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CASE REPORT

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Bronchogenic cyst of the posterior neck mimicking lymphatic malformation

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Abstract

Bronchogenic cysts are embryologic malformations of the foregut and are rarely found head and neck region. Here we present a case of an upper scapular/lower posterior neck cystic mass which was initially suspicious for lymphatic malformation but confirmed by pathology to be an ectopic bronchogenic cyst.

KEYWORDS

bronchogenic cyst, lymphatic malformation, scapula

1 | INTRODUCTION

Bronchogenic cysts are embryologic malformations of the foregut. Typically, these masses are found within the thoracic cavity, but have rarely been reported in the head and neck region.[1] Bronchogenic cysts can be asymptomatic or can present with pain, fistula formation, or functional impairment depending on location.[2,3] Here, we present a case of an upper scapular/lower posterior neck cystic mass, which was initially suspicious for lymphatic malformation but confirmed by pathology to be an ectopic bronchogenic cyst.

2 | CASE

A 16-month-old female presented to clinic with concerns of a right posterior shoulder cystic mass (Figure 1), with no significant past medical or surgical history. The lesion was present at birth, was progressively enlarging, and occasionally would shrink or swell without erythema or tenderness. On examination, the mass was approximately 4–5 cm in size, well circumscribed, mobile, and had a slight telangiectatic appearance. An ultrasound (Figure 2) demonstrated a lobular cystic lesion confined to subcutaneous tissues with internal layering without evidence of

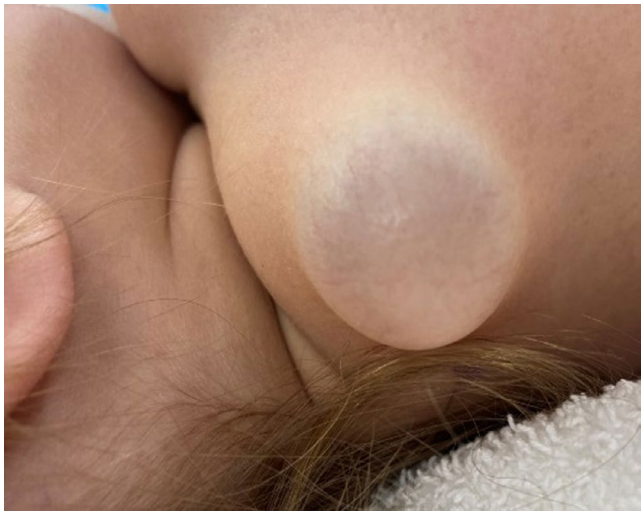

FIGURE 1 Right scapular cystic mass

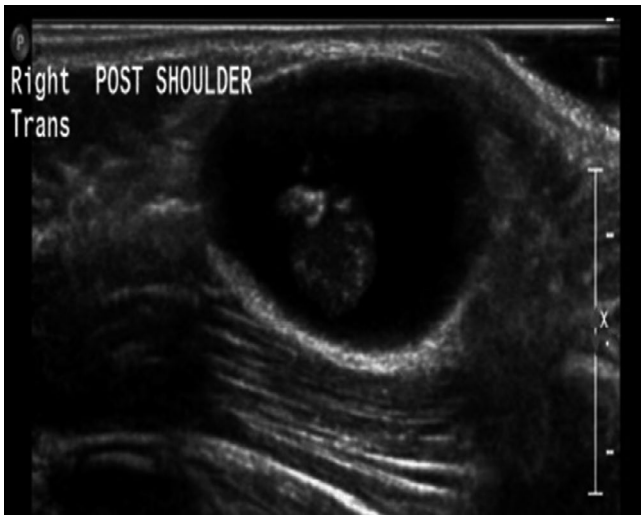

FIGURE 2 Ultrasound of mass. Noted to be confined to the subcutaneous tissues without evidence of fistulous connection or fibrous stalk

internal vascularity. The history, physical examination, and imaging results all favored the diagnosis of a macrocystic lymphatic malformation and the parents elected to proceed with excisional biopsy. The mass was excised en-bloc along with overlying skin and subcutaneous tissue with a combination of sharp and circumferential blunt dissection without capsule penetration (Figure 3). There was no fistulous component or deep extension into the neck. The patient did well postoperatively and discharged home without complication. Final pathologic analysis demonstrated respiratory epithelium comprised of ciliated pseudostratified columnar cells, consistent with bronchogenic cyst (Figure 4A).

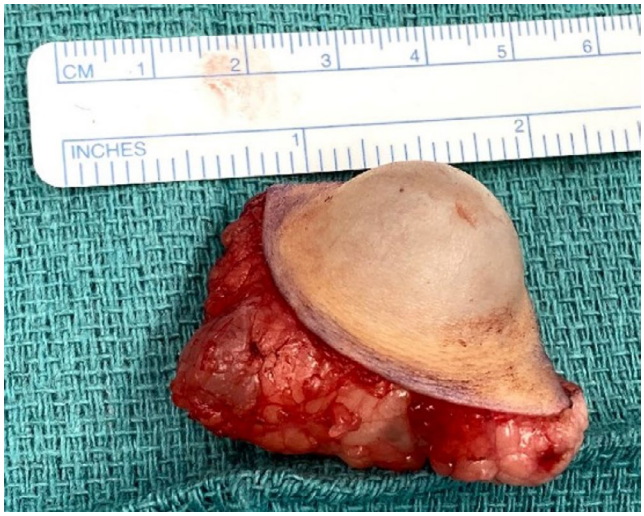

FIGURE 3 Excised mass with overlying skin and subcutaneous tissue

3 | DISCUSSION

Ectopic bronchogenic cysts form during the development of the foregut due to aberrant budding of the tracheal primordia when the foregut divides into the tracheal and esophageal precursors. The final location of bronchogenic cysts is dependent on when this budding occurs; budding which occurs prior to sternal mesenchymal fusion results in cysts which are tethered to the thorax, while budding after sternal mesenchymal fusion can result in cysts confined to the subcutaneous tissues and rarely migration into the head and neck region.[3]

Both diagnosis and treatment require excision followed by histopathological analysis demonstrating ciliated pseudostratified columnar epithelium with seromucous glands, smooth muscle, fibrous connective tissue, and cartilage.[2] Excision is indicated to avoid complications including infection, compression of adjacent structures, and rare malignant transformation to bronchoalveolar carcinoma.[1] Care should be taken to excise the lesion completely to avoid risk of recurrence due to incomplete resection.[2]

The differential diagnosis for a cystic mass in the head and neck region is broad and includes thyroid cysts, cervical thymic cysts, branchial cleft cysts, dermoid cysts, epidermoid cysts, cystic neuromas, teratomas, and vascular malformations including lymphatic malformations.[2,3] Lymphatic malformations are benign neoplasms that arise due to disorganized development of the lymphatic system which can lead to pain, swelling, cellulitis, and compression of adjacent structures.[4,5]

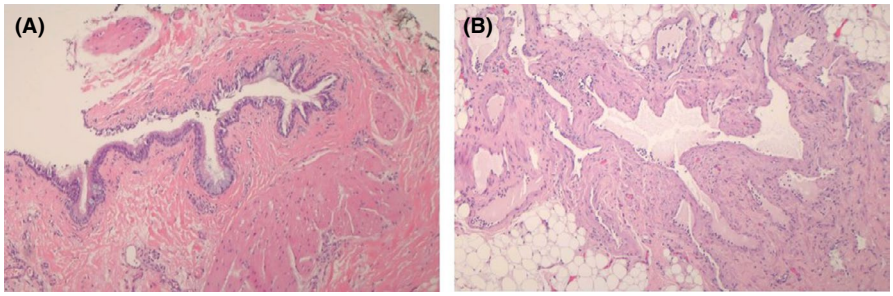

FIGURE 4 (A) The cyst space in a bronchogenic cyst is lined by respiratory-type epithelium comprised of ciliated pseudostratified columnar cells. The underlying stroma exhibits fibrous connective tissue with intervening bland smooth muscle. Cyst invaginations into the connective tissue stroma contain gray-blue seromucinous glandular differentiation (4×). (B) Typical lymphatic malformation exhibits dilated lymphatic channels coursing through fibrous stroma with admixed myofibroblasts and smooth muscle cells. The lumina are lined by thin-walled endothelial cells, in contrast to columnar epithelium demonstrated in respiratory-type epithelium in bronchogenic cyst. Pale pink proteinaceous material and lymphocytes are found in the lumina (4×)

In the presented case, the suspicion for a macrocystic lymphatic malformation was high given the history of being present at birth and occasional changes in size, a physical examination demonstrating compressibility and mobility and an ultrasound demonstrating a dilated cystic structure. Intraoperatively, this bronchogenic cyst was indistinguishable from an isolated macrocystic lymphatic malformation. Histologically, lymphatic malformations can be easily differentiated from bronchogenic cysts due to the presence of dilated lymphatic channels lined by endothelial cells (Figure 4B). While surgical excision can be a definitive treatment for macrocystic lymphatic malformations, adjuvant therapies including sclerotherapy can be utilized for more complex lesions, but these treatments are not indicated in the case of bronchogenic cysts.

4 | CONCLUSION

Bronchogenic cysts arise as a congenital abnormalities which can mimic macrocystic lymphatic malformations. It is vital to keep the differential of these masses broad before considering adjuvant therapies. Surgical excision is indicated for definitive diagnosis and to avoid further complications such as infection, compression of surrounding structures, malignant transformation, and fistula formation.

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CONFLICT OF INTEREST
The authors report no personal or financial conflict of interest.

AUTHOR CONTRIBUTIONS
AY wrote the manuscript. SR and RS compiled clinical data, photographs, and pathology slides. ML and LGK provided pathological analysis. GS evaluated the patient and performed the surgical excision.

ETHICAL APPROVAL
The patient highlighted in this case signed informed consent to release all information and photographs for this publication.

CONSENT
The enrollment of a human subject described in this case report was approved by the UAMS IRB # 114012, and the described patient signed consent to permit the publication of color photographs.

DATA AVAILABILITY STATEMENT
Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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