

Answers to Medical Quiz

A1. Figure 1 is an ultrasound and figure 2 is MRI.

A2. A large left cervical cystic lesion with infected fluid is revealed in the ultrasound. The swelling is extending in the retropharyngeal space as seen in MRI.

A3. Branchial cleft cyst and cystic hygroma.

DISCUSSION

The branchial clefts, also known as pharyngeal clefts, develop at the fourth week of embryonic life. The branchial clefts contribute to the development of the branchial (or pharyngeal) arches, which lead to the formation of different components of the thorax, the head and the neck¹⁻³.

A branchial cleft cyst is a type of congenital birth defect known as branchial cleft remnant resulting in swelling of one or both sides of the cervical region. Embryonic anomalies of the branchial cleft are arising from the second branchial arch in 90% of the cases¹⁻³.

Branchial cleft fistula on one or both sides of the neck is another rare developmental anomaly of branchial clefts. Second arch anomalies are the most common types, and they are classified into four types: Type I lies anterior to the sternocleidomastoid muscle; Type II passes deep into the sternocleidomastoid muscle; Type III passes between the external and internal carotid vessels, and Type 4 lies medial to the carotid arteries⁴⁻⁶.

Branchial cleft cysts are the most common embryonic anomaly resulting in swelling at cervical region. The incidence of unilateral branchial cleft cysts is unknown. On the other hand, the incidence of bilateral branchial cleft cysts is approximately 2% to 3% of the cases⁴⁻⁶.

Most presentation of branchial cleft cysts are asymptomatic solitary painless masses. They may become inflamed as a result of upper respiratory tract infection^{5,6}.

Symptoms depend on the size and the anatomical extension of the branchial cleft cyst. Symptoms including dysphagia, dysphonia, dyspnea and stridor may occur as a result of pressure effect of these branchial cleft cysts^{5,6}.

Symptoms of branchial cleft sinuses consist of intermittent discharge and recurrent attacks of inflammation following upper respiratory tract infection or cellulitis or abscess formation^{5,6}.

The diagnosis of a branchial cleft cyst is based on physical examination and imaging including ultrasound, MRI scan or CT scan⁷.

Differential diagnosis of branchial cleft cysts includes cervical lymphadenopathy, vascular neoplasms and malformations, hemangioma, carotid body tumor, cystic hygroma and ectopic thyroid tissue⁷.

Recurrence of branchial cyst is uncommon after surgical excision; the estimated risk of recurrence could be 3% to as high as 20%⁸.

Aspiration of the branchial cleft cyst is helpful to inject antibiotic therapy for infected cysts. Antibiotics are required to treat infections of branchial cleft cysts before the definitive treatment. Surgical excision is the definitive treatment for branchial cleft cysts⁸.

Sclerotherapy, using ultrasound guidance with OK-432 (Picibanil) has been reported to be an effective treatment in selective cases of branchial cleft cysts^{7,9}.

CONCLUSION

Branchial cleft cysts are rare embryonic anomalies in the cervical region. Most cases of branchial cleft cyst present as painless swelling. Ultrasound and MRI or CT scan is essential for diagnosis. Surgical excision is the treatment of choice with excellent outcome.

Potential Conflicts of Interest: None.

Competing Interest: None.

Sponsorship: None.

Acceptance Date: 8 November 2016.

Ethical Approval: Approved by the Department of Pediatrics, Salmaniya Medical Complex, Bahrain.

REFERENCES

1. Graney DO, Sie KCY. Anatomy and Developmental Embryology of the Neck. In: Flint PW, Haughey BH, Lund VJ, et al, eds. Cummings Otolaryngology Head & Neck Surgery. 5th ed. Philadelphia, PA: Mosby, 2010: 2577-86.
2. Rosa PA, Hirsch DL, Dierks EJ. Congenital Neck Masses. Oral Maxillofac Surg Clin North Am 2008; 20(3):339-52.
3. Spinelli C, Rossi L, Strambi S, et al. Branchial Cleft and Pouch Anomalies in Childhood: A Report of 50 Surgical Cases. J Endocrinol Invest 2016; 39(5):529-35.
4. Vemula R, Greco G. An Unusual Presentation of Presentation of a Branchial Cleft Cyst. J Craniofac Surg 2012; 23(3):e270-2.
5. Muller S, Aiken A, Magliocca K, et al. Second Branchial Cleft Cyst. Head Neck Pathol 2015; 9(3):379-83.
6. Goff CJ, Allred C, Glade RS. Current Management of Congenital Branchial Cleft Cysts, Sinuses, and Fistulae. Curr Opin Otolaryngol Head Neck Surg 2012; 20(6):533-9.
7. Kim JH. Ultrasound-Guided Sclerotherapy for Benign Non-Thyroid Cystic Mass in the Neck. Ultrasonography 2014; 33(2):83-90.
8. Nixon PP, Healey AE. Treatment of a Branchial Sinus Tract by Sclerotherapy. Dentomaxillofac Radiol 2011; 40(2):130-2.
9. Wiegand S, Eivazi B, Zimmermann AP, et al. Sclerotherapy of Lymphangiomas of the Head and Neck. Head Neck 2011; 33(11):1649-55.