

## Clinics in Diagnostic Imaging (66)

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Fig. 1 Clinical photograph shows an external opening in the right side of the neck.



Fig. 2 Fistulogram through the external opening in the right side of the neck.

An 18-year-old woman was admitted with a history of discharging sinus in the lower third of the neck since birth. On examination, the external opening was seen at the anterior border of the right sternomastoid

muscle (Fig. 1). Routine haematological investigations were normal. A fistulogram was performed (Fig. 2). What does it show?

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### IMAGING INTERPRETATION

A fistulogram was obtained by cannulating the external opening of the fistula in the neck using a 6F infant feeding tube, followed by gentle injection of water soluble contrast agent, Urografin 76% (sodium diatrizoate). The entire fistulous tract was delineated and the dye was seen entering the lateral wall of the oropharynx in the tonsillar region.

### DIAGNOSIS

Right complete branchial fistula.

### CLINICAL COURSE

The entire fistulous tract was excised at surgery and the patient had an uneventful recovery. Histopathology of the specimen revealed pseudostratified ciliated columnar (respiratory) epithelium with lymphoid follicles, in keeping with a branchial fistula.

### DISCUSSION

Radiologically-demonstrable complete branchial fistulae are uncommon. Branchial fistulae are formed due to the persistence of the embryonic second branchial cleft. There is a slight female preponderance and they are more commonly seen on the right side. Anatomically, these fistulae have an external opening in the mid or lower part of the neck along the anterior border of the sternomastoid muscle. The tract extends deep to the platysma, along the carotid sheath, passing between the bifurcation of the carotid arteries after crossing over the hypoglossal and glossopharyngeal nerves. It then passes below the stylohyoid ligament to open internally in the lateral wall of the pharynx posterior to the tonsil.

Clinically, most patients present with an intermittently discharging sinus in the neck. A history of neck abscess may also be obtained. Pre-operative evaluation of the fistulous tract may be done by a simple contrast fistulogram. Unfortunately, this is not

practised often enough. Visualisation of a complete fistula up to the tonsillar region is rare<sup>(1,2)</sup>. Ford et al documented one case in their series of 98 fistulae in which the entire tract was visualised<sup>(1)</sup>. Treatment consists of complete excision of the fistulous tract. Using more than one incision may be necessary.

Histology of the sinus tract usually shows a lining of respiratory epithelium with submucosal lymphoid tissue. Squamous cell lining, and mixed respiratory and squamous lining may also be seen<sup>(1)</sup>. The recurrence rates following surgery vary and up to 3% recurrences have been reported<sup>(1)</sup>. This is probably due to incomplete surgical excision. In conclusion, radiologically-demonstrable complete branchial fistulae are uncommon. Majority of the tracts are incomplete and end blindly. A fistulogram, which is easily done, will clearly delineate the fistulous tract enabling complete excision and thereby reducing recurrence rates.

### ABSTRACT

**We report a case of complete branchial fistula in an 18-year-old woman which could be demonstrated by a contrast study. The tract was completely excised and the patient had an uneventful recovery. Branchial fistulae are formed due to the persistence of the embryonic second branchial cleft. Complete fistulae with the internal opening in the region of the tonsillar fossa are not common.**

**Keywords:** Branchial fistula, fistulogram

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### REFERENCES

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