Cervical Hydatid Cyst in the Carotid Triangle Managed by En Bloc Excision and Albendazole: A Case Report

Dr. Neeraja Neena Nair[1], Dr. PB Thrishuli[2]
[1]Final Year Surgery Resident, JSS Medical College
[2]Professor of General Surgery, JSS Medical College

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ABSTRACT

Background: Cystic echinococcosis is a zoonotic helminthic disease that mainly affects the liver and lungs. Cervical involvement is exceptionally rare and often not considered, since gradually enlarging cystic neck mass implies congenital, inflammatory or neoplastic pathology. It is important to recognize before intervention because puncture or rupture may cause cyst-content spillage, secondary implantation, recurrence, or hypersensitivity.

Case presentation: We referred a 56-year-old woman who carried out cattle rearing to our clinic who complained of painless left-sided neck swelling, which felt constant and had grown over 1 year. Examination revealed solitary, soft, fluctuant, mobile, 3 × 3 cm mass in the left carotid triangle. The total blood count was unremarkable and the erythrocyte sedimentation rate raised; echinococcal serology was excluded. Chest radiography and ultrasonography of abdomen and pelvis showed no pulmonary or hepatic hydatid cyst. Ultrasonography of the neck showed hydatid sand. Ultrasonography-guided fine needle aspiration cytology (with precautions to avoid accidental spillage and hypersensitivity) was obtained in which the obtained fluid containing calcified protoscolices and hooklets appeared clear. The neck-computed tomography with contrast enhancement exhibited well-circumscribed cyst with a detached internal membrane producing a water-lily appearance.

Therapeutic intervention and outcome: Prior to surgery, albendazole 400 mg orally twice daily was administered for 4 weeks following baseline liver-function assessment. A 3.5 × 3 cm cyst was removed en bloc without rupture under general anaesthesia. Histopathology showed calcified protoscolices with attached hooklets and detached refractile hooklets, indicating a hydatid cyst. She was discharged on postoperative day 2 after an uncomplicated recovery. Albendazole 400 mg twice daily was continued for 3 months postoperatively, with monthly outpatient review and two-monthly liver-function monitoring; no early recurrence or treatment-related complication was documented.

Conclusion: Hydatid disease should be considered in the differential diagnosis of a slowly enlarging cystic neck mass, particularly in patients with livestock exposure or residence in an endemic region. Characteristic imaging, cautious diagnostic planning, imaging-guided aspiration only when necessary, intact surgical excision, and perioperative albendazole therapy can provide a favourable outcome while reducing preventable procedural complications.

Keywords: cervical hydatid cyst; cystic echinococcosis; carotid triangle; albendazole; en bloc excision; case report

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INTRODUCTION

Cystic echinococcosis is an infection caused during the larval phase by Echinococcus granulosus sensu lato. Infection is acquired accidentally by human ingestion of eggs shed by definitive canine hosts, with livestock as intermediate hosts in the domestic transmission cycle. Following invasion of the intestinal wall, oncospheres enter the portal circulation, usually remaining deposited in the liver; the organisms that evade hepatic and pulmonary filters can disseminate to virtually any tissue [1–4]. As a result, the majority of cysts develop in the liver or lungs, whereas head-and-neck involvement is exceptional.The diagnosis can be difficult for a separate cervical hydatid cyst which does not have a specific presentation. A painless but progressively broadening mass may be similar to a branchial cleft cyst, lymphatic malformation, tuberculous collection, necrotic lymph node, cystic schwannoma, thyroid-related lesion, or cystic metastatic deposit. Ultrasonography could demonstrate hydatid sand, daughter cysts, and/or detached membranes, and computed tomography and magnetic resonance imaging may visualize the lesion and its associations with adjacent structures [2,5,6]. Serological testing may assist in the diagnosis but will not exclude disease if negative, particularly at an extrahepatic site [2,5].

Cervical localisation also complicates management of surgery because the cyst may be near the carotid sheath, vagus nerve, sympathetic chain, lower cranial nerves, airway, or oesophagus. An accidental puncture or intraoperative rupture can lead to hypersensitivity, local implantation, and recurrence. Published cervical cases thus should focus on epidemiological suspicion, careful radiological mapping, avoiding spillage, and postoperative antiparasitic therapy [7,8]. This report presents a hydatid cyst in the left carotid triangle of a cattle-rearing woman and highlights the diagnostic value of characteristic imaging and the favourable outcome achieved with intact excision and perioperative albendazole.

Patient Information

56-year-old female who reared cattle presented with a painless swelling on the left side of the neck. The lesion was noticed incidentally approximately 1 year earlier and had gradually grown in size. The patient had no fever, pain, dysphagia, dyspnoea, voice change,

weight loss, neurological symptoms, previous similar lesions, relevant comorbidities, regular medication use, allergies, prior surgery, or pertinent family history. VC

Clinical Findings

Examination identified a solitary, non-tender, soft, fluctuant, non-transilluminant swelling measuring approximately 3 × 3 cm in the left carotid triangle. Its borders were well defined, the surface was smooth, and there was no local rise in temperature. Pulsatility, bruit, cervical lymphadenopathy, cranial-nerve deficit, and features of aerodigestive compression were absent. The patient was afebrile and haemodynamically stable.

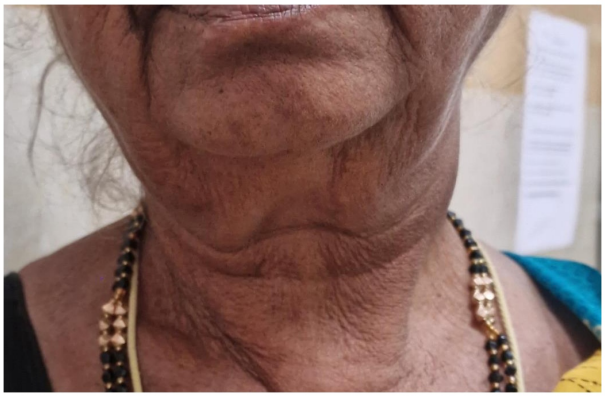

Figure 1. Clinical photograph demonstrating the left-sided cervical swelling in the carotid-triangle region.

Timeline

Time point	Clinical event
Approximately 12 months before surgery	A painless left-sided neck swelling was first noticed and enlarged gradually.
Initial clinical assessment	A soft, fluctuant, mobile 3 × 3 cm swelling was identified in the left carotid triangle.
Diagnostic work-up	CBC was normal and ESR was elevated; echinococcal serology was not performed. Chest X-ray and abdominal-pelvic ultrasonography were negative for pulmonary and hepatic hydatid cysts. Neck ultrasonography showed hydatid sand; ultrasonography-guided FNAC demonstrated protoscolices and hooklets; neck CECT showed a water-lily appearance.
Preoperative period	Albendazole 400 mg orally twice daily was administered for 4 weeks before surgery after baseline liver-function assessment.
Surgery	A 3.5 × 3 cm cystic mass was excised in toto under general anaesthesia.
Postoperative day 2	The patient was discharged after an uneventful early recovery.
Subsequent three months	Albendazole 400 mg orally twice daily was continued for 3 months, with monthly outpatient review and two-monthly liver-function monitoring; no early recurrence was documented.

Diagnostic Assessment

The complete blood count was within normal limits, whereas the erythrocyte sedimentation rate was elevated. Echinococcal serology was not performed. Chest radiography showed no evidence of pulmonary hydatid disease, and ultrasonography of the abdomen and pelvis did not demonstrate hepatic or other abdominopelvic hydatid cysts.

In the ultrasound examination of the neck, an unanticipated cystic lesion with internal particulate echoes consistent with hydatid sand (Gharbi type I) was detected. Fine needle aspiration cytology was performed using ultrasonography (safety precautions were exercised to avoid spillage of cyst-content and hypersensitivity). The fluid was clear with abundant calcified protoscolices and hooklets. Computed tomography with contrast enhanced neck revealed a left carotid triangle lesion (detached internal membrane; water-lily appearance), non-associated with other structures. Histological examination showed calcified protoscolices with attached hooklets and detached refractile hooklets consistent with a hydatid cyst. Other differential diagnoses were second branchial cleft cyst, lymphatic malformation, tuberculous or bacterial abscess, cystic nodal metastasis, cystic schwannoma, necrotic primary neck tumour. The diagnosis of an isolated cervical hydatid cyst was based on epidemiological history, hydatid sand, detached

membrane, parasitic structures on cytology, and negative thoracoabdominal screening.

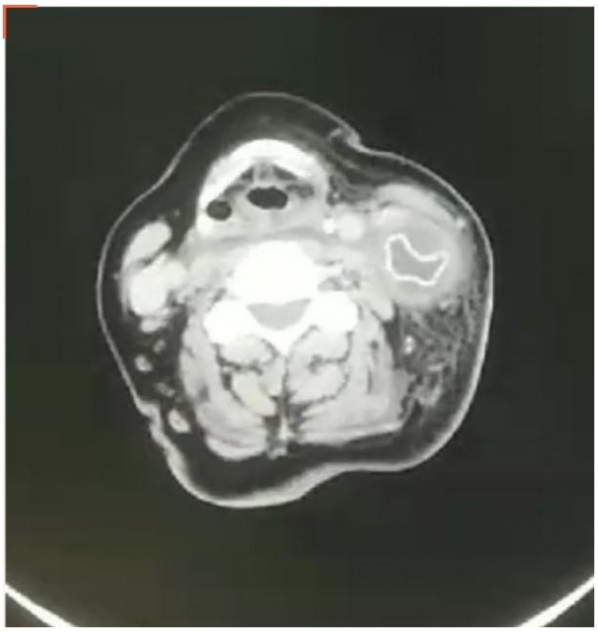

Figure 2. Axial contrast-enhanced computed-tomography image showing the cystic lesion in the left carotid triangle with a detached internal membrane producing a water-lily appearance.

Therapeutic Intervention

Albendazole 400 mg orally twice daily was given for 4 weeks preoperatively after baseline liver function evaluation, with liver function monitoring planned at two-monthly intervals. Under general anaesthesia, after adequate exposure of the lesion, the operative field was isolated with hypertonic saline-soaked packs as a scolicidal precaution. The cystic mass of 3.5 × 3 cm was then excised en bloc (in toto) with the cyst intact during the procedure.

Postoperatively, albendazole 400 mg orally twice daily was continued for 3 months. Outpatient follow-up was conducted monthly, with liver-function tests monitored every 2 months and surveillance for treatment-related adverse effects.

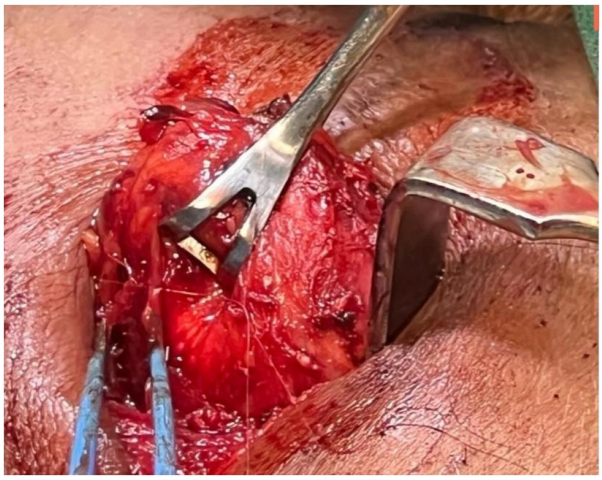

Figure 3. Intraoperative exposure of the cervical cyst during careful dissection before intact excision.

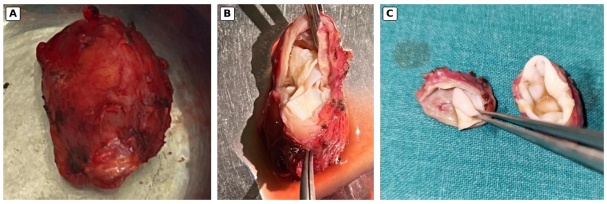

Figure 4. Gross operative specimen: (A) intact excised cystic mass; (B) opened specimen showing folded internal membranes; and (C) bisected specimen demonstrating the laminated cyst contents.

Follow-up and Outcomes

The patient had an uncomplicated postoperative recovery and was discharged on postoperative day 2. She attended monthly outpatient review during the 3 months of postoperative albendazole therapy at a dose of 400 mg orally twice daily, with liver-function monitoring every 2 months. No early recurrence, wound-related complication, neurological deficit, hypersensitivity event, drug intolerance, or other treatment-related adverse effect was documented. She was subsequently lost to follow-up; therefore, longer clinical and radiological surveillance, which would have been desirable because recurrence may become evident beyond the early postoperative period, could not be completed.

DISCUSSION

The unusual and important cause of cystic neck swelling. Cervical echinococcosis can be clinically silent for months because cyst growth is slow and the compliant soft tissues of the neck initially accommodate the increasing volume. Symptoms, on the other hand, develop when the lesion restricts vital structures (e.g., trachea, pharynx, recurrent laryngeal nerve, cervical sympathetic chain, brachial plexus, or carotid vessels). In the current patient, even at the carotid triangle, the lesion was painless and mobile. Other reported forms have described cervical hydatid cysts identified initially as thyroid lesions, congenital cysts, cold abscesses, or nonspecific soft-tissue tumours [7–9,12].

The echinococcal embryo is still not described by which route to the neck. Subsequent, other routes include via hepatic and pulmonary capillary filters, lymphatic dissemination to the thoracic duct, retrograde venous migration, or through vertebral or paravertebral venous plexuses. Despite higher epidemiological plausibility for cattle rearing, direct transmission from cattle is not suggested. People get the disease primarily by eating parasite eggs in food, water, soil, or on their hands contaminated with faeces from infected dogs. Hence a comprehensive epidemiological history should concentrate on contact with dogs, home slaughter, feeding of uncooked viscera to dogs, water sources, and place of residence in an endemic rural area.

The radiological pattern played a pivotal role in diagnosis. Hydatid sand includes free protoscolices, brood capsules, and particulate parasitic material, producing mobile echogenic contents on ultrasonography. The separation of the endocyst from the pericyst yields the water-lily sign, a highly suggestive manifestation of a detached or degenerating membrane. Extrahepatic cysts may, however, lack daughter cysts or other pathognomonic features and can resemble simple, inflammatory, or neoplastic cystic lesions [2,5,6]. Cross-sectional imaging is especially important in the neck due to delineating the relationship of the lesion to the carotid sheath, cranial nerves, thyroid gland, trachea, oesophagus, and prevertebral musculature. In this patient, chest radiography and ultrasonography of the abdomen and pelvis were negative, supporting an isolated cervical localisation.

Fine-needle aspiration requires particular caution. In this case, ultrasonography-guided FNAC demonstrated protoscolices and hooklets, and several cervical cases have been diagnosed cytologically [8,9]. Nevertheless, puncture of a suspected hydatid cyst is not a routine diagnostic manoeuvre because leakage may cause anaphylaxis, local dissemination, secondary implantation, or recurrence. A historical series of aspiration biopsies reported predominantly minor reactions but included a severe hypotensive episode requiring resuscitation [10]. When aspiration is essential, ultrasonographic guidance, a meticulous spill-minimising technique, and immediate availability of facilities for managing hypersensitivity may reduce procedural risk, although they do not eliminate it. Aspiration should otherwise be avoided when epidemiological and imaging findings are strongly suggestive of hydatid disease.

Complete excision without rupture is the definitive treatment of choice for a readily resectable cervical cyst. The goals are elimination of viable parasitic tissue, prevention of spillage, decompression of adjacent structures, and histopathological confirmation. En bloc excision was feasible in this case and was followed by an uncomplicated early recovery. Published cervical cases similarly report favourable outcomes after careful total excision combined with perioperative albendazole [7,8,12]. The operative field is often isolated with packs soaked in an appropriate scolicidal solution; however, the selected agent and concentration require caution because some preparations may injure adjacent tissues.

Perioperative albendazole is employed when microscopic leakage, residual viable material, or occult disease are risk factors in limiting protoscolex survival and recurrence. Previous surgical studies demonstrated that sufficient preoperative therapy reduced the viability of cysts, supporting benzimidazole treatment as an essential element [2,5,11]. Treatment duration varies according to the cyst site and stage, operative findings, response, and confidence in full extraction. Albendazole 400 mg orally twice daily was prescribed for 4 weeks prior to surgery in this patient and continued at the same dose for 3 months thereafter. Blood count was normal at baseline, liver function was assessed before treatment, and liver function tests were performed at 2-month intervals, with no drug intolerance or outcome related to treatment observed during follow-up.

The diagnosis was confirmed on concordant ultrasonographic, computed-tomographic, cytological, operative, and histopathological findings. Negative chest radiography and abdominal-pelvic ultrasonography supported an isolated cervical presentation. The internal coherence of the clinical course was further supported by intact excision and monthly postoperative review. The principal limitations were that echinococcal serology was not performed and follow-up was limited to the early postoperative period. Although FNAC was performed under ultrasonographic guidance with spill-minimising precautions and no immediate hypersensitivity event was documented, aspiration remains a potential source of leakage and needle-tract implantation.

The important point, in fact, is both diagnostic and procedural. The presence of hydatid disease should be considered in the differential diagnosis of an indolent cystic neck swelling in a rural resident with livestock-related activity or dog exposure. Anatomical localisation should be determined with cross-sectional imaging, and screening for hepatic and pulmonary involvement should be performed. Ultrasonographic guidance, minimisation of spillage, and readiness to treat hypersensitivity are required when aspiration is unavoidable. Surgery is undertaken with the aim of intact lesion removal, with the appropriate perioperative albendazole regimen and sufficiently prolonged clinical and radiological follow-up.

REFERENCES

1. Moro, P., & Schantz, P. M. (2009). Echinococcosis: A review. International Journal of Infectious Diseases, 13(2), 125–133. https://doi.org/10.1016/j.ijid.2008.03.037
2. Brunetti, E., Kern, P., & Vuitton, D. A., Writing Panel for the WHO-IWGE. (2010). Expert consensus for the diagnosis and treatment of cystic and alveolar echinococcosis in humans. Acta Tropica, 114(1), 1–16. https://doi.org/10.1016/j.actatropica.2009.11.001
3. McManus, D. P., Gray, D. J., Zhang, W., & Yang, Y. (2012). Diagnosis, treatment, and management of echinococcosis. BMJ, 344, e3866. https://doi.org/10.1136/bmj.e3866
4. Mandal, S., & Mandal, M. D. (2012). Human cystic echinococcosis: Epidemiologic, zoonotic, clinical, diagnostic and therapeutic aspects. Asian Pacific Journal of Tropical Medicine, 5(4), 253–260. https://doi.org/10.1016/S1995-7645(12)60035-2
5. Stojković, M., Weber, T. F., & Junghanss, T. (2018). Clinical management of cystic echinococcosis: State of the art and perspectives. Current Opinion in Infectious Diseases, 31(5), 383–392. https://doi.org/10.1097/QCO.0000000000000485
6. Dietrich, C. F., Douira-Khomsi, W., Gharbi, H., Sharma, M., Cui, X. W., Sparchez, Z., Richter, J., Kabaalioğlu, A., Atkinson, N. S. S., Schreiber-Dietrich, D., & Dong, Y. (2020). Cystic echinococcosis, review and illustration of non-hepatic manifestations. Medical Ultrasonography, 22(3), 319–324. https://doi.org/10.11152/mu-2537
7. Ghanem, M., Al Kazzaz, M. Z., & Soliman, A. (2021). Hydatid cyst in the neck, an unusual localization of the disease: A case report. International Journal of Surgery Case Reports, 85, 106274. https://doi.org/10.1016/j.ijscr.2021.106274
8. Acharya, S., Panda, S., & Biswal, S. (2022). Primary hydatid cyst of neck, a rare case report. Indian Journal of Otolaryngology and Head & Neck Surgery, 74(Suppl 3), 5946–5948. https://doi.org/10.1007/s12070-021-02580-2
9. Chakrabarti, I., & Goswami, B. K. (2012). Primary hydatid cyst of the neck diagnosed by aspiration cytology. Tropical Parasitology, 2(2), 127–128. https://doi.org/10.4103/2229-5070.105179
10. von Sinner, W. N., Nyman, R., Linjawi, T., & Ali, A. M. (1995). Fine needle aspiration biopsy of hydatid cysts. Acta Radiologica, 36(2), 168–172. https://doi.org/10.1177/028418519503600212
11. Morris, D. L. (1987). Pre-operative albendazole therapy for hydatid cyst. British Journal of Surgery, 74(9), 805–806. https://doi.org/10.1002/bjs.1800740918
12. Goyal, P., Ghosh, S., Sehgal, S., Panda, I., Kumar, A., Singh, S., & Tangri, N. K. (2014). Primary multilocular hydatid cyst of neck with unique presentation: A rare case report and literature review. Head and Neck Pathology, 8(3), 334–338. https://doi.org/10.1007/s12105-013-0502-8
13. Gagnier, J. J., Kienle, G., Altman, D. G., Moher, D., Sox, H., Riley, D., & CARE Group. (2013). The CARE guidelines: Consensus-based clinical case reporting guideline development. Journal of Medical Case Reports, 7, 223. https://doi.org/10.1186/1752-1947-7-223