DOUBLE TRACK BRANCHIAL SINUS

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Introduction

Branchial sinus most probably represents a persistent branchial cleft, the occluding membrane of which has broken down. Nearly always, the external orifice of the sinus is situated near the anterior border of sternocleidomastoid muscle [1,2]. Sometimes the blind internal end ends on lateral pharyngeal wall, but less often than not the tract ends as an opening on the anterior aspect of the posterior pillar of the fauces, just behind the tonsil, the condition then being a branchial fistula rather than a branchial sinus [2]. The track is clothed with muscle and lined by ciliated columnar epithelium until destroyed by recurrent attacks of inflammation. The discharge is mucous or mucopus. The condition may also be secondary to an incision in an infected branchial cyst [1]. The treatment of choice for branchial sinus or branchial fistula is excision [3]. Here, in this article a case of branchial sinus with an unusual double track at its inner end is reported upon.

Case Report

A 25-year-old male patient presented to the hospital with history of recurrent attacks of discharging sinus on middle of the right side of neck of 2 yr duration. The patient noticed initially, a swelling on the right side of neck about 3 years back, which slowly increased in size, became painful later on and burst open discharging 'mucopus' after a yr. Since then, there has been recurrent attacks of discharging pus at frequent intervals. When the patient reported to the hospital, the individual had single discharging opening at the anterior border of right sternocleidomastoid muscle almost at its middle. A track could be palpated leading from the opening. The track was visualised by sinogram after injecting radio contrast material (Fig-1). It revealed a double track at its inner end and the ends were blind. The patient was taken up for planned surgery after the relevant investigations. The patient was placed supine with head and neck slightly extended and the chin rotated to the left. Just before the surgery, the track was injected with methylene blue. An elliptical incision was made around the external opening. Through the incision, the track was traced deep through the cervical fascia at the anterior border of right sternocleidomastoid, and the muscle was retracted posteriorly. The track was then traced towards the carotid bifurcation. But just in front of the carotid bifurcation, the track itself was found to be bifurcated. The skin incision was extended as a vertical incision at the anterior

border of sternocleidomastoid muscle on either sides of elliptical incision and blind sinus tract with its bifurcated inner end was excised in toto. No drain was kept and the wound closed in layers. Immediate post operative period was uneventful. The histopathological report was consistent with branchial sinus.

Discussion

During development of the neck, the second branchial arch increases in thickness and grows caudally covering in the third, fourth and sixth arches and meeting skin caudally to these arches. Thus a deep groove is formed, which becomes a deep pit, the cervical sinus. Normally the lips of the pit meet and fused, and the enclosed ectoderm disappears. However the persistence of the ectoderm gives rise to a branchial cyst [4].

A branchial fistula sometimes results from breaking down of the endoderm. Or it is probably derived from

Fig. 1 : Sinogram showing double track branchial sinus

incomplete obliteration of the precervical sinus, an epithelial lined space formed by the downward growth of the second branchial arch over the second, third and fourth clefts to fuse with the sixth arch. Normally the small opening of the fistula lies over the lower third of the anterior border of the sternocleidomastoid, and the track if complete, runs upwards to the pharyngeal wall at the level of the palatine tonsil [5]. The fistula lies between structures derived from the second and third branchial clefts and therefore passes between the external and internal carotid arteries. More often however, the track extends for a variable distance upwards, and end blindly. Then it should be termed as a sinus. Occasionally the fistula is derived from the first branchial cleft, the opening then lies over the upper third of the anterior border of the sternocleidomastoid muscle and runs upwards towards the external auditory meatus in close relation to the facial nerve. The branchial cyst can, however, occur anywhere in the neck without any communication with the pharynx, which gives rise to speculation that a branchial cyst is, in fact an epithelial cyst within a lymphnode [6]. If the specimen is examined microscopically, the wall of the cyst is often found to be surrounded by a layer of lymphadenoid tissue. This suggests that the cyst arose as a result of branchial epithelium becoming entrapped within a lymphnode during development. It also explains why branchial cyst gets inflamed [7].

In this particular case initially the branchial cyst presented as a painless globular swelling at the anterior border of the sternocleidomastoid roughly at one half of the distance between the mastoid process and sternum, without any communication with pharynx. Subsequently the cyst got inflamed and burst open dis-

charging mucopus. Meanwhile a tract developed and extended for a variable distance and ended blindly with a bifurcation just before passing between structures derived from the second and third branchial clefts i.e. internal and external carotid arteries. Here in this case, the inner end was found to be bifurcated, most probably because of tracking of infection in such a fashion. Though it is not described in literature, it can happen as a result of infection.

At the time of operation, the tract could be excised completely and the patient has remained asymptomatic till date.

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