

A combined approach excision of branchial fistula

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Abstract

Second branchial cleft and pouch anomalies are by far the commonest of the branchial anomalies. In most cases, however, there is a unilateral cleft sinus. A complete fistula with external and internal openings is rare. We present a case with a complete branchial fistula in which the tract was followed from the neck to the tonsillar fossa using a combined approach.

Key words: Branchial apparatus; Fistula; Surgery

Introduction

Although the branchial apparatus was first described by Von Baer (1827), a mere five years later anomalies in its development were credited with resulting in cervical fistulas (Von Ascheron, 1832).



FIG. 1
Pre-operative sinogram.

By 1864 the term 'branchial fistula' had been applied (Simpson, 1969). Soon, cysts of the lateral neck were ascribed to branchial origin. Everything appeared to fit nicely into this neat categorization until 1912 when Wenglowski (1912) published the results of his dissection of cadavers and human embryos, which led to doubts about the branchiogenic origin of many lateral cervical cysts. However, almost all surgeons agree that congenital lateral cervical sinuses and fistulas result from anomalies of the branchial clefts or pouches.

Case report

A 16-year-old boy presented with a discharging sinus at the anterior border of the left sternomastoid muscle which had been present since birth. A diagnosis of branchial fistula was made clinically. A pre-operative sinogram showed a sinus 6 cm long extending upwards into the neck stopping short of the hyoid bone (Figure 1). No connection to the pharynx was seen.

Methylene blue was injected through the opening with the aid of a 16G cannula. An elliptical incision was made, including the fistulous opening, and the tract was dissected as high as possible in the neck. At this stage a Boyle-Davis

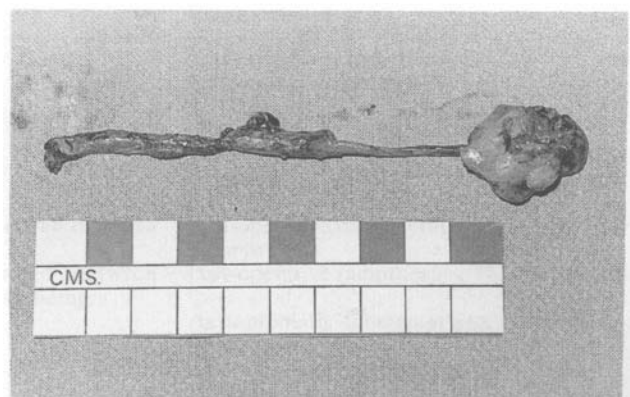


FIG. 2
Tonsil with 10 cm tract attached.

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mouth gag was applied. The methylene blue injected into the fistula was found in the pharynx. A small pinpoint opening was found near the posterior pillar of the tonsil. Gentle traction on the tract from outside produced a dimple at this point indicating the site of the internal opening. Tonsillectomy was performed and the tract dissected through the tonsillar fossa. The tonsil with the 10 cm tract was delivered as one specimen through the mouth (Figure 2).

The anterior pillar was approximated to the posterior pillar using 30 vicryl. The external incisions were closed and a drain inserted in the neck for 24 hours.

Discussion

The second branchial cleft fistula and sinus is encountered along the anterior border of the sternocleidomastoid muscle in its lower third and may be bilateral (Telander and Deane, 1977). Its course is deep to the platysma muscle between the second and third pharyngeal arch structures by ascending along the carotid sheath and passing medially between the internal and external carotid arteries above the glossopharyngeal nerve and below the stylohyoid ligament (Chandler and Mitchell, 1981). The fistula may open into the pharynx usually in the region of the intertonsillar cleft of the palatine tonsils.

Second cleft anomalies may take several forms. There may be a simple sinus opening (usually only of pinpoint size) which extends up the neck for a variable distance. A complete branchial fistula with external and internal openings is rare. In a retrospective study of 98 branchial arch anomalies who presented to the Hospital for Sick Children in London between 1948 and 1990, only two complete fistulas were found (Ford *et al.*, 1992).

In our case, a pre-operative sinogram failed to reveal the whole extent of the fistula. The diagnosis of complete fistula was made at the time of the operation when methylene blue injected into the fistula to facilitate dissection was found in the pharynx.

We feel that pre-operative sinograms and methylene blue injection do not necessarily show the whole extent of the tract because it may be blocked by secretions or granulations. In excision of a branchial fistula, the tract should be followed up through the neck as high as possible and at this stage a Boyle-Davis mouth gag should be

inserted. The tonsillar fossa on the side of the fistula can then be examined for the presence of an internal opening. Gentle traction on the tract from outside will cause a dimple in the tonsillar fossa at the site of the internal opening if present.

If an internal opening is found, usually in the intertonsillar cleft, tonsillectomy and dissection of the remaining part of the tract including the elliptical area of mucosa around the internal opening can be completed through the tonsillar fossa.

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