

Role of preoperative chemotherapy on recurrence in operated pulmonary hydatid cysts.

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Received: 02-Nov-2020, *Manuscript No. AACTS-20-21520*; **Editor assigned:** 5-Nov-2020, *PreQC No. AACTS-20-21520 (PQ)*; **Reviewed:** 19-Nov-2020, *QC No. AACTS-20-21520*; **Revised:** 12-Sep-2022, *QI No. AACTS-20-21520, Manuscript No. AACTS-20-21520 (R)*; **Published:** 10-Oct-2022, *DOI: 10.35841/aaacts-5.4.121*

Description

Albendazol for Echinococcus infection is described in different studies. There have been many encouraging studies on medical treatment of pulmonary hydatid disease. Surgery however, remains the treatment of choice, with various approaches used to save as much of the lungs as possible. Recurrences appear because of intraoperative spillage of the hydatid daughter cysts into the pleural cavity. The study was to know the role of preoperative chemotherapy with albendazol on the recurrence of disease in patients operated for pulmonary hydatid cysts. We divided the study patients in two groups, each of forty patients suffering from pulmonary hydatid disease. One group was administered a standard chemotherapy course with albendazol for 3 weeks duration before surgery. Another group labelled as control, was not offered any preoperative chemotherapy of albendazol and were taken straight for surgery [1-3].

Among the 40 patients who received 3 weeks chemotherapy course with Albendazol none had any recurrence of the disease up to 3 years of follow up. Among the 40 control patients who did not receive any form of preoperative chemotherapy, 6 patients developed disease recurrence. 3 patients had recurrence in the same lung and same lobe. 2 patients had recurrence in the same lung but adjacent lobe while as one had recurrence in the contra lateral lung. Preoperative short single course of chemotherapy can be considered safely in patients with single or multiple small pulmonary hydatid cysts with a considerable low risk of disease recurrence [4-6].

Hydatid disease of the lung still remains an important healthcare problem globally. It is caused by larvae of the tapeworm Echinococcus. In the commonest cystic type of echinococcosis, humans are an accidental host and are usually infected by handling an infected house hold animals. The lesion comprises of an endocyst containing numerous daughter cysts and larvae. Endocyst is covered by a thick fibrotic layer lined along the healthy lung parenchyma, which is believed to be result of host inflammatory response, the pericyst. The liver and lungs are the most frequently involved organs. Pulmonary disease appears to be more common in younger individuals apparently because of their frequent encounter with infected animals [7,8].

Surgery is presently the definitive treatment method in the majority of pulmonary hydatid disease cases, but the benign parasitic nature of the disease may lead health professionals to attempt to cure the disease with medical therapy. Medical

treatment with albendazol for Echinococcus infection is described in different studies, and the cure rates are estimated at between 34% and 57%. There have been many encouraging studies on medical treatment of pulmonary hydatid disease due to *Echinococcus granulosus* infection. Surgery, however, remains the treatment of choice, with various approaches used to save as much of the lungs as possible. Recurrences appear because of intraoperative spillage of the hydatid daughter cysts into the pleural cavity, with most studies indicating recurrence rates for pulmonary hydatid disease of 4.6%-22.0%.

This was a prospective study. The study was done in the department of cardiovascular and thoracic surgery SKIMS soura Srinagar Kashmir from November 2016 to January 2020. After ethical clearance from institutional ethical board. We studied two groups each of forty patients suffering from pulmonary hydatid disease. One group was administered a standard chemotherapy course with albendazol for 3 weeks duration before surgery. Another group labelled as control, was not offered any preoperative chemotherapy of albendazol and were taken straight for surgery. Rest all the parameters of general surgical care were kept universal. Each group was followed postoperatively for any recurrence of the disease. The mean age of presentation was 34 years with a male to female ratio of 1:1.2.

All the included patients had a solitary uncomplicated single lung hydatid cyst. The average cyst size was 9 cm, (range of 6 cm to 15 cm) involving the right middle lobe in nearly 55% of patients. In 28% patients the left apical lobe was involved. 11% patients had right lower lobe involvement while as lingular lobe was involved in 6% of the patients. Among the 40 patients who received 3 weeks chemotherapy course with Albendazol none had any recurrence of the disease up to 3 years of follow up. Among the 40 control patients who did not receive any form of preoperative chemotherapy, 6 patients developed disease recurrence. 3 patients had recurrence in the same lung and same lobe. 2 patients had recurrence in the same lung but adjacent lobe while as one had recurrence in the contra lateral lung. The mean interval between the completion of chemotherapy and surgery was 4 weeks [9-11].

Recurrence after surgical treatment of pulmonary hydatid cyst disease is not uncommon. A variable number of factors have been implicated in this recurrence, ranging from poor immune status of the patient to re exposure to the causative agent to

poor surgical technique employed. Accidental rupture or spillage of cysts during the operation might lead to consequent regrowth of the cysts. Thus, the operative field should be kept clear of contamination by irrigating the pleural cavity with hypertonic saline. Also, the cysts should be handled with very gentle manipulation. These precautionary measures along with chemotherapy and a thorough follow-up program might avoid recurrence of the disease. The compounds of benzimidazole lower the glycogen levels by interfering with glucose absorption through the hydatid cyst membrane. The endoplasmic reticulum and mitochondria of germinal cells undergo degenerative changes, while cellular autolysis arises from the increase in lysosome number and activity.

Preoperative albendazole treatment weakens the walls of pulmonary cysts and might cause their rupture, resulting in complications, and therefore, be selectively applied to patients who are candidates for surgical treatment. The current recommendation for primary treatment of liver and lung cysts from *E. granulosus* is three months continuous albendazole at approximately 10 mg/kg/day in two divided daily doses. We administered the same regime of chemotherapy in forty of our study group patients and operated them after a mean interval of 6 weeks. However in none of our 40 patients who received the full course standard chemotherapy did the complications of cyst rupture occur, and other than that, none had the recurrence of disease. With these considerations and the anticipated effect on cyst wall tensile strength further studies need to be undertaken to validate the role of chemotherapy preoperatively [12].

Preoperative short single course of chemotherapy can be considered safely in patients with single or multiple small pulmonary hydatid cysts with a considerable low risk of disease recurrence. Intraoperative spillage of fluid must be avoided with adequate irrigation with scolicidal agents in cases of accidental spillage. A long term follow up is required for such patients for any recurrence.

References

1. Dogan R, Yuksel M, Cetin G. Surgical treatment of hydatid cysts of the lung: Report on 1055 patients. *Thorax*. 1989;44(3):192-99.
2. Khuroo MS, Dar MY, Yattoo GN, et al. Percutaneous drainage versus albendazole therapy in hepatic hydatidosis: A prospective, randomized study. *Gastroenterol*. 1993;104(5):1452-59.
3. Wen H, Yang WG. Public health importance of cystic Echinococcosis in China. *Acta Tropica*. 1997;67(2):133-45.
4. Ozan Usluer, Ozgur Samancilar, Kenan Can Ceylan, et al. The effect of preoperative albendazole treatment on the cuticular membranes of pulmonary hydatid cysts. 2011;38:4700-01.
5. Sokouti M, Golzari SE, Kayhan S, et al. Recurrence following pulmonary hydatid disease surgery. *World J Emerg Surg*. 2014;38(1):266-67.
6. Aggarwal P, Wali JP. Albendazole in the treatment of pulmonary Echinococcosis. *Thorax*. 1991;46(8):599-60.
7. Saimot AG, Cremieux AC, Hay JM, et al. Albendazole as a potential treatment for human hydatidosis. *Lancet*. 1983;322(8351):652-56.
8. Kurkcuoglu IC, Eroglu A, Karaoglanoglu N, et al. Complications of albendazole treatment in hydatid disease of lung. *Eur J Cardio Thorac Surg*. 2002;22(4):649-50.
9. Keramidas D, Mavridis G, Soutis M, et al. Medical treatment of pulmonary hydatidosis: Complications and surgical management. *Pediatr Surg Int*. 2004;19(12):774-76.
10. Dogru D, Kiper N, Ozcelik U, et al. Medical treatment of pulmonary hydatid disease: For which child? *Parasitol Res*. 2005;54(2):135-38.
11. Little JM, Hollands MJ, Ekberg H. Recurrence of hydatid disease. *World J Emerg Surg*. 1988;12(5):700-3.
12. Morar R, Feldman C. Pulmonary echinococcosis. *Eur Respir J*. 2003;21(6):1069-77.

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