservatively with Albendazole (15mg/kg body weight) for 6 months with 2 weeks interval in between. Regular follow up of the 50 patients for involution of the residual cavity, prolonged bile leak, recurrence or for any side effects of drugs was done over a period of 1 year. Those patients who had underwent external drainage for residual cavity had longer hospital stay due to persistent biliary drainage and required postoperative Endoscopic Retrograde Cholangio-Pancreatography (E.R.C.P.).

Conclusion: Diagnosis is based on clinical examination, radiological findings and serological reports. Most commonly multi-segment (Segment VI+VII+VIII (40%)) involvement is seen in hydatid cyst. Most patients present with Gharbi Type II hydatid disease. Cyst size >10 cm and cyst wall thickness <2 mm are prone to develop CBC and have high chances of internal or external rupture. Main stay of treatment is surgery for any patient with cyst size more than 5 cm. In patients who undergo external drainage procedures for residual cyst cavity have longer hospital stay owing to complications like persistent biliary drainage and wound sepsis. Hence external drainage of residual cyst cavity is not advocated as per the present study.

Key words: Hydatid cyst liver, cystobiliary communication (CBC), epidemiology of hydatid liver disease, surgery in hydatid cyst liver, management of residual cavity.

I. INTRODUCTION

Liver is the most commonly involved organ (~65%) of abdominal hydatid disease, in which right lobe of the liver is predominantly involved (50-70%) especially segment VII. Patient may remain asymptomatic for a long time. Symptoms are due to enlarged cysts which cause a mass effect on surrounding tissue except when they occur in the brain or the eyes. The growth of the cyst in liver is variable, ranging from 1 mm to 5 mm in diameter per year. Most symptomatic cysts are larger than 5 cm in diameter. Obstructive jaundice is observed when a large cyst (usually >10cm) exerts extrabiliary compression or due to presence of CBC, where the hydatid membranes

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slip into the main biliary ducts or CBD causing biliary flow obstruction and symptoms can simulate choledocholithiasis. It may also produce a very similar picture as ascending cholangitis.[1]

Diagnosis is established by taking good history, clinical examination, serological and radiological reports. As there is no effective medical therapy for recurrent hydatid cyst so surgery is still the first-choice treatment. Administering pre and post-operative anti-helmintic drugs and using scolicidal solutions intra-operatively tends to kill the living daughter cysts, prevent the risk of spillage, and reduce the recurrence rate post-operatively.[2] Theoretically the best surgical procedure is resection i.e. removal of the entire cyst along with the pericyst. This procedure fulfills the most important objectives of hydatid surgery with prevention of spillage and complete removal of parasite, but in the majority of the cases it may involve a major liver resection which may increase the operative risk. Total cystectomy is only feasible in patients with pedunculated cysts with minimal surface contact with the host organ.

The various conservative procedures like enucleation, pericystectomy, cystopericystectomy with neutralization of the cysts contents with scolicidal agents and management of residual cavity by capitonnage, deroofing with evacuation of cysts, omentopexy are done. CBD exploration with T-Tube drainage is done in obstructive jaundice patients. CBC of hepatic hydatidosis is one of the important complications. It may be minor or major and is usually diagnosed during surgery by presence of bile stained hydatid fluid. Proper evacuation of daughter cysts should be done to avoid recurrence of hydatid disease. There are many scolicidal agents available, among which cetrimide (0.5%) was favoured as there are no complications.

Liver segment involved	**Type of Cyst (Gharbi Type)**	**Cyst size**	**Cyst wall thickness**		**Presence of CBC with size**	**Operative procedure**		**Complications**	**Post operative ERCP**	**Average hospital stay in days**
			Wall thickness	**No. of patients**		**Procedure**	**CBC management**			
Segment II+IV (a+b) Segment V+VI Segment VII+VIII	Type IV Type IV Type V	1-5 cm	1-2 mm 3-5 mm 6-7 mm	2 8 11	Nil Nil Nil	All the patients in this group were managed by medical treatment (Albendazole 15 mg/kg body weight) for 6 months with follow up.				
Segment VI+VII+VIII Segment	Type II Type III	6-9 cm	1-2 mm 3-5 mm	10 10	1 (0.5 cm) Nil	Enculeation with Captionnage (10) Enculeation with Omentopex	CBC ligation (1) -	Wound sepsis – 1 Nil	No No No	10 days 7 days 12 days

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VI+VII+VIII Segment IVb+V+VI	Type II		6-7 mm	1	1 (1 cm)	y (8) Enucleation with External drainage (2) Enucleation with Deroofing (1)	- T-Tube drainage of CBD (1)	Wound sepsis – 1 Nil	No	9 days
Segment V+VI+VII Segment II+III Segment II+III	Type II Type III Type II	>10 cm	1-2 mm 3-5 mm 6-7 mm	5 2 1	2 (1 cm) 1 (1 cm) Nil	Enucleation with External drainage (5) Cystopericystectomy (2) Pericystectomy (1)	CBC ligation (2) T-Tube drainage of CBD (1) -	Persistent biliary drainage – 4 Wound sepsis – 1 Nil	Done in 4 patients No No	14 days 16 days 10 days

Table. 1: Cumulative data of the study.

II. RESULTS

On C.T. scan, most of the patients had multiple segments involved, out of which majority of the patients (20) had Segment VI+VII+VIII (40%) involvement. Segment II+III was involved in 3 patients (6%). Segment VII+VIII was involved in 11 patients (22%). Segment V+VI was involved in 8 patients (16%). Segment V+VI+VII was involved in 5 patients (10%). Segment II+IV(a+b) was involved in 2 patients (4%). Segment IV(b)+V+VI was involved in 1 patients (2%). No Hydatid cyst disease was found in segment I.

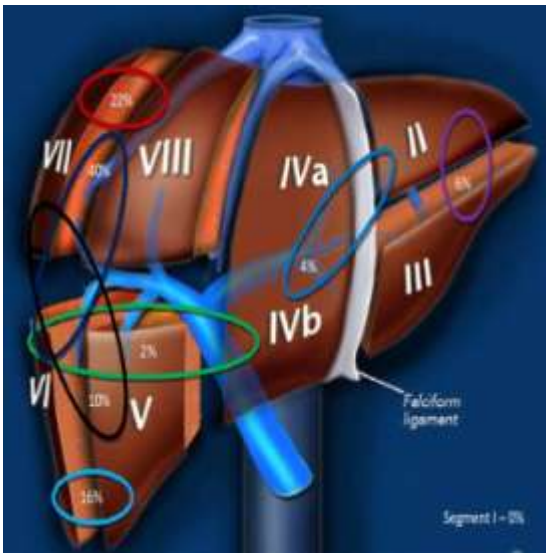

Image. 1: Percentage of liver segments involved in hydatid cyst disease. (©Anatomy of the liver

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segments by Robin Smithuis and Eduard E. de Lange)

Medical management was advised for 21 patients, due to preexisting complications making the patients unfit for surgery and also due to already calcified hydatid cyst at diagnosis [Gharbi[3] cyst type IV+V]. 2 patients had cyst size of 1-5 cm with 1-2 mm wall thickness, 3-5 mm wall thickness was seen in 8 patients, 6-7 mm wall thickness was seen in 11 patients who were all managed medically. Patients were started on Albendazole (15 mg/kg body weight) and were kept in close follow up for complications for 1 year. In this group of patients, 6 patients had hydatid disease recurrence.

Among the 29 patients, who were managed surgically, 17 patients had Gharbi type II cyst and 12 patients had Gharbi type III. On C.T. scan, 21 patients had cyst size of 6-9 cm out of which 10 patients had 1-2 mm wall thickness, 10 patients had 3-5 mm wall thickness and 1 patient had 6-7 mm wall thickness. 8 patients had cyst size of >10 cm out of which 5 patients had 1-2 mm wall thickness, 2 patients had 3-5 mm wall thickness and 1 patient had 6-7 mm wall thickness.

CBC ligation was done in 1 patient among the 10 patients who had undergone enucleation with captionnage, who had CBC size of 0.5 cm, in these patients the cyst size was 6-9 cm with 1-2 mm wall thickness. 8 patients had undergone enucleation with omentopexy, 2 patients had undergone enucleation with external drainage that had wall thickness of 3-5 mm and 1 patient had undergone enucleation with deroofing with T-Tube drainage of CBD who had CBC of size 1 cm and wall thickness of 6-7 mm.

CBC ligation was done in 2 patients among the 5 patients who had undergone enucleation with external drainage, who had CBC size of average 1 cm and wall thickness was 1-2 mm in which 4 patients had persistent biliary drainage in postoperative period and E.R.C.P. had to be done to manage biliary fistula. T-tube drainage of CBD was done in 1 patient among the 2 patients who had undergone cystopericystectomy for CBC size of 1 cm and wall thickness of 3-5 mm. 1 patient had undergone pericystectomy of wall thickness 6-7 mm. The cyst size noted in this group was >10 cm.

Patients who had undergone external drainage had longer hospital stay of average 11.14 days due to complications like persistent biliary drainage (in 4 patients) and wound sepsis (in 3 patients).

III. DISCUSSION

Among the 50 cases, multiple liver segments of right lobe of liver were mostly commonly involved with the commonest site being Segment VI+VII+VIII (40%). The cyst sizes of 1-5 cm with Gharbi cyst type IV and V were managed medically. According to the present study, cyst size of >10 cm with wall thickness of <2 mm had more chances of CBC. According to a study conducted by El Nakeeb et. al.[4] cyst size was the only independent predictor for the occurrence of CBC. Management was related to the size of the fistula, the site of the cyst. E.R.C.P. is an important option for the management of CBC.

29 patients were treated by conservative surgical procedures as it remains the treatment of choice in liver hydatid disease. Sterilization of the cyst cavity was achieved with cetrimide (0.5%) and had no side effects or complications.

Studies conducted by Langer JC et. al.[5] (1983), Hashemain[6] (1980) suggested that many agents, such as chlorhexidine, 80% alcohol, 0.5% cetrimide, and hypertonic saline are effective scolicidals, and appear to be safe, even when biliary tract communication exists.[5,6]

Complications in the form of persistent bile drainage were observed in patients who had cyst size of >10 cm and wall thickness of <2 mm with CBC and had underwent external drainage procedures for infected cyst cavity had prolonged hospital stay. This was managed with postoperative E.R.C.P. The average postoperative hospital stay was 11.14 days as per the present study and mortality was 0%. Study conducted by Magistrelli et. al.[7], out of 135 patients, 64 patients underwent radical surgery, operative mortality was 2.2% and mean hospital stay was 20 days but better short and long term results were obtained with the use of radical procedures.

IV. CONCLUSION

Diagnosis is based on clinical examination, radiological findings and serological reports. Most common site for hydatid cyst is Segment VII of liver. Most patients present with Gharbi Type II hydatid disease. Cyst size >10 cm and cyst wall thickness <2 mm are prone to develop CBC and have high chances of internal or external rupture. Main stay of treatment is surgery for any patient with cyst size more than 5 cm. In patients who undergo external drainage procedures for residual cyst cavity have longer hospital stay owing to complications like persistent biliary drainage and wound sepsis. Hence external

drainage of residual cyst cavity is not advocated as per the present study.

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