

THE USE OF ALBENDAZOLE IN A CASE OF HYDATID CYST WITH MULTIPLE ORGAN INVOLVEMENT

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ABSTRACT

In the treatment of hydatid cysts, surgical intervention is still the primary method. In cases with multiple organ involvement, medical treatment with the benzimidazole group drugs (Mebendazole-Albendazole) has been reported to reveal promising results. We reported this case because of multiple organ involvement including posterior fossa involvement which is quite rare. We also discussed treatment results and drug efficacy with the literature review. A 24 year old female presented to our department with complaining of headache, cough and a foul smelling fluid regurgitating from the mouth that was of 15 days duration. Multiple cysts of various sizes and location were revealed on the chest x-ray. Multiple cysts in the liver, spleen, and kidneys were seen on the abdominal ultrasonography, and a cystic formation in the posterior cranial fossa was observed on the cranial computerized tomography. The indirect hemagglutination test was positive at the titration of 1:92400. Five courses of therapy each lasting four weeks with 800 mg/day Albendazole led to the dissolution of the cysts in the brain, kidneys and decrease in the number and / or size of the cysts in the spleen and liver. The contents of the cysts in the lungs were drained with the cyst wall being visible on x-ray.

Key Words: Albendazole, Multiple organ involvement, Hydatid cyst

INTRODUCTION

Echinococcus granulosus is a cestode responsible for the hydatid cyst, a parasitic infestation. It is endemic in the regions of South America, Australia, North Africa,

Mediterranean and Middle Eastern countries. It is also endemic in Turkey and is a common parasitic disease with the incidence 1:2000 (1).

The hydatid cyst is generally asymptomatic clinically, but has a considerable rate of morbidity and in rare cases leads to mortality. The liver is commonly affected (60-70%), with lung (10-30%), muscle, kidney, spleen, bone, thyroid, and pancreas involvement following. There is brain involvement at a rate of 1-2% (2).

Definite diagnosis may be established by radiology, ultrasonography, computerized tomography, and serology. Echinococcal Indirect Hemagglutination Test, Casoni Skin Test, ELISA, or Complement Fixation Test are applicable serological investigation methods.

In the treatment, surgical intervention is still the primary choice. However benzimidazole group of pharmaceuticals may be preferred in medical therapy when there are multiple cysts. The response to therapy varies according to the localization and size of the cysts (3,4).

CASE REPORT

A 24-year-old female presented to our department with the complaints of headache, cough and a foul smelling fluid regurgitating from the mouth that was of 15 days duration. There were bilateral rales and rhonci on auscultation of the chest. There was hepatomegaly, 2 cm below the costal margin on the mid-clavicular line on palpation of the abdomen. The laboratory investigation results were as follows: the white-blood cell count was 8700/mm³, hemoglobin level was 11.4

g/dl, the hematocrit was 33%, mean corpuscular volume was 80.7 fl, platelet count was 363,000/mm³. The peripheral blood smear showed 54% polymorphonuclear leukocytosis, 28% lymphocytosis, 8% monocytosis, and 10% eosinophilia. Erythrocyte sedimentation rate was 52 mm/hr. In the lung x-ray, there were variable sized, nodular opacities of uniform contour and contents in the lower and middle zones of both lungs (Fig. 1a). In the abdominal ultrasonography, there was a solitary cyst in the right middle lobe of the liver at 8x10mm size (Fig. 1b), three cysts were in the spleen located subdiaphragmatically at sizes of 14, 19, and 13 mm (Fig. 1c), and a uniform cyst was in the middle pole of the right kidney at a size of 14 mm (Fig.

1d), A cystic lesion of 2.5 cm diameter at the fourth ventricle of the cerebellum was revealed by cranial computerized tomography with contrast enhancement (Fig. 1e). The indirect hemagglutination test was positive at the titration of 1:92400. As there was multiple organ involvement with multiple cysts and there was a deeply localized lesion in the posterior cranial fossa which had a high risk of perforation, medical treatment with albendazole was preferred. The patient used 800 mg albendazole per day for four weeks and this was repeated as five courses. Regular outpatient follow-up was instituted. After five courses of therapy, each lasting four weeks, the cranial cystic lesion shown by the cranial computerized tomography

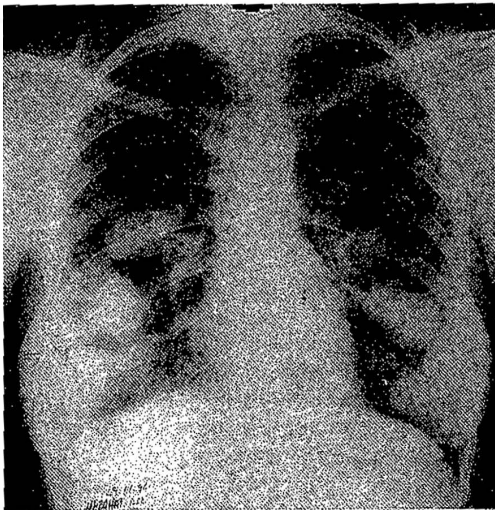


Fig.1a: X-ray showing variable sized nodular opacities in the lower and middle zones of both lungs before therapy.

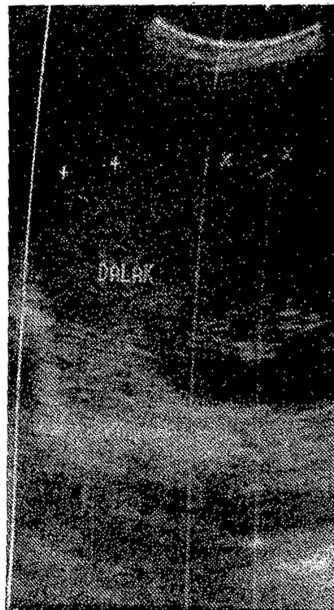


Fig.1c: Ultrasonography showing 14, 19 and 13 mm hydatid cysts in the spleen.



Fig.1d: Ultrasonography showing 14 mm hydatid cyst in the middle pole of right kidney (RK) before therapy.



Fig.1b: Ultrasonography showing hydatid cyst in the liver.

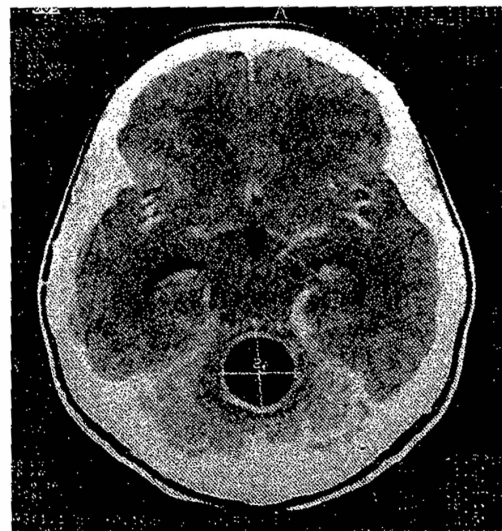


Fig.1e: CT showing 2.5 cm hydatid cyst at the location of 4 th ventricle before therapy

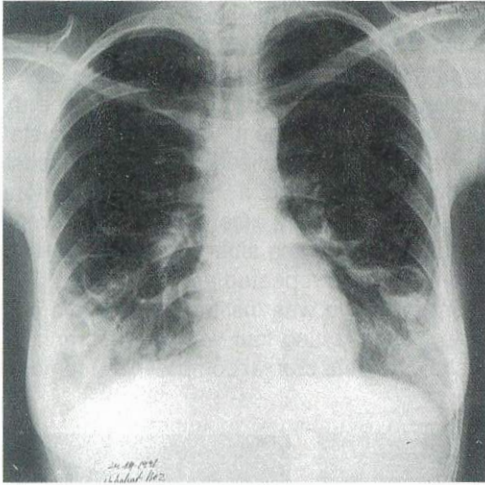


Fig.2a: X-ray showing cyst condition after one course of therapy.



Fig.2b: CT showing cyst size reduction after one course of therapy.



Fig.2c: CT showing loss of cranial cyst after 3 courses of therapy.

vanished, the lesions in the kidney disappeared and the lesions in the spleen and liver decreased in number and / or size and there was no need to operate. The cystic lesions in the lungs were drained spontaneously and only the walls were visible on the chest x-ray (Fig. 2a). The first course of Albendazole treatment lasting four weeks showed a decrease in the number of the cystic lesions in the spleen and noticeable decrease in the size of the cranial lesion (Fig. 2b) and emptying of the lung lesions with only the walls being visible radiographically. The second course of four weeks duration led to the disappearance of the renal cysts. At the end of the third course the cranial cyst was lost (Fig. 2c) .The complaints of head-ache, vergio and cough resolved with the treatment. The echinococcal indirect hemagglutination titers were 1:92400 initially, 1:56000 at the end of the second course, became 1:12000 at the end of the fourth course and decreased to 1:1024 at the end of the fifth course. The patient is still following up.

DISCUSSION

In the treatment of the hydatid cyst, surgical intervention is still the primary choice (4). Nevertheless, surgical treatment has led to a mortality rate of 3% and recurrence rate of 30% (1). In the last years, instead of only surgical treatment, uni-drug or multi-drug pharmaceutical therapy protocols have been developed as medical treatment or in combination with surgery (1). The most common drugs used in medical treatment are the benzimidazole group (albendazole-mebendazole).

Albendazole is the most recent benzoimidazole compound for the treatment of human hydatid disease. It is an oral anti-helminthic drug with a wide spectrum. It prevents the glucose uptake of the larva and adult forms of the parasite to the glycogen stores and hinders the production of ATP. During the course of the treatment, hepatic function tests, leukocyte and platelet counts and proteinuria should be under careful follow-up. The side effects are reversible and may be listed as high values of transaminases, thrombocytopenia, neutropenia, alopecia, and rarely gastrointestinal upset, headache, fever and rash (5-8).

Mebendazole is the first of the benzimidazole group. It has a decreased rate of use due to its low degree of penetration across the cyst wall therefore allowing live parasites within the cyst fluid (7). Albendazole is better absorbed than mebendazole and has a higher degree of ability to reach high concentrations in the tissue, cyst wall, cyst fluid, cerebrospinal fluid and serum (6-8). There is no definite recommendation for the length of the medical treatment, but it is advised to prolong it for large lesions (6). In a multi-centered study done by the World Health Organization, it was concluded that for objective

evaluation of the results of albendazole treatment, there was a need for a follow-up period of twelve months (9). There are variable reports in the literature over the results of therapy with the benzimidazole group drugs. Morris et. al. investigated on a series of 32 patients, 13 of which had multiple organ involvement, 6 of which had a previous round of treatment with mebendazole, 11 of which had recurrent postoperative lesions and treated them with 10 mg/kg/day of albendazole. They concluded that cystic lesions vanished in 5 patients, decreased in size in 10 patients with protoscolices discovered during surgery in 2 patients (5). Teggi et. al. evaluated 337 patients, 68 of which had multiple organ involvement. Mebendazole was administered to 121 patients while albendazole was given to 216 patients. Albendazole showed a success rate of 49.3 %, a failure rate of 31.5% and a recurrence rate of 30.9%. On the other hand mebendazole showed a success rate of 15.6% and a failure rate of 48.1% (8). Khuroo et. al. tried albendazole on 33 patients and only 2 (6.2%) showed cure (10). Singounas et.al. reported success with albendazole in a case of intracerebral hydatid cyst. Our case, showed recovery concluded by disappearance of the cranial and renal cystic lesions, decrease in the number of the splenic and hepatic lesions, and dissolution of the cystic contents with only the wall remaining in the lesions of the lung.

The treatment results with albendazole are encouraging. Nevertheless, the variable results are not surprising, since the penetration ability depends on the thickness of the ectocyst and acceptable results are obtained within a month with lesions of thin walled peritoneal and pleural cysts (5). As a result in cases that are inoperable, or present with multicysts or multi-organ involvement the use of benzimidazole group of drugs is probably the only choice.

Albendazole out of this group seems to be the best alternative present among possible drugs. We suggest that inoperable patients or patients with multiple organ involvement should be treated with albendazole and should be monitored for up to 12 months before they are considered cured.

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