Primary Hydatid cyst within the Facial nerve of the parotid gland

Ahmed Albtoush, Suhaib Almomani*,Hamza khair*, Ruba Shannaq**, Mohammad Alahmed*, Hammam Alryalat**

ABSTRACT

Hydatid disease is a zoonotic infection that is caused by the Echinococcus granulosus, which reaches the human intestine by eating food contaminated by dog's feces that contain the larval stage of the tapeworm. From the intestine and via the portal vein, it reaches the liver and the lungs (80%), and it may rarely cross the liver and lung capillary beds. Once in the arterial circulation, it may lodge in any site of the body; kidney, brain, bone, spleen, heart, and rarely the parotid gland (head and neck involvement is generally very rare). In rare cases where hydatid cysts were found in the parotid gland, to the best of our knowledge, none have been close to the facial nerve. Here, we present the case of a patient in whom the primary hydatid cyst was within the main trunk of the facial nerve inside the right parotid gland.

Keyword: Hydatid cyst, Echinococcus granulosus, parotid gland, facial nerve.

VOL.35 (1) APRIL 2026
DOI: 10.12816/0062530

CASE REPORT

We report the case of a patient with a primary hydatid cyst within the main trunk of the facial nerve in the right parotid gland. The patient was a 20-year-old female who presented with a swelling in the right parotid area that had slowly increased in size over the past year. On physical examination, the mass was cystic in nature, painless, soft, and freely mobile. It was about 2.5 × 2 cm.The mass revealed a well-defined multiloculated cystic lesion that showed a fluid signal on all sequences, and measured 2.5× 2.1× 2.7 cm, representing a simple intraparotid cyst. Fine-needle aspiration results were not conclusive. And thus a clinical diagnosis of a parotid cyst was made and surgical excision was planned. During surgery, the cyst wall was covered, surrounded, and infiltrated by ray-like fibers and contained multiple small milky white cysts that were filled with watery fluid. The ray-like fibers ended proximally and distally to the facial nerve. After excising the whole cyst, the facial nerve was repaired by a primary anastomosis using 10/0 nylon. In the histopathology lab, macroscopic examination revealed a soft tissue mass containing three milky-white colored cysts, the largest of which measured 3.5 × 1.8 cm. On microscopic examination, there was a laminated membrane and pericystic fibrous wall showing chronic inflammation and histocytic cell infiltrate. The nerve tissue was embedded within the pericystic fibrous wall with adjacent benign salivary gland tissue. After surgery, the patient had grade VI facial palsy. A computed tomography (CT) scan of the thorax and abdomen was negative for any other organ involvement. Albendazole tablets 800 mg/ day were given for 2 months. On follow-up, after 3 months, the patient had grade III right-sided facial palsy with no other problems.

From Deparment of :

**Otolaryngology department, King Hussein Medical Centre, Royal Medical Services*
***Histopathology department, King Hussein Medical Centre, Royal Medical Services*
Correspondence Author: Dr. Ahmad Al Btoush, Email (btoush.a.a@hotmail.com)

Discussion

Hydatid disease is a zoonotic infestation that is caused by a larval cestode from the genus Echinococcus. It occurs in humans only when they are accidental intermediate hosts, such as human ingestion of food that is contaminated by Echinococcus ova from domestic and wild members of the canine family, which leads to the ova hatching in the gastrointestinal tract[1]. Most of the ova are filtered by the liver (70%) or lung (25%) [2], but some of them escape into the general circulation and can involve any tissue throughout the body[3]. In children, the lungs are the most common site of infection followed by the liver. Hydatid cysts in the head and neck region are rare even in endemic areas[4], and thus, preoperative diagnosis of such cysts is challenging. However, hydatid cysts should be considered in the differential diagnosis of head and neck cystic swellings, which would affect both the management and outcome[5]. For example, fine needle-aspiration is not advised because of the risk of acute anaphylaxis due to spilling of cystic fluid contents and daughter cysts[6]. Furthermore, the aspirates of such cysts will contain serous or mucoid material of low cellularity which can also be obtained from Warthin's tumor, cystic pleomorphic adenomas, lymphoepithelial cysts, and many other lesions[7]. Immunologic tests such as enzyme linked immunosorbent assay (ELISA), and indirect immunofluorescence antibody test (IFAT) are recommended to confirming hydatid disease with 90% specificity and sensitivity for liver and 85% specificity and sensitivity for lung involvement[8].Surgery with intact total excision is the ideal management. Prophylactic anti-parasitic medications are recommended before surgery, but this is not mandatory[9].The risk of acute anaphylaxis or disease dissemination, must be considered during surgery to avoid cyst rupture.Care must be taken to avoid injuring any branches of the facial nerve because the cyst capsule might be attached to it due to infections and adhesions, which are not usually seen in simple parotid cysts. In our case, CT scan and magnetic resonance imaging (MRI) showed a well defined multiloculated right parotid gland cystic lesion that had a fluid signal on all sequences, and measured 2.5× 2.1× 2.7cm. There were no significant enhancements or restrictive patterns, and there were also no sizable lymph nodes or lymph node enhancement. (Figures 1and 2).

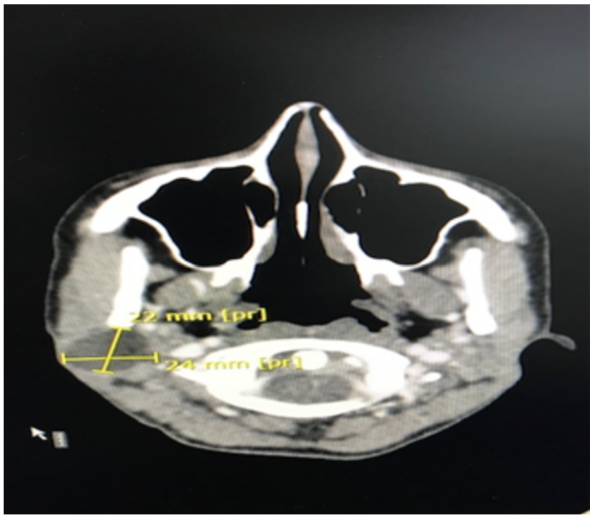

Figure 1. CT scan of the parotid cyst. Axial cut.

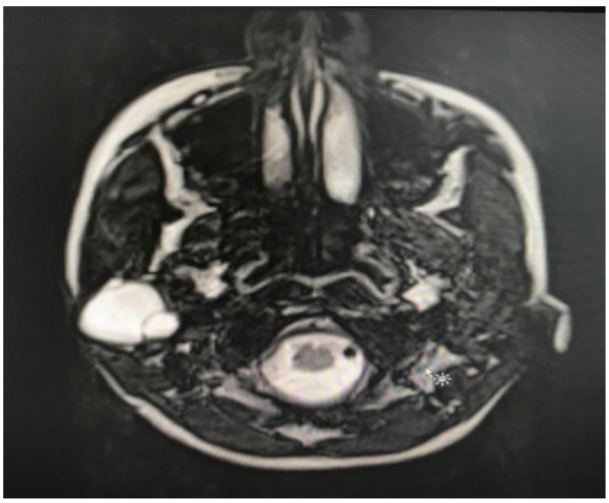

Figure 2. MRI of the parotid cyst. Axial cut.

Figure 3, shows the outer laminated membrane of the hydatid cyst and the inner germinative layer with two scolices. Figures 4 and 5 show the salivary gland tissue and adjacent fibrous cyst wall with chronic inflammation and histiocytic infiltrate. Figure 6 shows nerve tissue surrounded by pericystic fibrous wall (100× magnification, hematoxylin and eosin [H&E] stain).

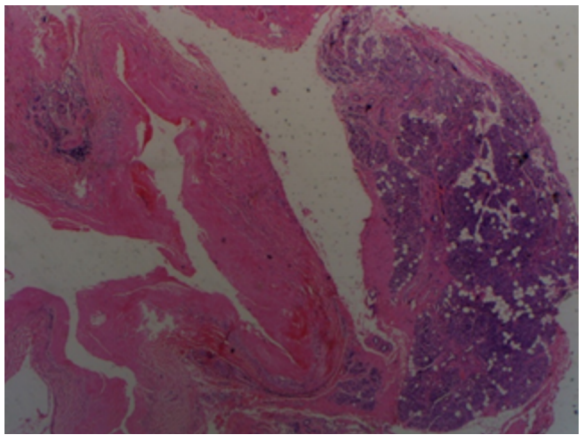

Figure 3. Outer laminated membrane of the hydatid cyst and the inner germinative layer with two scolices. Hematoxylin and eosin (H&E) stain, 100× magnification.

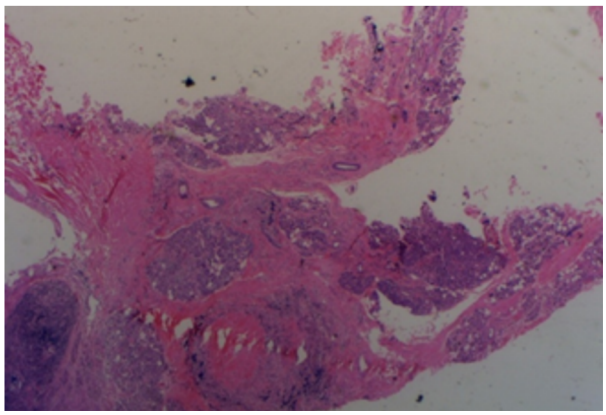

Figure 4. Salivary gland tissue and adjacent fibrous cyst wall, 40×magnification, Hematoxylin and eosin (H&E) stain.

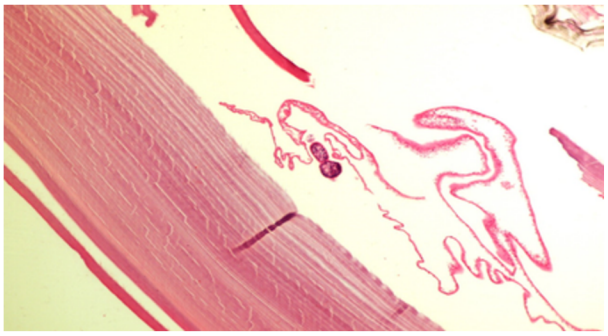

Figure 5. Salivary gland tissue and adjacent fibrous cyst wall, 40× magnification, Hematoxylin and eosin (H&E) stain.

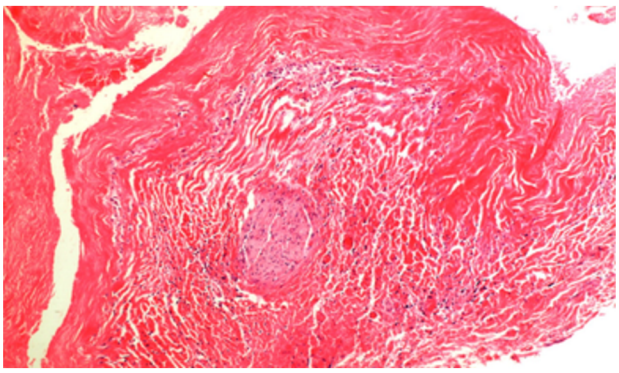

Figure 6. Nerve tissue surrounded by pericystic fibrous wall. 100× magnification, Hematoxylin and eosin (H&E) stain.

Conclusion

Despite the rarity of parotid hydatid cysts, they should be considered in the differential diagnosis as that might affect the investigations and management choices. A detailed and thorough history including residence, occupation and family history may be of a great value to suspect hydatid disease

Full facial nerve examination and assessment must be done before surgery, and the facial nerve monitor must be used during surgery

to decrease the risk of complications because the normal nerve tissue texture might be lost. Finally, the risk and proper management of anaphylaxis during surgery must be kept in mind.

References:

1.Zamani A, Kalikias S. Hydatid cyst of the parotid gland: a case report. Iranian J Pediatrics 2006; 16(1):95–8.

2. Singh DB, Kumar S, Bhattacharya AB. Hydatid Cyst in Parotid Gland- A Rare Case. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2013; 7: 01-04.

3. Sharma R, Sharma A. Primary hydatid cysts at unusual places: a case series. Sri Lanka J Surg 2011; 29(2):103–5.

4. Saydam FA, Basaran K, Pilanci O, Ersin I. Large hydatid cyst of the maxillozygomatic region. J Craniofacial Surg 2013; 24: e233–e4.Singh DB, Kumar S, Bhattacharya AB. Hydatid Cyst in Parotid Gland- A Rare Case. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)., 2013; 7: 01-04.

and Parija SC. A textbook of medical parasitology: 2nd ed. All India Publishers and Distributors: Madras, 2004, 220-9.

5. Bansal C, Lal N, Jain RC, et al. Primary hydatid cyst in the soft tissue of the face: an exceptional occurrence, 2011;56:768–70.

6. Sennaroglu L, Nerci M, Turan E, Sungur A. Infratemporal hydatid cyst: Unusual location of echinococcosis. J Laryngol Otol. 1994; 108:601-3.

7. Kikuchi M, Shinohara S, Fujiwara K, Hori SY, Tona Y, Yamazaki H, et al. [Cystic parotid gland lesion evaluation]. Nihon Jibiinkoka Gakkai Kaiho 2010; 113(5):441–9.

8. Khabiri AR, Bagheri F, Assmar M, Siavashi MR. Analysis of specific IgE and IgG subclass antibodies for diagnosis of Echinococcus granulosus. Parasite Immunology. 2006;28(8):357–362.

9. Akal M, Kara M: Primary hydatid cyst of the posterior cervical triangle. J Laryngol Otol. 2002, 116: 153-155.