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BRANCHIAL CLEFT FISTULA – A RARE CASE REPORT

Otorhinolaryngology

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ABSTRACT

Branchial cyst, fistula, and sinuses are the anomalies of the branchial apparatus which consists of five mesodermal arches separated by invaginations of the ectoderm called as clefts. The incomplete branchial fistula is not an uncommon congenital anomaly of branchial apparatus but a complete one is rare. Here we discuss a case of 9 yr old child who presented to ENT OPD with discharging sinus on right lateral side of neck since 2 years with on and off episodes.

KEYWORDS

INTRODUCTION

Branchial cyst, fistula, and sinuses are the anomalies of the branchial apparatus which consists of five mesodermal arches separated by invaginations of the ectoderm called as clefts. The branchial fistula is not a true fistula as it rarely has two openings. The incomplete branchial fistula is not an uncommon congenital anomaly of branchial apparatus but a complete one is rare. Surgical managements which form the mainstay of these branchial apparatus anomalies are based on accurate understanding of the embryology and surgical anatomy.

Case Report

A 9yr old child presented to ENT OPD with discharging sinus on right side of neck .According to his mother the discharging sinus was first noted when the child was 3yrs old. Also he complained of pain and redness around the area of the sinus opening.

On examination a discharging sinus was seen along the anterior border of sternomastoid muscle on the right side of neck. Also on squeezing around it, secretions were seen. There was tenderness and local rise of temperature.

Fistulogram and ultrasound neck was done which demonstrated a tract extending from anterior border of sternocleidomastoid muscle to tonsillar fossa. Medical treatment in the form of antibiotics and analgesics were given to subside the active infection .Surgical management involved giving step-ladder incision in the neck on right side ,exposing the fistula and complete branchial tract removal.

DISCUSSION

Second branchial anomalies present along the anterior border of sternocleidomastoid in its lower third. The tract commonly extends into the pharynx entering anywhere from nasopharynx to hypopharynx but most commonly in the region of tonsillar fossa[1]. The tract usually passes between the second and third arch structures, i.e. it passes medially between the internal and external carotid arteries above the glossopharyngeal nerve and below the stylohyoid ligament[2].

Second arch anomalies are categorized into four types[3]:

- Type I lesions are located anterior to the sternocleidomastoid muscle and do not interact with the carotid sheath.
- Type II lesions, the most prevalent, pass deep to the sternocleidomastoid muscle and either anterior or posterior to the carotid sheath.
- Type III lesions traverse between the internal and external carotid arteries and are close to the pharynx.
- Type IV lesions are medial to the carotid sheath, near the pharynx and tonsillar fossa.

Fistulas are typically present at birth with a small external opening that might go unnoticed.

The complete fistula is very rare and the internal opening at the tonsillar fossa may rarely be patent, so it is usually a sinus with variable extension into the neck

Contrast fistulogram is the commonest investigation done which rarely delineates a complete fistula[4]. Contrast multislice computed tomography fistulogram with 3D reconstruction delineates the fistula tract from the carotid sheath and the lower cranial nerves. Imaging helps exact surgical excision which reduces recurrence while reducing morbidity of blind exploration .Contrast MRI delineates well associated branchial cleft cysts and for parapharyngeal masses that may be second branchial cleft cysts[5].

Better soft-tissue contrast in T1-weighted images provides better delineation of the upper half of the fistula where it enters the bifurcation and ends opening in the tonsillar fossa. Ultrasonography using high resolution probes are useful only in cystic lesions which may demonstrate cellular material, cholesterol crystals and keratin.

As management of the fistula is essentially surgical, several approaches are described in literature. Surgical techniques include hockey stick or step ladder incisions, with current preference for methods involving two transverse incisions for branchial fistula removal[6]. Combined transcervical approach is the conventional procedure of choice for branchial fistulas. While RAHI (retroauricular hairline incision) approach and endoscopic approaches need expertise and more instrumentation, meticulous cosmetic surgery techniques help to reduce scars of the transcervical approach.

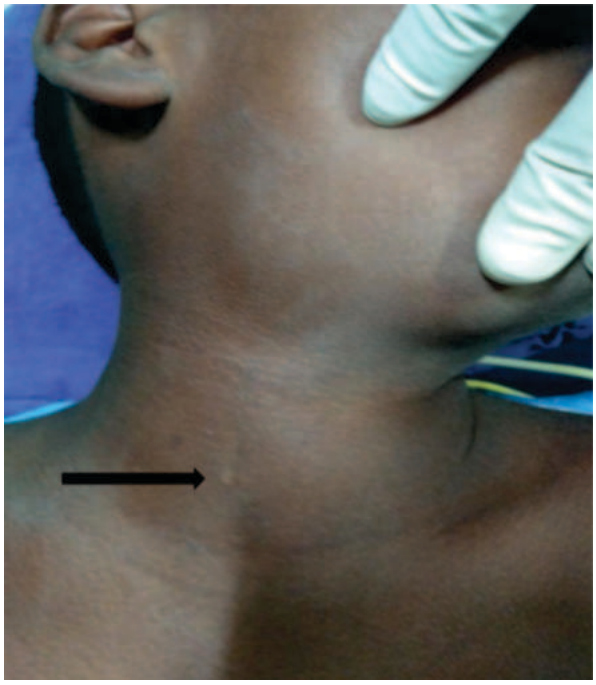
Other modality of treatment includes

(a) sclerosing agents which is seldom used today due to the associated inflammatory reaction and the risk of necrosis with perforation into the pharynx
(b) stripping method was described by Taylor and Bicknell in 1977, but this has not been widely used due to great risk of damage to adjacent structures

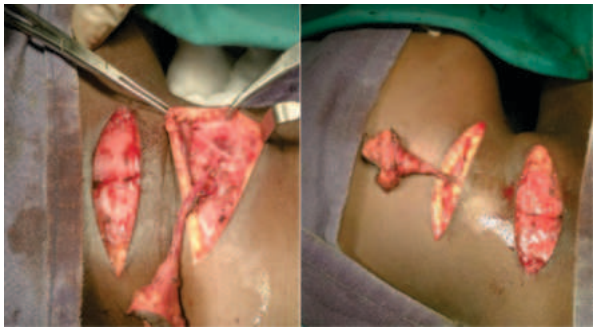
CONCLUSION

Branchial cleft abnormalities occur as a result of an incomplete obliteration of the branchial apparatus during fetal development. Complete branchial fistulas from the second branchial cleft are rare and removal by transcervical approach is difficult. At times it is to be combined with transoral approach. Surgical complications may include recurrences, secondary infections, nerve injuries and

hematoma formation. Post operative scar may be a cosmetic concern for the patients.



Pre Operative Picture Showing Discharging Sinus.



Intra Operative Picture- Step Ladder Incision And Excision Of Whole Tract.

Gross Specimen

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