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Discharging sinus in the neck: A case report in a 5 years old child

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Abstract

We present a case of 2nd branchial arch anomaly in a 5 year old boy with 2 year history of neck swelling and discharge. Branchial arch anomalies are classified as congenital neck masses. They are sub- classified according to the level of occurrence and complete surgical excision is the treatment of choice. Most patients present with non-bloody diarrhea, weight loss along with other common symptoms like nausea, vomiting and abdominal pain. Our case is different as predominant clinical problem was intractable vomiting and weight loss.

Keywords

branchial arch; congenital neck masses

Introduction

Branchial arch anomalies represent 30% of congenital neck masses while second Branchial cleft malformations are most common amongst all (95%) [1,2]. They occur secondary to incomplete obliteration of Branchial cleft apparatus (widely accepted theory). The cleft apparatus typically begins to form at second week of gestation and completes by 6-7 week. There is no gender predilection and they commonly present as cyst and sinuses/fistulas with former being common in 2nd to 4th decade of life and latter being more common in 1st decade [2,3]. They have a distinctive appearance on radiology (US/CT/MRI) and complete surgical excision is the treatment of choice.

We present our case of Branchial sinus in a 5 year old boy.

Case Report

A 5-year-old Saudi boy with no known co-morbidity presented in ENT clinic with history of left

sided neck swelling with Scanty, mucoid discharge for more than 2 years. Initially a small (1-1.5cm) swelling was present but later turned into a discharging sinus. The ear, nose and throat examination was unremarkable, while the neck examination revealed a left sided small (0.2 x 0.3cm) opening anterior to lower third of anterior border of sternocleidomastoid muscle. While the overlying skin was normal color without inflammation and no underlying swelling was palpated. All the base line laboratory investigations (CBC, ESR, U&E) were found to be normal, while C.T scan neck with I/V contrast did not reveal any swelling or a fistulous tract.

Patient was admitted with suspicion of 2nd branchial sinus/fistula and planned for excision under general anesthesia after consent. After aseptic preparation, an elliptical incision was made over the draining sinus in left side of neck and the tract traversed anterior to the carotid; reaching the left tonsil (Upper pole, Type IV). The fistula was subsequently excised, and tonsillectomy done on the same side (Figure 1). Post-operatively the patient remained well and discharged the very next day on oral co-amoxiclav (weight adjusted dose). A-12-month follow-up revealed no signs of recurrence of the disease.

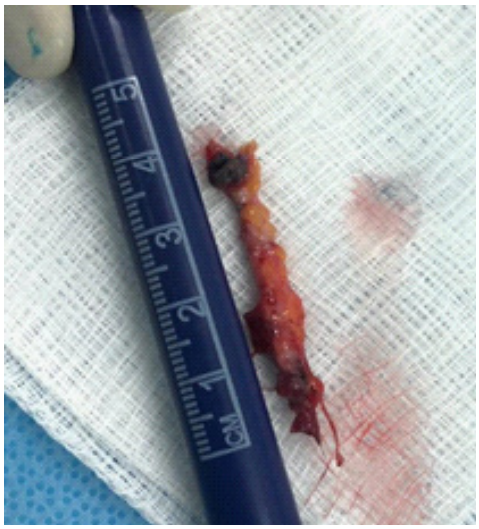

Figure 1: Figure shows the excised tract.

Discussion

Embryologically, the second arch forms the hyoid bone and anatomical structures adjacent to it. The second-pouch gives rise to the epithelium of the palatine tonsil and the supra-tonsillar fossa. The failure of this pouch to close can form a fistulous tract between palatine tonsil and the lateral neck. On its course to the supratonsillar fossa, the tract may pass adjacent to the glossopharyngeal and hypoglossal nerves [2-7].

The second Branchial cleft/arch classified into 4 types by Bailey and Proctor and have a well defined anatomical pathway related to them [4-6] (Table 1).

Table 1: Shows Different types by Bailey and Proctor.

	Type 1	Type 2 (common)	Type 3	Type 4
Bailey	Superficial only, Anterior to SCM, deep to Platysma	Anterior to SCM, Lateral To Carotid space, posterior to sub mandibular gland	Between bifurcation of carotid extending to lateral pharynx	Open into the pharynx
Proctor	Cyst Superficial and anterior to SCM and deep to cervical fascia	Cyst lying over great vessels	Extension in between great vessels	Adjacent to to pharyngeal wall and medial to great vessels

SCM: sternocleidomastoid muscle

The typical presentation in an adult is a long-standing history of painless swelling in lateral neck anterior to SCM, which increase in size with Upper Respiratory Tract Infection, while in infants and children the fistula and draining sinuses are more common. Bilateral second branchial-anaomaly is rare (2-13%)[6] but these cysts have been reported as a part of branchio-Oto-/Renal syndrome (BOR) as well [8-10].

Differential in children usually include bronchogenic cyst or cervical thymic cyst, but in adults metastatic squamous-cell carcinoma should be considered unless proven otherwise [11] and occasional papillary thyroid carcinoma [12] has also been reported in literature.

Most frequently used radiology investigations are US, CT, MRI. Ultrasound for second branchial cyst show's round to ovoid anechoic mass surrounded by a margin which is thin and well defined as compared to CT with contrast which shows well circumscribed, solitary, homogenous cyst like structure with thin capsule. While on MRI with contrast the cyst fluid may appear hyper or hypointense on T1images but almost always hyper intense on T2 images [13-15]. We prefer the use of CT scan with contrast at our institute which provides a better anatomical orientation of neck (>80 % sensitivity and >90 % diagnostic accuracy) [16].

These various radiological findings are subject to change during an active/acute infection. Even though all these radiologic finding may point towards the benign nature of the disease but in a series of 196 adult Patients by Pietarinen et alshowed 3.1% to have metastatic squamous cell carcinoma and 0.5% to have metastatic papillary thyroid carcinoma despite the radiology was consistent with branchial cleft cyst [17].

Second branchial cyst is usually lined by squamous epithelium while branchial sinus and fistulae with ciliated columnar epithelium [18,19] with yellowish to brown turbid material on gross examination [6,7].

Surgical excision is the treatment of choice, but infected fistula needs antibiotic before excision. In the surgical field. Surgeons agree that cyst or the fistulous tract should be removed in its entirety to reduce rate of recurrence. But the timing of surgery in pediatric population is still debated. Some advocate surgical intervention as early as 1 year [20] due to recurrent infections and unavoidable morbidity associated with it. Others argue the surgery should be delayed till age of three to make it safe for anesthesia and post operative recovery [21].

Conclusion

Second branchial cleft anomalies are uncommon and should be treated with complete excision of the tract to reduce the chance of recurrence and infection. Ipsilateral tonsillectomy is recommended if the tract extends to the tonsil.

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