



## Primer Kranial Kist Hidatik Plejinin Nadir Nedeni: Olgu Sunumu ve Literatürün Gözden Geçirilmesi

Primary Cranial Hydatid Cyst Uncommon Cause of Plegia: A Case Report with Literature Review

İdiris Altun<sup>1</sup>, Kasım Zafer Yüksel<sup>1</sup>

*Kahramanmaraş Sütçü İmam Üniversitesi, Tıp Fakültesi, Beyin Cerrahisi Anabilim Dalı, Kahramanmaraş, Türkiye*

### ÖZET

Kist hidatik paraziter bir hastalık olup, hayvan yetiştiriciliğinin yaygın olduğu ülkelerde ve ülkemizde yaygındır. Hastalık etkeni Cestode sınıfına ait bir parazit olan *Echinococcus granulosus*'dur. Karaciğer hastalığının en çok görüldüğü primer organdır. Bir kısmı ise sistemik dolaşıma katılarak dalak ve akciğere ulaşır ve bu organlarda da hidatik kistlere neden olabilir. Bu makalede parepleji nedeniyle polikliniğimize başvuran 54 yaşında bayan hasta olgumuz sunuldu. Hasta yaklaşık 2.5 ay önce trafik kazası geçirmiş. Herhangi bir şikayeti olmayan hastanın son 1 haftadır sol kol ve ayağında güçsüzlük olmaya başlamış. Son 2 gündür sol elini ve ayağını hiç hareket ettiremez olmuş. Hastaya yapılan kranial bilgisayarlı tomografide sistik lezyon tespit edilen hastaya cerrahi yöntemle kist eksize edildi.

Kist hidatığın kafa travması sonrası primer olarak beyin yerleşimi ile görülebileceği, beyinde yer kaplayıcı düzgün sınırlı kistik lezyonların ayırıcı tanısında kist hidatığın olabileceği unutulmamalıdır.

**Anahtar Kelimeler:** Primer, Kafa Travması, Pleji, Kafatası, Kist Hidatik

### ABSTRACT

Hydatid cyst is a parasitic disease which is seen in countries where there is widespread animal husbandry, and is common in Turkey. The disease agent is the cestode class parasite, *Echinococcus granulosus*. The liver is the primary organ where the disease is seen. If any part is added to the systemic circulation, the spleen and lungs are reached and hydatid cysts can form in these organs. Primary cranial hydatid cyst is rare. In this paper, the case is presented of a 54-year old female who presented at the polyclinic plegia. She had been involved in a traffic accident 2.5 months previously. The patient had no complaints until the onset of weakness in the left arm and leg 1 week before presentation at our clinic. For the last 2 days she had been unable to move her left arm or leg. On the brain computed tomography a cystic lesion was seen and surgical treatment was applied.

Hydatid cyst can be seen with primary brain location following head trauma and in the differential diagnosis of cystic lesions with regular borders occupying a space in the brain, it should not be forgotten that it could be a hydatid cyst.

**Keywords:** Primary, Head Trauma, Plegia, Cranium, Hydatid Cyst

İdiris Altun, Kahramanmaraş Sütçü İmam Üniversitesi, Tıp Fakültesi, Beyin Cerrahisi Anabilim Dalı, Kahramanmaraş, Türkiye, Tel. 05064744828, Email. idrisaltun46@hotmail.com  
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## Introduction

Hydatid cyst is a parasitic disease which is seen in countries where there is widespread animal husbandry, and is common in Turkey. The disease agent is the cestode class parasite, *Echinococcus granulosus*<sup>10</sup>. Whereas dogs are definitive hosts and sheep, intermediaries, the infection is uncommon in humans and random<sup>3,11,12</sup>. The liver is the primary organ where the disease is seen. If any part is added to the systemic circulation, the spleen and lungs are reached and hydatid cysts can form in these organs<sup>8</sup>. Primary cranial hydatid cyst (PCHC) is rare and has been reported to constitute 1%-2% of all hydatid cyst cases<sup>10</sup>. Of all patients affected, 80% are in the paediatric age group. It has been reported that the reason for this high incidence in children could be due to patent ductus arteriosus<sup>4,5</sup>. The case is here presented of a patient determined with PCHC which formed following a traffic accident and was causing progressive hemiplegia.

## Case Report

A 54-year old female had been involved in a traffic accident 2.5 months previously and been followed up at an external centre, and discharged as her general status was good and there was no neurological deficit. The patient had no complaints until the onset of weakness in the left arm and leg 1 week before presentation at our clinic. For the last 2 days she had been unable to move her left hand or foot. In the physical examination, the left upper extremity was determined as 0/5 and the left lower extremity as 1/5. Magnetic resonance imaging (MRI) was planned for the patient but

as she had a metal implant in her leg, it could not be taken. On the contrast and non-contrast brain computed tomography (CT) images, malacic changes 20 x14 mm in size were determined in the left frontal-parietal lobe and degenerations in the bone and in the right parietal area, a cystic lesion was seen of the same density as CSF, 23 mm in diameter with regular contours and good borders, not showing contrast (Figure 1).

It was learned that the lesions in the left frontoparietal area were a result of the traffic accident. The lesion with regular borders which did not show contrast and was located in the frontoparietal area was thought to be a hydatid cyst. Tests applied to determine another cyst focus did not determine any hydatid cyst in any other organs. As PCHC was considered and the patient had plegia, surgical treatment was applied. The cyst was close to the motor cortex, far from the calvarium and was covered with normal parenchyma tissue, so the contents were absorbed and the germinal layer was removed so as not to damage the motor cortex and the area was thoroughly washed with hypertonic sodium chloride (Figure 2). Albendazole treatment was started and was continued for 6 months. In the follow-up period, physical therapy was applied to the patient and the left upper extremity improved to 3/5 and the left lower extremity to 4/5. No recurrence was seen during the follow-up (Figure 3).

## Discussion

PCHC is uncommon and has been reported in 1%-2% of all HC cases<sup>10</sup>. Depending on the mechanism of formation, PCHC can be

classified as primary or secondary. Primary cysts occur with direct brain involvement of the larva without involvement of any other organ and are usually single. The rupture of cysts containing scolices and daughter capsules can cause recurrences. Secondary cysts occur associated with the spontaneous traumatic or surgical rupture of primary cysts and are generally multiple. These are infertile when they do not contain scolices and daughter capsules<sup>2,5</sup>. PCHC are generally single but cases with multiple locations have been reported in literature<sup>2,3,11</sup>. Duishanbai et al operated on 97 PCHC cases and reported that 86 had single cysts<sup>3</sup>. Turan et al reported a single localisation in 23 cases of 26 cases<sup>4</sup>. As a result of the tests applied to the current case, the lesion was determined to be a single focus with no other location. Despite the secondary reasons of development after trauma in the mechanism of formation, as the lesion was of single focus and there had been no previous HC, it was considered to be primary.

In the current case, as the cyst was close to the motor cortex without having reached large dimensions, there was seen to be progressive loss of strength in the left upper and lower extremities without any headache or vomiting. Diagnosis is made from the clinical findings of the patient, imaging and laboratory tests. Brain CT and MRI alone or together are extremely successful in the diagnosis of PCHC and provide good guidance in the preoperative period in terms of the cyst properties and treatment. On brain CT and MRI, cysts are seen as well-bordered, with thin walls, homogenous contents, with a circular

appearance, solid, semi-solid or multi-locular, and following intravenous contrast dye, the rim shape of the cyst wall does not show contrast<sup>1,3,7,10,11</sup>. On brain CT, calcification in the cyst wall can be determined in the form of a cystic lesion of the same density as CSF not including perilesional oedema<sup>9,11,13</sup>. Oedema can rarely be seen around the cyst<sup>1,7</sup>. PCHC was considered because of the appearance of the cyst on the brain CT as round with regular borders, with no surrounding oedema, not showing contrast and of the same density as CSF.

In the treatment of PCHC, medical and surgical treatment should be applied together. For many years surgery was accepted as the treatment for hydatid cysts. However, in recent literature, isolated cases have been reported of complete elimination with albendazole treatment (10mg/kg/day x 3 doses)<sup>4,5,11,12</sup>. Golematis et al reported that large cysts were reduced and small cysts were eliminated with albendazole treatment<sup>5</sup>. Erşahin et al reported that medical treatment was more effective in patients with repeated or intra-operative ruptures<sup>4</sup>. In a series of 26 cases, Turan et al reported that the use of medical and surgical treatment together was more effective<sup>11</sup>. Even though several surgical methods have been used such as cyst drainage, evacuation of the cyst fluid and removal of the germinal layer and anastomosis of the cyst, the most effective surgical method is delivery of the cyst with the Dowling method without bursting and irrigation of the surgical cavity with hypertonic sodium chloride.

As a result of cyst rupture, anaphylactic shock, chemical meningitis and recurrence of the cyst may be seen<sup>3,6,10</sup>. Disease recurrence has been reported at 19%, perioperative mortality at 8.48%, mortality at 10%-12% and morbidity at 9.8%<sup>11</sup>. Although rare, subdural higrroma and porencephalic cyst may be seen in the postoperative period as complications<sup>3-5</sup>. In the current case, as the cyst was close to the motor cortex and there was normal parenchyma over the cyst, it was reached from the sulcus area protecting the parenchyma, the cyst contents were aspirated and the germinative layer was removed. Postoperatively, albendazole treatment of 10mg/kg/day x 3 doses was administered and continued for 6 months. In the follow-up, no recurrence was determined. Hydatid cyst can be seen with primary brain location following head trauma and in the differential diagnosis of cystic lesions with regular borders occupying a space in the brain, it should not be forgotten that it could be a hydatid cyst. There should be an awareness that there could be clinical symptoms according to the location of the cyst and that it could cause progressive motor deficits and plegia. The combined application of surgical and medical treatments can be considered necessary.

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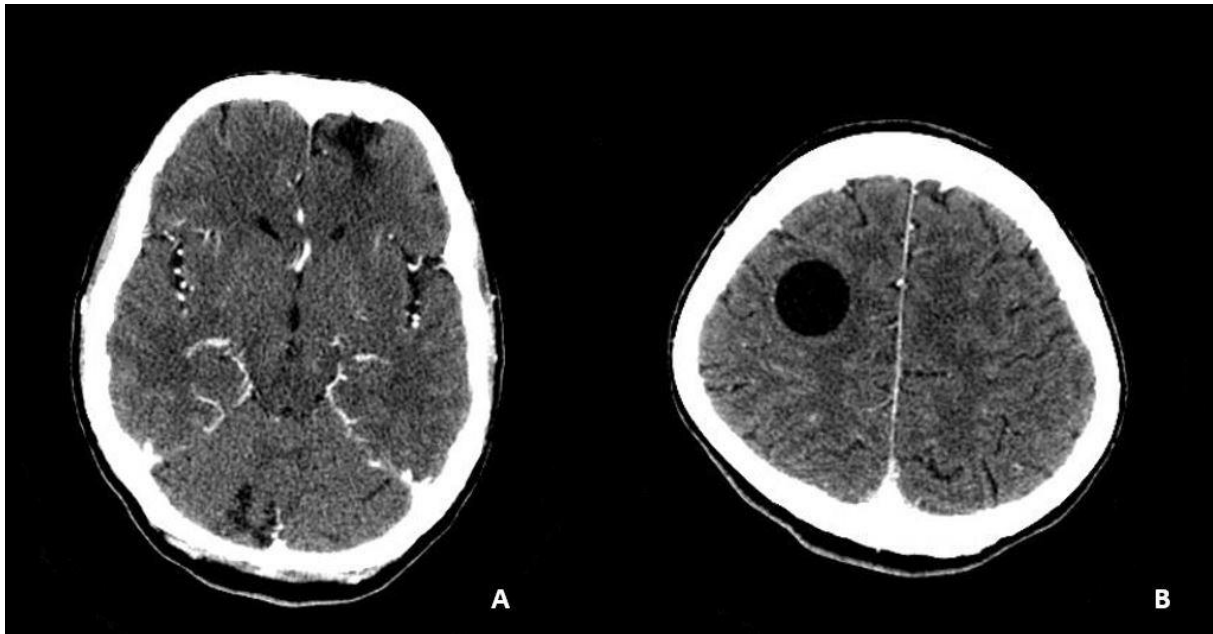
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**Figure 1.** On the contrast brain computed tomography images, malacic changes 20 x14 mm in size were determined in the left frontal-parietal lobe (A) and degenerations in the bone and in the right parietal area, a cystic lesion was seen of the same density as CSF, 23 mm in diameter with regular contours and good borders, not showing contrast (B)



**Figure 2.** The cyst was close to the motor cortex, far from the calvarium and was covered with normal parenchyma tissue, so the contents were absorbed and the germinal layer was removed so as not to damage the motor cortex and the area was thoroughly washed with hypertonic sodium chloride



**Figure 3.** No recurrence was seen on the 18 months axial (A) and coronal (B) magnetic resonance images

