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Primary Cervical Hydatid Cyst: An Unusual Presentation of Hydatid Disease: A Case Report

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Abstract

Cervical hydatidosis is an extremely rare manifestation of Echinococcus granulosus infection, typically presenting as a painless, slow-growing cystic mass in the cervical region. We report the case of a 28-year-old male with a progressively enlarging cystic lesion located in the right lateral neck. Ultrasound examination revealed a well-defined, multiloculated cystic structure with internal septations suggestive of hydatid disease. Cystectomy was performed with meticulous dissection to avoid rupture, thereby minimizing the risk of spillage and potential dissemination. Postoperative recovery was uneventful, and albendazole therapy was administered pre- and post-surgery to further reduce recurrence risk. This case underscores the importance of considering hydatid cysts in the differential diagnosis of cervical masses, even in unusual locations.

Keywords: Cervical hydatidosis, echinococcosis, parasites, cysts, neck, cystectomy.

Introduction

Hydatidosis, also known as echinococcosis, is a zoonotic infection caused by the parasitic tapeworm Echinococcus granulosus. It is endemic in regions associated with livestock production, particularly where sheep and cattle are raised in close proximity to canines, which are the definitive hosts. Globally, the highest prevalence of hydatid disease is reported in rural areas of South America, the Mediterranean, the Middle East, Central Asia, and certain parts of Africa. In South America, hydatidosis remains a significant public health issue, especially in Argentina, Uruguay, Peru, Brazil, and Bolivia. **[8]**

In Paraguay, hydatid disease is an established public health concern, particularly in rural regions where livestock farming is common. The highest prevalence of cases is found in the departments of the Chaco region, such as Boquerón and Presidente Hayes, where close interactions between livestock and domestic dogs increase transmission risk. In other rural areas, including the departments of Paraguarí, San Pedro, and Concepción, hydatid disease also poses a notable risk due to similar agricultural practices. Urban areas, such as Asunción, report fewer cases, though migration from rural to urban settings may contribute to occasional occurrences. **[9]**

The most common sites of hydatid cysts are the liver (70-90%) and lungs (10-15%), while other organs, including the spleen, kidneys, heart, bones, and central nervous system, are affected less frequently. Hydatid cysts in the head and neck region, particularly in the cervical soft tissues, are exceptionally rare and account for only 2-3% of reported cases, even in endemic areas. This rarity presents a diagnostic challenge, as cervical hydatidosis is often not considered in the differential diagnosis of cystic neck masses.

This case report describes an unusual presentation of cervical hydatid disease in a 28-year-old male patient, underscoring the importance of considering echinococcosis in regions with endemic presence and highlighting the epidemiological relevance in Paraguay.

Case Report

A 28-year-old male patient from a rural area of the country presented to the general surgery service with a palpable, painless mass in the right lateral cervical region, with an 18-month history of slow, progressive growth and no associated symptoms. The patient denies any underlying conditions or relevant medical history. Physical examination revealed an approximately 5 cm mass in the right lateral neck region, with no signs of inflammation. The mass was slightly mobile, painless upon palpation, with an elastic, solid, and fluctuating consistency, and well-defined borders, appearing adherent to deep planes. No bruits were auscultated over the lesion.

The patient reported a prior consultation at another healthcare center, where a soft tissue ultrasound of the cervical region showed a unilocular cystic image with thick walls measuring up to 4 mm in thickness and an approximate size of 44x42x28 mm. The image

revealed a hyperechoic formation at the posterior margin, suggesting the presence of a detached membrane. The contents were predominantly cystic with heterogeneous features due to mobile punctate echoes and some internal septations. However, solid projections, some pseudopapillary and echogenic, were noted without a color Doppler signal. Sonographic findings were consistent with a type IIIa/b (transitional) hydatid cyst – Stage CE 3a-b according to WHO classification **(Figure 1)**. Following the imaging study, aspiration of the cystic lesion was performed, and fluid analysis confirmed the presence of Echinococcus sp. rostellar hooks.

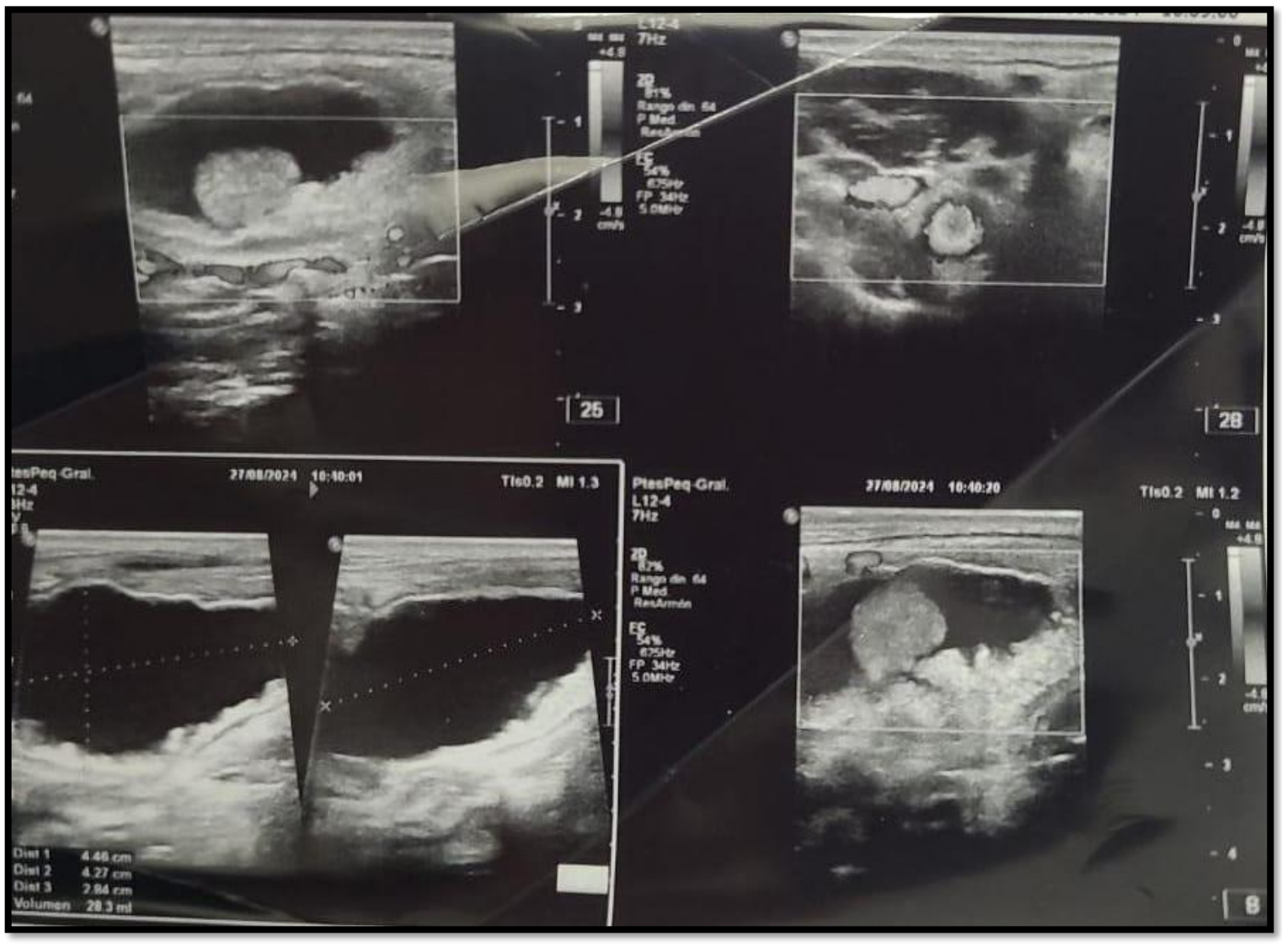


Figure 1: Right Lateral Cervical Ultrasound

Based on the aspiration results, abdominal ultrasound and computed tomography (CT) scans of the head, neck, and chest were requested to rule out hydatid cysts in other, more common organ locations.

Abdominal Ultrasound: The liver was of normal size and morphology with regular borders. The parenchyma displayed a homogeneous echotexture, with no focal lesions observed in visible segments and typical echogenicity. No free fluid was detected in the abdominopelvic cavity.

CT of the Head, Neck, and Chest: No additional positive findings were observed, except for the right cervical cystic lesion **(Figure 2)**. Pulmonary fields were well aerated from apex to base, with no evidence of infiltration, consolidations, nodules, or bullae.

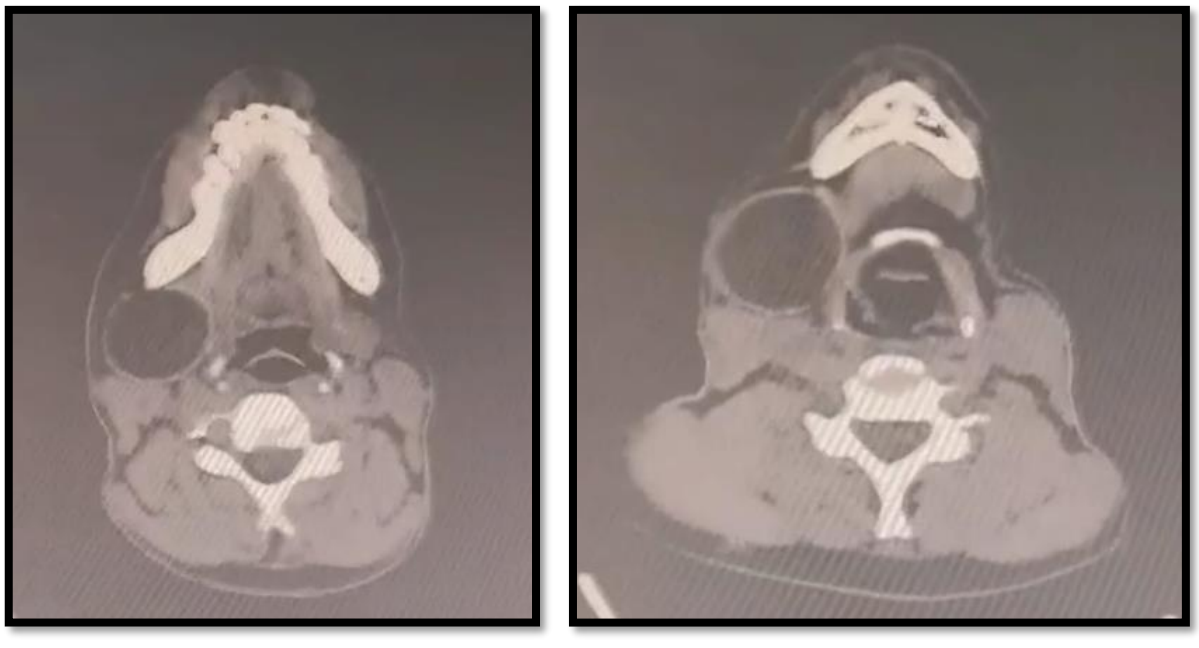


Figure 2: Simple Cervical CT Scan

The patient received albendazole 22 days prior to surgery.

Surgical Findings: A 6 cm cyst of brown color was observed, with loose adhesions to adjacent muscles. Total cystectomy was performed with complete preservation of the capsule **(Figure 3)**.

Figure 3: Surgical Findings

Discussion and Case Analysis

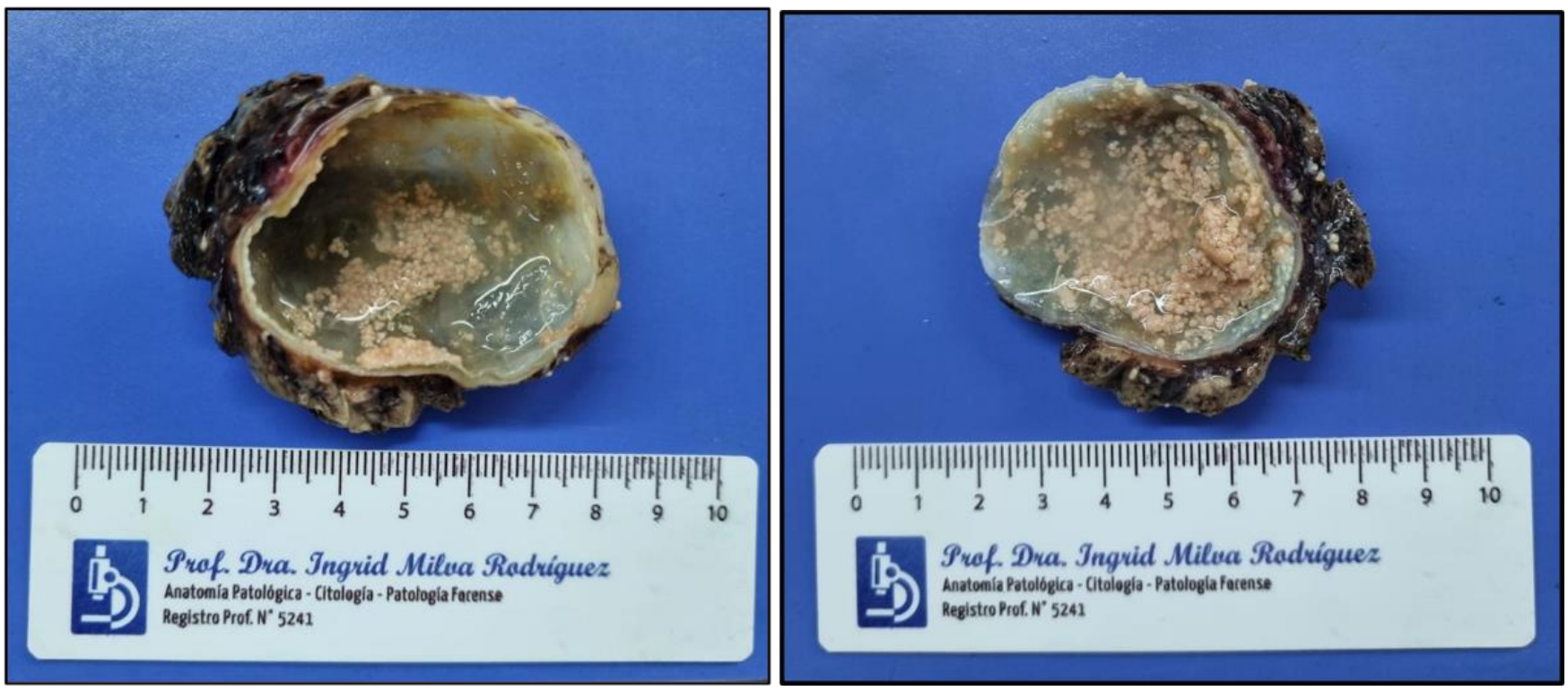
Hydatidosis is a parasitic infection caused by Echinococcus granulosus, commonly found in rural areas with livestock production, especially sheep and goats, where hygiene and sanitary infrastructure are inadequate. This disease poses a significant public health problem in South American countries such as Argentina, Bolivia, Brazil, Peru, and Uruguay.**[1]**

Humans serve as accidental intermediate hosts, typically following the ingestion of parasite eggs excreted by dogs through their feces. The most frequently affected site is the liver (70-90%), followed by the lungs (10-15%), with less frequent involvement of the spleen, kidneys, heart, bones, and central nervous system. Involvement of the head and neck region is extremely rare, even in endemic areas. However, cases have been documented in areas such as the parotid gland, the parapharyngeal space, the infratemporal fossa, the maxillary sinus, and the anterior and posterolateral cervical regions. **[2]** The hydatid cyst should be considered in the differential diagnosis of any cystic mass in the maxillofacial area when a definitive diagnosis has not been reached. **[3]**

After the cystectomy, the patient was discharged with medical treatment including albendazole, returning for follow-up on the third postoperative day.

The pathology report indicated a cystic lesion with a fibrous pseudocystic wall, noting fibrous tissue with chronic inflammatory infiltrate separating it from the submandibular gland.

Within, a laminated acellular membrane was observed adjacent to the germinal layer, with numerous protoscolices, secondary cysts containing protoscolices, and hooks compatible with Echinococcus granulosus. The conclusion of the report was a hydatid cyst (Echinococcal cyst) **(Figure 4)**.



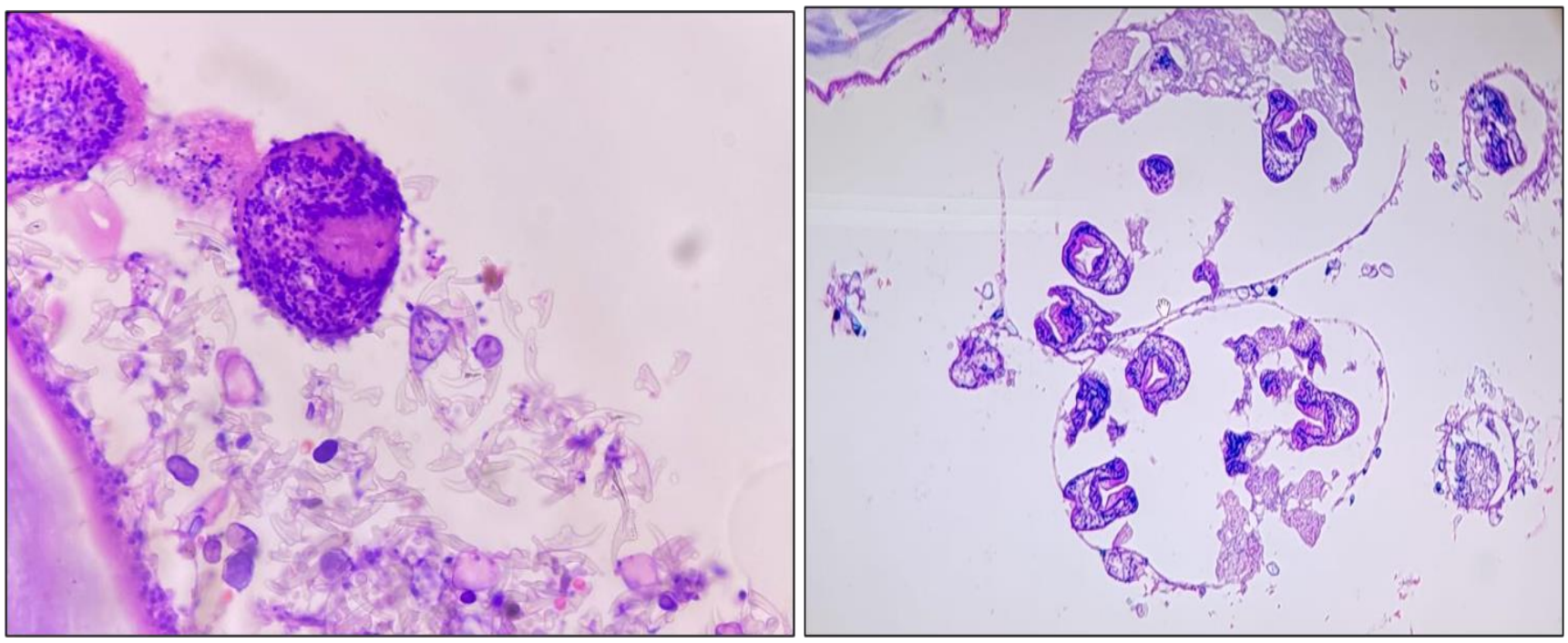


Figure 4: Pathological Anatomy

Based on the previous imaging studies, this lesion was interpreted as a primary cyst, and it was recommended to complete medical treatment with albendazole for an additional 2 months to complete two cycles.

Involvement of soft tissues by hydatid cysts is uncommon, accounting for approximately 2-3% of cases in endemic areas. The most frequent locations in these regions include the neck and trunk muscles due to their greater blood supply and lower muscular activity, which favor the development of these lesions. **[4]**

Hydatid cysts typically present as painless, slowly growing cystic formations, resulting in nonspecific symptoms. Therefore, it is essential to conduct a detailed medical history that includes information on residence in endemic areas, the patient's occupation, and family history. In cases of suspected hydatidosis, a comprehensive systemic evaluation should be performed to identify possible lesions in other organs, as 20-30% of cases present with multiorgan involvement. **[2]**

Ultrasound is the diagnostic tool of choice for evaluating cystic lesions in soft tissues. This method allows for the identification of pathognomonic signs of the disease, such as fine septa, the "snowflake sign," detachment of septa within the cystic fluid, "honeycomb" images, and calcifications in the cyst wall. Computed tomography (CT) and magnetic resonance imaging (MRI) are also useful, especially for complex lesions or those with solid components.**[4]**

Serological tests, such as ELISA and Western Blot, are crucial for confirming the diagnosis, being especially sensitive for hepatic lesions (80-100% sensitivity). However, this sensitivity decreases in lesions at other sites: 50-56% in pulmonary cases and 25-56% in other areas. **[5]**

In cases of cervical hydatid cysts, fine-needle aspiration (FNA) is not recommended due to the high risk of anaphylactic reactions and the possibility of cyst content dissemination, which would increase the risk of recurrence. **[5]**

The treatment of choice is complete surgical excision of the cyst, supplemented by postoperative medical treatment with antihelmintics such as albendazole or mebendazole. **[7]** This combined treatment is used to reduce the likelihood of recurrence and prevent local contamination. The recommended dosage of albendazole is 10-15 mg/kg/day for a period of 1 to 3 months. **[7]**

In cases with multiple lesions or cysts that are inaccessible for surgical resection or when surgical risk is high, medical treatment may be an option, although the outcomes are often variable. **[7]**

Conclusion

This clinical case underscores the importance of considering hydatidosis as a differential diagnosis in the presence of cystic lesions in the head and neck region despite being an infrequent entity. Diagnostic imaging, such as ultrasound and CT, remains essential tools for diagnosis. It is crucial to handle hydatid cysts with extreme care during surgery to avoid spillage of cystic content, which could trigger severe anaphylactic reactions and increase the risk of recurrence.

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