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LEFT SIDED BRANCHIAL FISTULA: A CASE REPORT

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ABSTRACT

The incomplete branchial fistula is not an uncommon congenital anomaly of branchial apparatus but a complete one is rare.Here we report a case of complete congenital branchial fistula with an internal opening near the tonsillar fossa.

KeyWords: ***Branchial Fistula.***

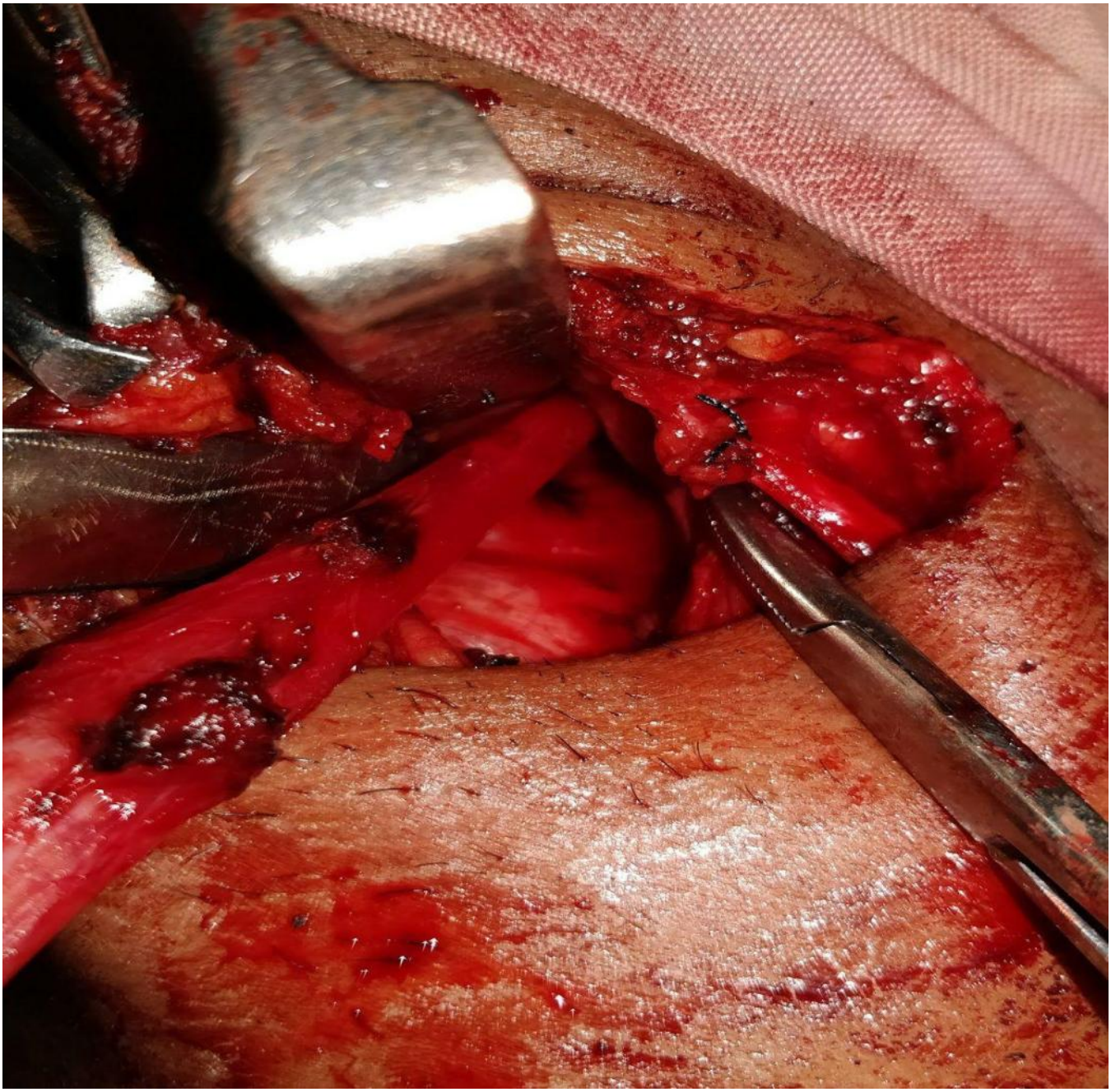
INTRODUCTION:

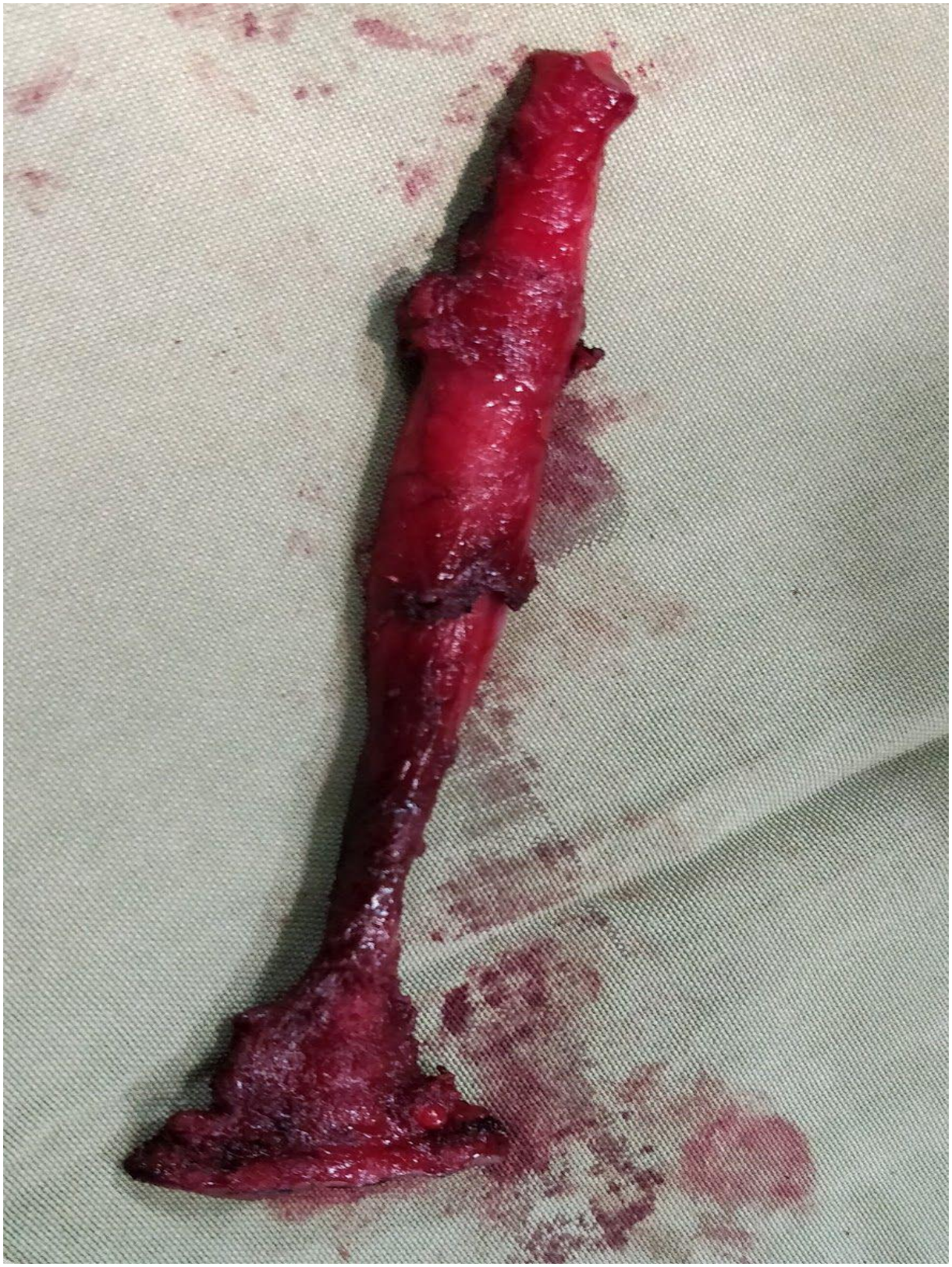
The branchial cyst, sinus and fistula are anomalies of the branchial apparatus which consists of five mesodermal arches separated by invagination of ectoderm (clefts) and endoderm (pouch). The branchial fistula is not a true fistula [1] because it rarely has two openings. Even if an internal opening exists, there lies a thin mesodermal tissue between the external and internal opening.

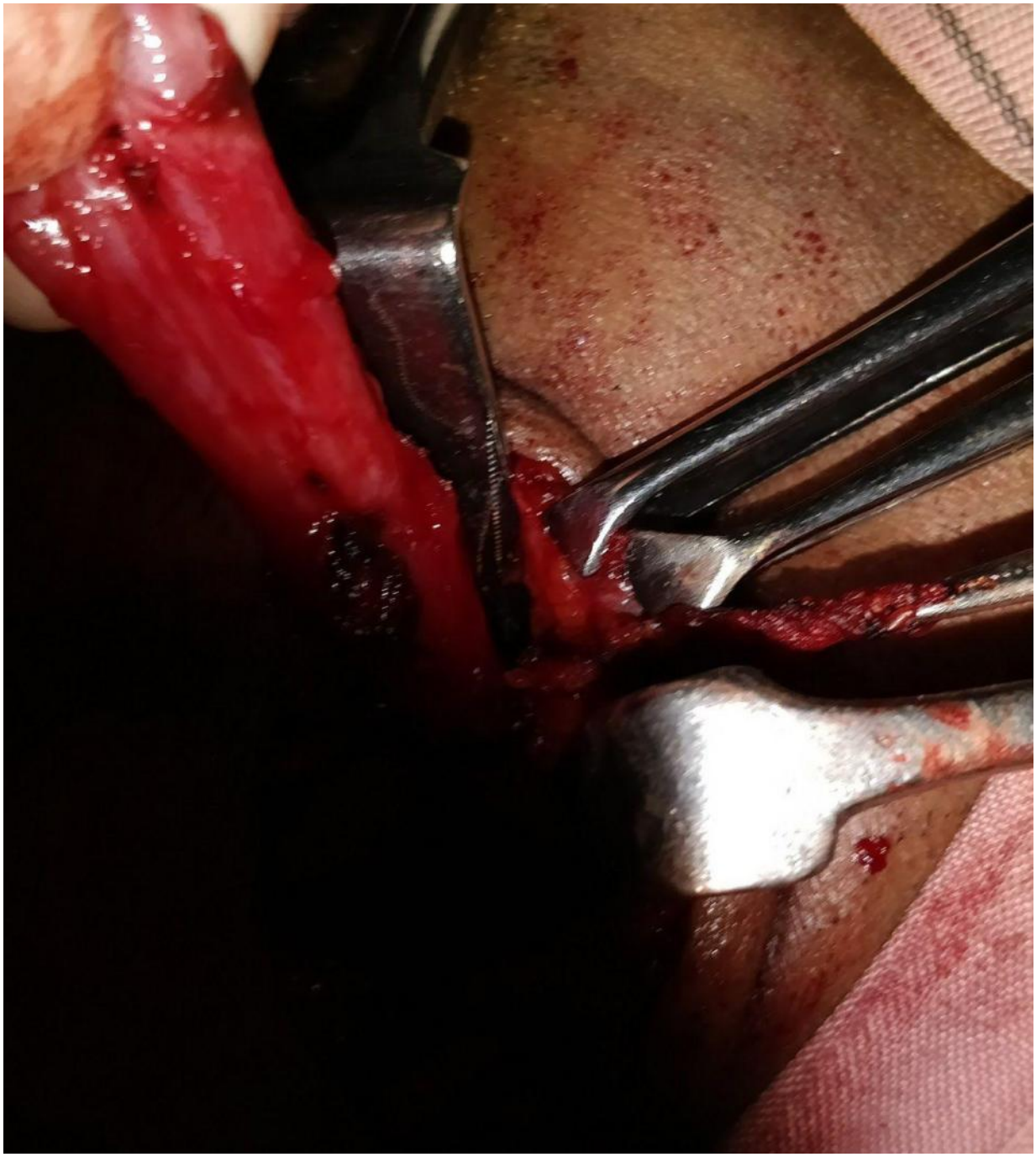
In the embryo, the second arch grows caudally to cover the third and fourth arches and second, Third and fourth clefts, eventually fusing with the lower neck. The buried clefts persists as cavities by endoderm and generally disappear with development. If this does not occur, it persists as a branchial cyst. Branchial fistula develops when second arch fails to meet the fifth arch leaving the remnants of second, third and fourth clefts in contact with surface bya narrow canal. A branchial fistula with both external and internal openings develops from a rupture of membrane between the cleft and the pouch at the same time during development. The branchial cystis formed from entrapped remnants of either branchial cleft or pouches without complete sinustracts. The branchial sinusre presents avestigial pouch or cleft, it is a tract with or without a cyst, which has an internal or external opening.

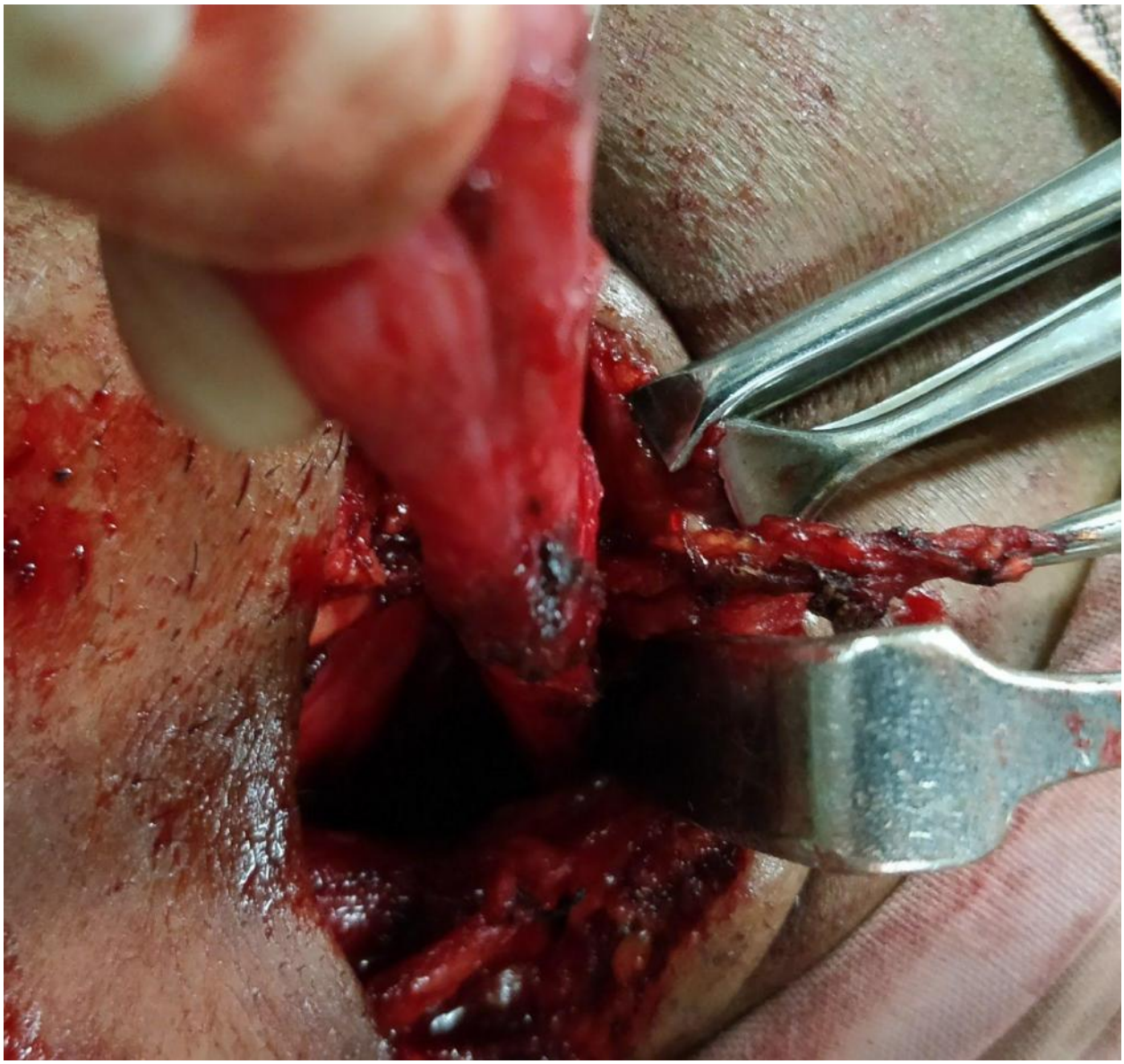
CASEREPORT:

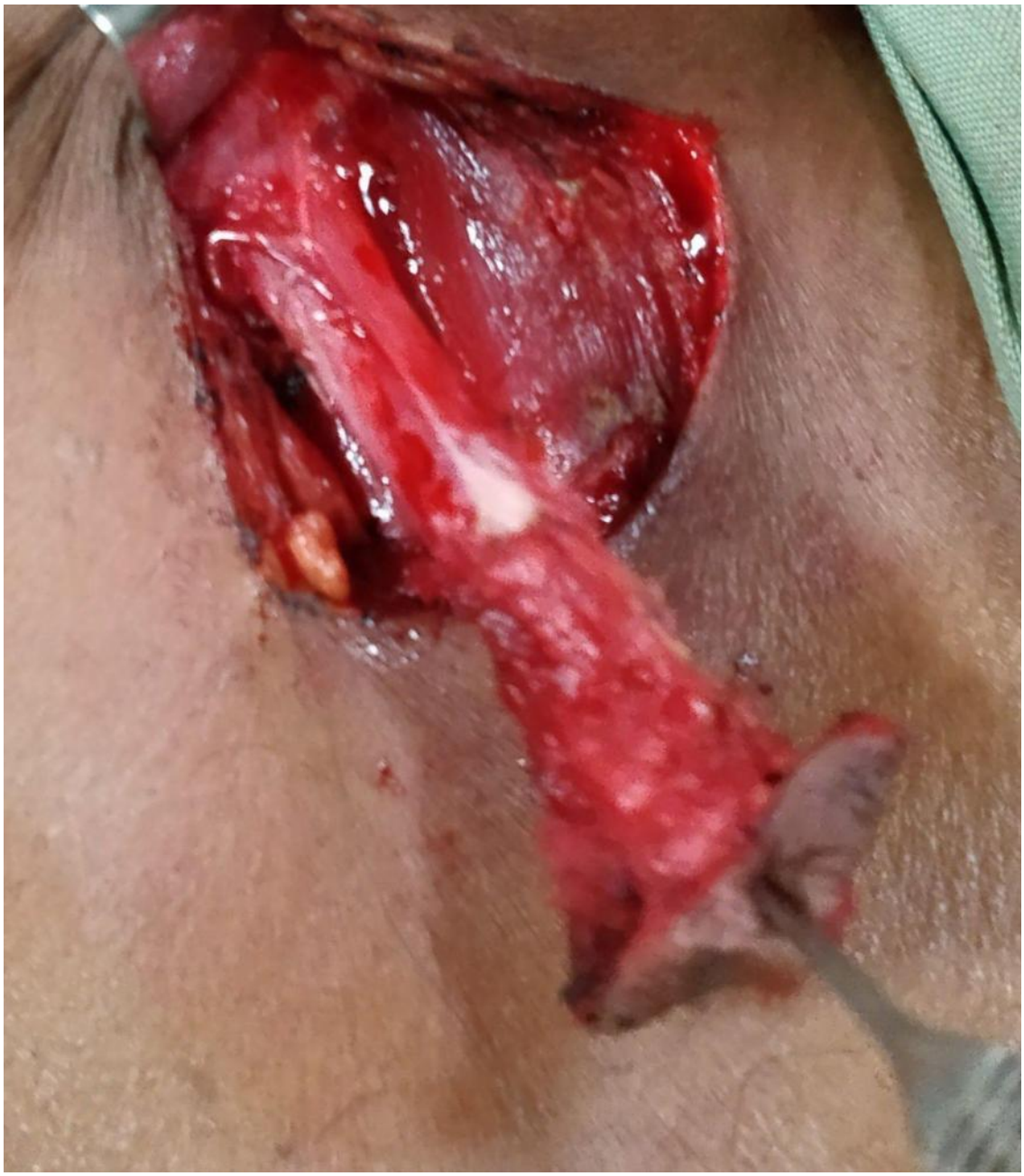
A 33-year male patient presented to ENT department, Rajasthan Hospital, TheGujarat Research and Medical Institute, Shahibaug, Ahmedabad with complain of a small opening in the lower part of neck on left side sincebirth and watery discharge from the opening during drinking.The general examination was within normal limits. On examination a small opening was seen on the left side at the level of supraclavicular Fossa at the anterior border of sternocleidomastoid. On palpation a thick cord like structure was felt which extended deep to the level of angle of mandible. The opening was seen with naked eye on examination of oropharynx, at lower pole of tonsil. On the basis of clinical finding she was diagnosed as a case of congenital branchial fistula. To confirm the diagnosis, CTS can Neck contrast done, The fistula showed the tract, which was dilated showing extension from left supraclavicular Fossa to lower pole of tonsilinthearea of tonsillar bed. The radiologist reported free flow of dye in the oropharynx during the procedure indicating free communication with oropharynx. After necessary investigation for fitness of general anaesthesia excision of the fistula tract was carried out through external approach under general anesthesia Anelliptical incision was given around the opening. The tract was identified by separating the skin and fascia over it. The tract had a thickness of about 6–8 mm and length about 12cm. The tract was made free from all its attachment and dissection was proceeded ahead. The tract was tied with linen thread to provide gentle traction so that it does not break and also for identification of the tract. The tract was dilated in its upper part. As the external opening was in lower part of the neck, a second incision was kept it needed and the dissection was carried out upto tonsillararea. Operative microscope was used for better illumination, magnification and co-axial view of the tract to dissect the tract near tonsillar bed.

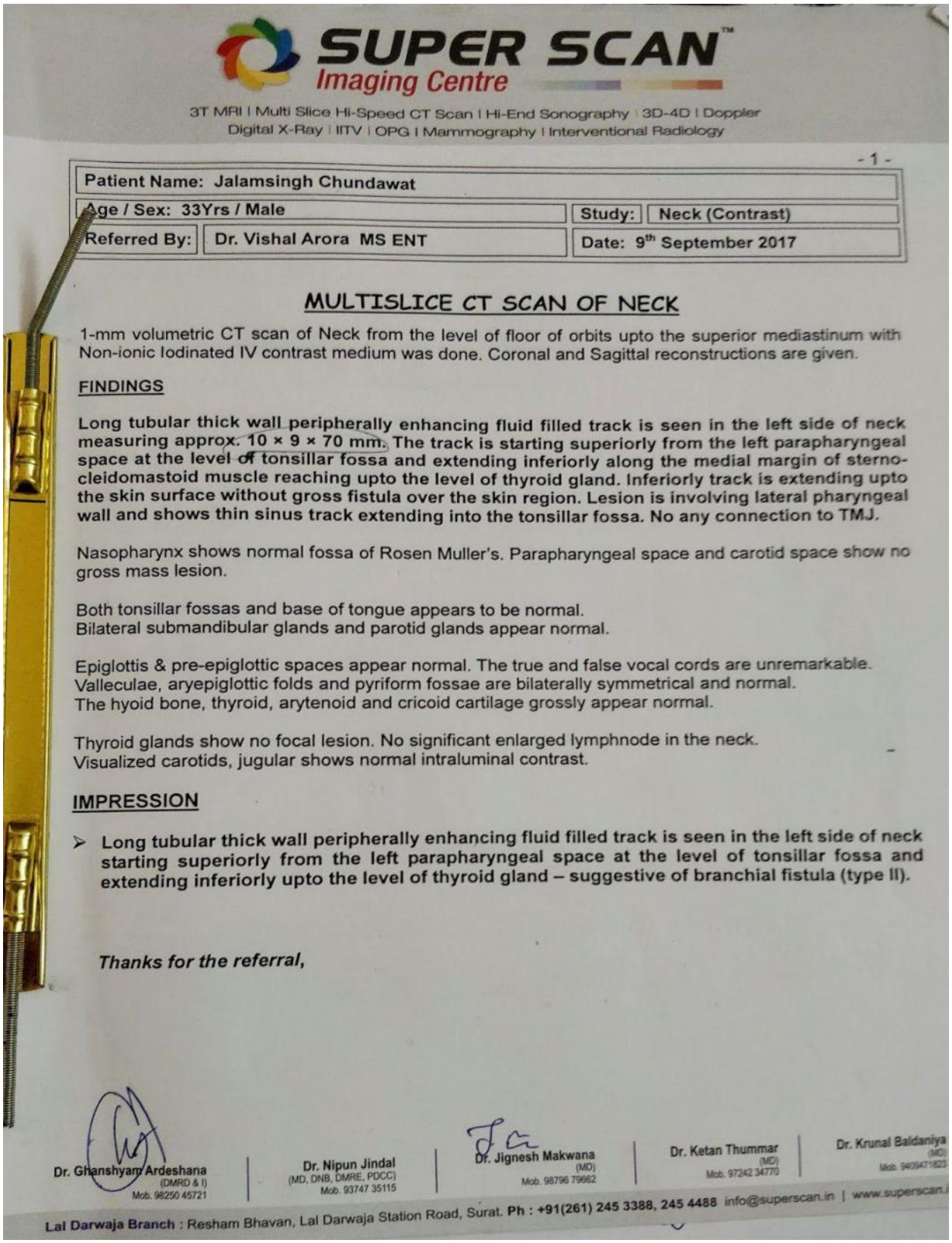












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Patient Name: Jalamsingh Chundawat			
Age / Sex: 33Yrs / Male		Study:	Neck (Contrast)
Referred By:	Dr. Vishal Arora MS ENT	Date:	9th September 2017

MULTISLICE CT SCAN OF NECK

1-mm volumetric CT scan of Neck from the level of floor of orbits upto the superior mediastinum with Non-ionic Iodinated IV contrast medium was done. Coronal and Sagittal reconstructions are given.

FINDINGS

Long tubular thick wall peripherally enhancing fluid filled track is seen in the left side of neck measuring approx. 10 × 9 × 70 mm. The track is starting superiorly from the left parapharyngeal space at the level of tonsillar fossa and extending inferiorly along the medial margin of sterno-cleidomastoid muscle reaching upto the level of thyroid gland. Inferiorly track is extending upto the skin surface without gross fistula over the skin region. Lesion is involving lateral pharyngeal wall and shows thin sinus track extending into the tonsillar fossa. No any connection to TMJ.

Nasopharynx shows normal fossa of Rosen Muller's. Parapharyngeal space and carotid space show no gross mass lesion.

Both tonsillar fossas and base of tongue appears to be normal.
Bilateral submandibular glands and parotid glands appear normal.

Epiglottis & pre-epiglottic spaces appear normal. The true and false vocal cords are unremarkable.
Valleculae, aryepiglottic folds and pyriform fossae are bilaterally symmetrical and normal.
The hyoid bone, thyroid, arytenoid and cricoid cartilage grossly appear normal.

Thyroid glands show no focal lesion. No significant enlarged lymphnode in the neck.
Visualized carotids, jugular shows normal intraluminal contrast.

IMPRESSION

- **Long tubular thick wall peripherally enhancing fluid filled track is seen in the left side of neck starting superiorly from the left parapharyngeal space at the level of tonsillar fossa and extending inferiorly upto the level of thyroid gland – suggestive of branchial fistula (type II).**

Thanks for the referral,

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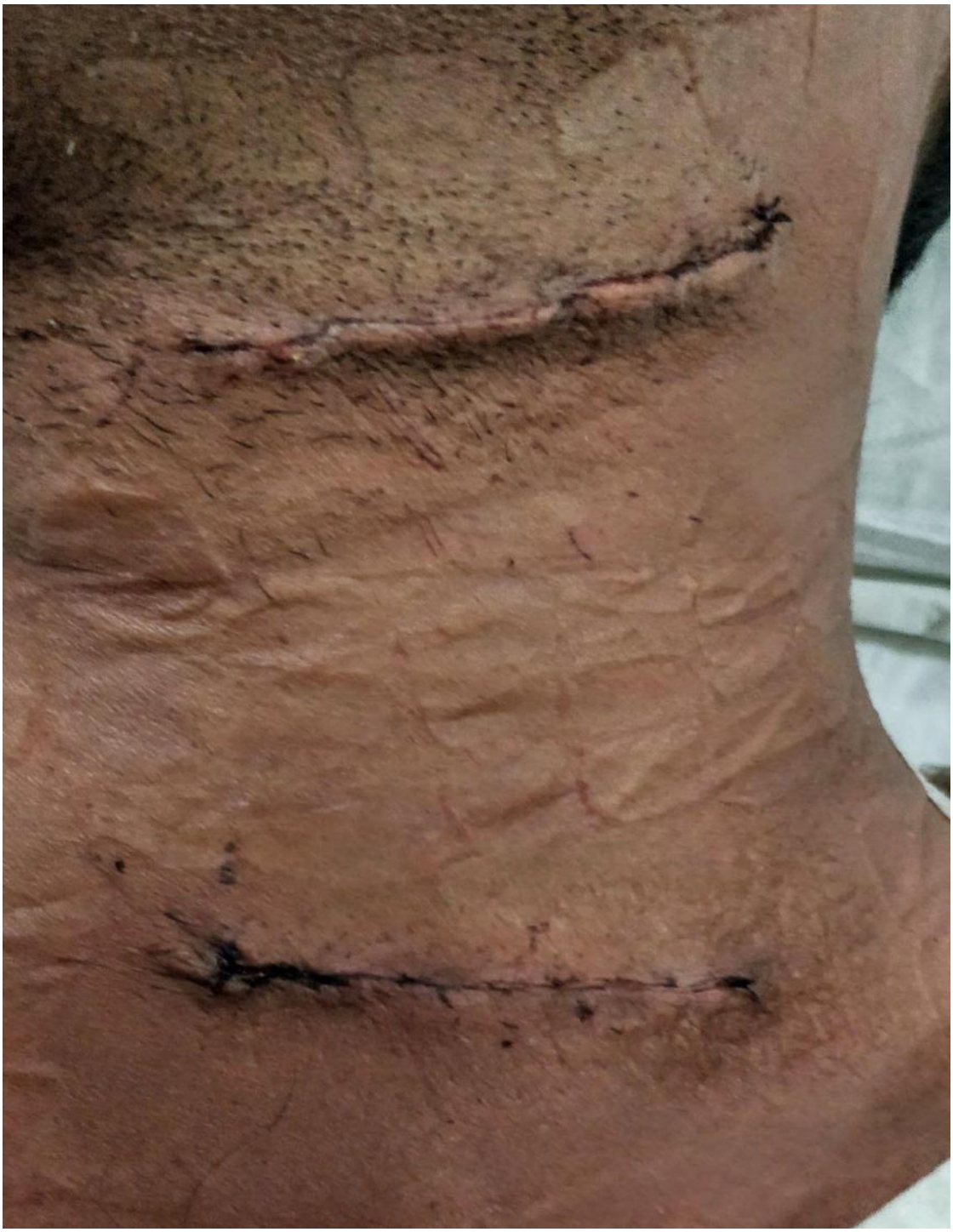

DISCUSSION:

Though described first in the early nineteenth century, the origin and classification of different branchial anomalies are highly controversial even today. The earliest description of branchial apparatus has been attributed to Von Baer in 1827. Rathke in 1828 had described the development of pharyngeal arches in the human fetus. Acherson in 1832 first recognized branchial fistula and gave branchial cyst its name. Virchow first described the branchial cleft anomalies in 1865. Cervical Aural or collaural fistula was first described by Sir James Paget in 1878. Second branchial anomalies are considered to be the commonest with figures up to 95% being reported [2]. The remainder of branchial anomalies is derived from first branchial remnants (1–8%) with third and fourth branchial anomalies being quite rare [1]. There is still a controversy regarding the origin of branchial anomalies. Several theories proposed for the development of branchial anomalies include branchial apparatus theory, cervical sinus theory, thymopharyngeal theory, and inclusion theory. Of these, the widely accepted theory is that branchial anomalies result from incomplete involution of the branchial apparatus [1].According to Ford et al., [3] most of the branchial anomalies arise from the second branchial cleft (92.45%). Remaining is derived from first arch remnants (4.72%) and third (1.87%) and fourth arch anomalies (0.94%) are quite rare. Bajaj et al. [4] also reported higher incidence of second branchial anomalies (78%) in their series of 80 patients. Cysts, sinuses, and fistulas are the three anatomical types of branchial anomalies. Choi and Zalzal [1] reported a maximum incidence of sinuses, followed by fistula.

Though a congenital lesion, branchial anomaly usually presents late in life. The age of onset of these anomalies has been seen to vary according to the type of the lesion. Choi and Zalzal [1] have noted that mean age of presentation of cyst (18.35 years) was late compared to that of fistulae (6.28 years) and sinuses (7.82 years).

CLINICAL FEATURES:

In the study by Choi and Zalzal [1], the most common presenting features were discharge from the openings, cervical mass, and repeated infection. In our case ,the most common clinical feature was a discharge from opening seen .

INVESTIGATIONS

The diagnosis of branchial anomalies may be straightforward. However atypical lesions can be misdiagnosed. An initial correct diagnosis is crucial because experience shows that recurrence rates after surgical excision of branchial anomalies are 14% and 22% with previous infection and surgery, respectively, whereas the recurrence rate for primary lesion is 3% [5]. Although physical examination and history are the most important elements in the

diagnosis, radio-diagnostic studies can add valuable information to the evaluation of a congenital neck mass. A CT scan is an accurate and noninvasive diagnostic tool, which can confirm the diagnosis or suggest an alternative diagnosis, define both the location and extent of a neck lesion, and delineate infectious process or possible malignant degeneration [6]. CT scan is useful in evaluating first branchial anomaly and the position of facial nerve. CT scan is reported to be more useful than MRI in evaluating branchial anomalies [1]. In case of sinus or fistula, sinogram or Conray contrast study can delineate the course of branchial anomaly.

TREATMENT:

Surgery is definitive mode of treatment because there is lack of spontaneous regression, a high rate of recurrent infection, the possibility of other diagnoses, and rare malignant degeneration. Acute inflammation is treated medically unless incision and drainage or aspiration of an abscess is required. Three to four weeks should pass after an acute infection before a definitive surgical exploration is undertaken.

COMPLICATIONS:

In the series by Ford et al. [3], there was a postoperative recurrence rate of 3%. It is our observation that while methylene blue dye enhances visualization of the larger and more proximal (in relation to the punctum) part of the tracts and ramifications, it does not demarcate the most peripheral ramifications and hence a conscious attempt must be made to follow the tracks till the end. Using magnification loupes or the microscope at the time of dissection may enhance prospects of complete removal. While it may be impossible to guarantee a complete removal, injection of dye and microscopic removal may be vital in preventing recurrences. We believe that this along with the practice of excision of the tract along with surrounding tissue has led to a low recurrence rate seen in our series.

CONCLUSION:

Branchial apparatus plays an important role in the development of head and neck structures. Aberrant development of these structures can lead to formation of different anomalies. Most of these anomalies remain asymptomatic and might present later in life. Diagnosis is rather easy with a proper knowledge of the anatomy of the branchial anomalies. Confirming the extent of the tract is mandatory before any surgery as these lesions pass in relation to some of the most vital structures of the neck. Surgery must always be the treatment option for these lesions due to the fact that these lesions do not regress spontaneously and they have a high incidence of recurrent infection. Surgery also gives a chance to diagnose by means of histopathology, the rare occurrence of branchiogenic

carcinoma.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

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