CASE REPORT

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An Endemic Health Issue; A Case of a Giant Pulmonary Hydatid Cyst with a Delayed Diagnosis

Endemik Bir Sağlık Sorunu; Geç Tanı Alan Dev Pulmoner Hidatik Kist Olgusu

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ABSTRACT

Giant hydatid cysts are rare clinical conditions that present significant challenges in diagnosis and management. This case presentation discusses the management and postoperative course of a giant hydatid cyst in the lower lobe of the left lung, with a single cyst measuring approximately 10 cm in diameter. A 44-year-old female patient presented with complaints of chest pain and cough, and following diagnostic workup, the mass was initially suspected to be a lung abscess, leading to her referral. The surgical intervention included cystectomy and capitonnage, and postoperative treatment with albendazole was initiated. The patient is under ongoing follow-up care. Despite increasing knowledge about the disease and better access to healthcare facilities, giant hydatid cyst cases are still encountered. This case emphasizes the importance of preventing the disease and ensuring it is not overlooked in the differential diagnosis.

Keywords: *Echinococcus granulosus, echinococcosis, pulmonary, parasitic diseases, surgery*

ÖZET

Dev hidatik kistler nadir görülen, ancak tanı ve tedavi yönetiminde önemli zorlukları olan klinik durumlardır. Bu vaka sunumunda, sol akciğer alt lobunda, tek kesitinin yaklaşık 10 cm'den uzun, dev hidatik kistin yönetimi ve cerrahi sonrası süreçi ele alınmıştır. 44 yaşında bayan hasta, göğüs ağrısı ve öksürük şikayetleriyle başvurmuş, tetkikler sonucu kitlenin akciğer absesi olabileceği düşünülerek sevk edilmiştir. Cerrahi müdahalede kistotomi ve kapitonaj uygulanmış, postoperatif süreçte albendazol tedavisi başlanmış ve takiplerine devam edilmektedir. Günümüzde hastalık hakkında artan bilgi birikimine, sağlık kuruluşlarına erişim imkanlarının artmış olmasına rağmen dev hidatik kist olgularıyla hala karşılaşılabileceği; hastalığı önlemenin hayati önem taşıdığının ve ayırıcı tanıda göz ardı edilmemesi gerektiğinin hatırlatılması amaçlanmıştır.

Anahtar Kelimeler: *Cerrahi, echinococcus granulosus, ekinokokkoz pulmoner, parazitik hastalıklar*

INTRODUCTION

Hydatid cyst disease is a parasitic infection caused by Echinococcus granulosus, which is endemic in countries with livestock farming, although it occurs worldwide (1). Humans serve as both the intermediate host and the final host where the larval form of the parasite fails to complete its life cycle (2). While the liver is the most commonly affected organ, pulmonary involvement ranks second (3). The lungs, due to their elasticity, allow for cyst growth (4). Literature indicates that postoperative complications are primarily attributed to the destructive effects of the large cyst on the pulmonary parenchyma (5). In endemic countries, the size of hydatid cysts can increase up to two-thirds of the hemithorax, while growth up to 6 cm is rare (6). In his publication, Lamy et al. presented three cases of hydatid cysts with diameters exceeding 6 cm as giant cysts (6). Most studies published in the literature have considered cysts with diameters greater than 10 cm in any axis as giant cysts (4,5).

This study aims to present a patient with a giant hydatid cyst, measuring more than 10 cm in diameter and present for approximately one year, who was initially consulted for a pulmonary abscess, in conjunction with a literature review.

CASE REPORT

A 44-year-old female patient was referred with complaints of chest pain and cough, with a preliminary diagnosis of

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lung abscess. The patient's general condition was stable, and her vital signs were within normal limits. She had a history of anemia and pica (soil-eating). Thoracic computed tomography revealed a well-defined, thick-walled cystic lesion in the left thorax, measuring approximately 125.8 mm in its longest diameter, along with a 3.5 cm deep pleural effusion (Figure 1).

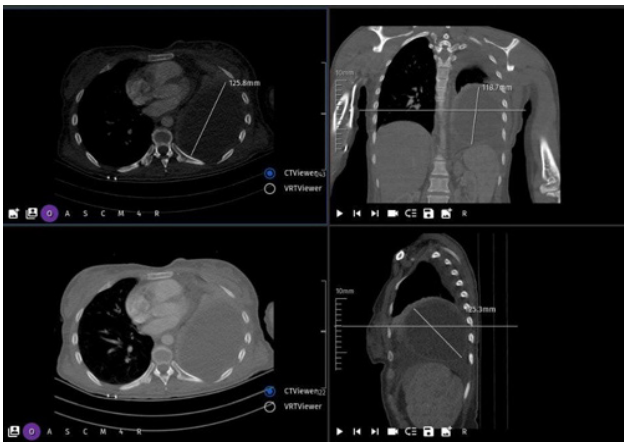

Figure 1. The contrast-enhanced computed tomography of the patient presenting with complaints of chest pain and cough showed the dimensions of the hydatid cyst.

Previous imaging studies were evaluated with the assistance of telemedicine. A chest X-ray taken approximately 2 years ago revealed a lesion measuring 76.7 mm, while a year ago, a single-slice measurement showed a length of approximately 126.4 mm (Figure 2).

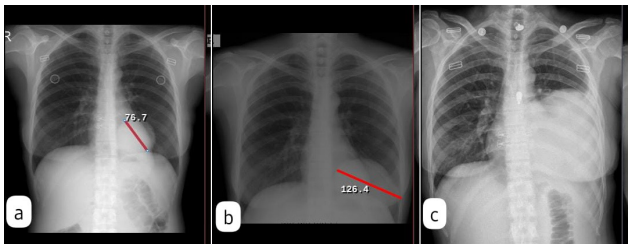

Figure 2. a) In the preoperative radiograph taken approximately 2 years prior, a lesion measuring 76.7 mm in size is observed within the contours of the heart. **b)** In the radiograph taken one year before surgery, the lesion was noted to extend from the cardiac silhouette to the diaphragm, measuring approximately 126.4 mm. **c)** X-ray imaging of the giant hydatid cyst on the diaphragm, where the boundaries could not be distinguished from the cardiac contour.

The patient was evaluated for the presence of hydatid cysts in the liver using abdominal ultrasonography, and no pathology was detected. The patient, monitored for anemia, had a hemoglobin level of 9 g/dL. Preparations for the operation were completed. The patient was intubated with a double-lumen endotracheal tube under general anesthesia. A posterior muscle-sparing thoracotomy was performed through the left fifth intercostal space. The layers were carefully opened, and the pleural cavity was entered according to the standard technique. A cystic lesion occupying almost the entirety of the left lower lobe was identified. Following the release of the lung parenchyma, the surrounding area was packed with saline-soaked gauze pads. The cyst content was aspirated, and subsequently, saline solution was introduced into the cyst cavity. The cyst wall was incised using electrocautery. The germinative membrane was removed in a single piece (Figure 3).

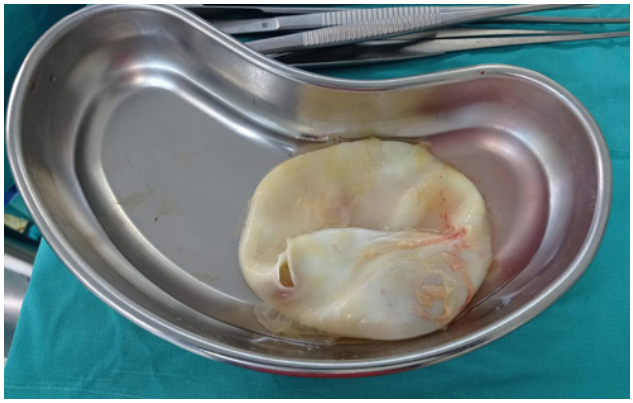

Figure 3. The germinative membrane, excised in a single piece and intact during surgery, is shown.

Opened bronchial openings were sutured, and capitonnage was performed. The ventilation and expansion of the left lower lobe parenchyma were observed. Postoperatively, the patient was started on albendazole therapy. Histopathological examination of the postoperative specimen revealed findings consistent with "hydatid cyst membrane and pericyst tissue with extensive scolices structures." The postoperative course was uneventful, and the patient was discharged on the 7th day. Follow-up of the patient, now in the second postoperative month, is ongoing (Figure 4).

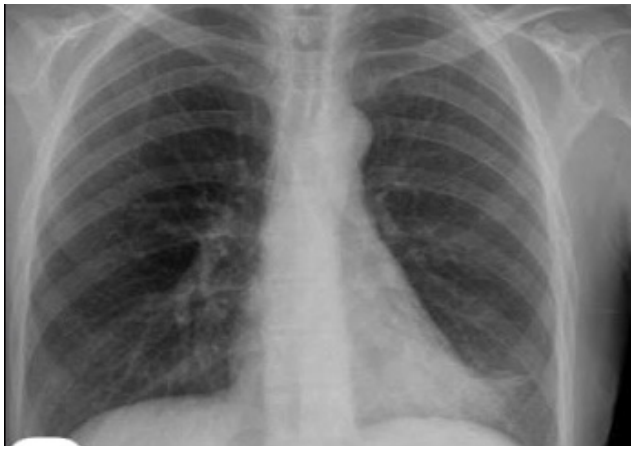

Figure 4. In the postoperative radiograph taken at two months, the lung is observed to be fully expanded.

DISCUSSION

The lung tissue, compared to other organs, has a more elastic structure, which allows hydatid cysts to exhibit a higher growth rate in this organ (7). The incidence of hydatid cyst disease in Turkey has been reported as 3.4 per 100,000 population (8). It is known that the disease develops in humans through the consumption of contaminated food and water. Our patient had a history of keeping dogs in the garden and soil eating.

The disease typically follows an asymptomatic course. However, symptoms can arise depending on the rupture, size, location of the cyst, and whether it becomes ruptured and complicated. These symptoms may include chest pain, dyspnea, fever, allergic reactions, hemoptysis, cough, and expectoration of the membrane (4,9). Patients may present with hemoptysis and hydatoptysis when the cyst ruptures into the bronchus. Rupture into the pleural space can lead to hydropneumothorax, anaphylactic shock, fever, and dyspnea (10). In our case, the patient reported a history of cough and pain persisting for one week, without any notable complaints previously. Upon reviewing prior imaging studies, the cyst appeared intact. Additionally, imaging over the past year showed that the largest cyst diameter exceeded 10 cm.

Pulmonary hydatid cysts are reported in the literature to be more commonly localized in the right lower lobe and to occur bilaterally in approximately 20% of cases (11). In the case we followed, an intact giant hydatid cyst was located in the left lower lobe.

In patients diagnosed with a hydatid cyst in the lung, the first treatment option is generally recommended as parenchymal-sparing surgery (12). Although the complication rate is high in giant hydatid cysts, the recommended surgical approach remains cystectomy and capitonnage, which is suggested as the first option (4,9,13,14). In cases of giant hydatid cysts, when lobar destruction occurs during surgery, resection may be necessary, as reported in the literature (15). Pneumonectomy cases are also present (16). Studies indicate that in cases considered inoperable with a high risk of recurrence, combined surgical and medical treatment is required (17). Medical treatment has been reported to reduce the risk of recurrence (13). In our case, albendazole therapy was initiated following cystectomy and capitonnage surgery.

It has been reported that there is a 5% higher morbidity rate in cases of giant hydatid cysts compared to simple cysts (9). In terms of postoperative complications, prolonged air leak occurs in 10-19% of cases, with an incidence of empyema reported at 7%. The literature also indicates a higher frequency of persistent sterile air spaces and pneumonia (4,6,7,14). Although rare, the development of aspergilloma following cystectomy and capitonnage has been reported in follow-up cases (18). The mortality rate in the follow-up of pulmonary hydatid cysts is 1-2% (14). In the series of simple hydatid cyst cases by Halezeroğlu et al, no mortality was observed, whereas one case of mortality was recorded in a series of 50 cases of giant hydatid cysts (6). Karaoğlanoğlu et al. reported a mortality case due to respiratory failure in their series of giant hydatid cysts (7). Postoperatively, no complications developed in our patient, and the patient continues to receive albendazole treatment as part of the follow-up care. It appears that our patient was infected approximately two years ago, but due to being asymptomatic, the diagnosis was not made at that time based on previous imaging. Given the risk of rupture of the giant cyst, hemoptysis, hydatoptysis, hydropneumothorax, and anaphylactic reactions, surgical preparations were initiated once the diagnosis was confirmed. Intraoperative monitoring was performed with careful consideration of the risk of anaphylaxis.

It is recommended that patients be followed up with monthly chest X-rays during the first three months postoperatively (19). In our case, postoperative follow-up is performed with monthly check-ups, and the patient continues to be monitored with chest X-rays.

Conclusion

Parasitic infections caused by Echinococcus granulosus are widely recognized as a significant public health problem worldwide. Hydatid cyst disease has been classified as a notifiable disease in our country since 2005. Despite the increase in our knowledge about the disease, the availability of literature data, advancements in imaging technologies, and improved access to healthcare facilities, cases of giant hydatid cysts are still encountered in modern times. Giant hydatid cysts are clinical conditions that require a multidisciplinary approach and an experienced surgical team. Due to the risk of morbidity and mortality, it should not be overlooked in the differential diagnosis. Preventing parasitic infestations infestation remains of utmost importance.

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