



# SECOND BRANCHIAL CLEFT FISTULA INFECTED WITH ACTINOMYCES

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## Abstract

We are presenting a rare and interesting case of 14 year old, female, pediatric patient came with right sided discharging sinus from neck since 10 years. Fistulectomy was done and on histopathology, it shows the finding of cystic spaces showing presence of Actinomyces.

**Index terms:** Branchial cleft fistula, Actinomyces

## Introduction:

Branchial anomalies arises from the abnormal persistence of branchial apparatus remnants [1] and account for 17% of all pediatric cervical masses [2] Anomalies of second branchial fistula accounts for 90% of the developmental anomalies of branchial apparatus. About 80% of cases, present as Branchial cyst, other 20% includes fistulas and sinuses.[3] Since it is developmental anomaly, it presents in childhood as a continuous discharging defects. A second branchial cleft fistula arises anterior to the sternocleidomastoid muscle(SCM). The fistulous tract passes deep to muscle named platysma and runs between internal and external carotid arteries. Fistulous tract passes superficially to glossopharyngeal nerve and hypoglossal nerve where it empties into tonsillar fossa. Alternatively it can also empty into skin inferiorly to sternocleidomastoid muscle.

Cervicofacial actinomycosis is unusual infection. Actinomycosis is a gram positive anaerobic filamentous bacteria. Pathogenesis involves mucosal injury and direct tissue invasion. Actinomycosis diagnosis remains quite challenging because of rarity and culture also has high false negative rate. Antibiotic treatment may relieve the symptoms but surgical removal of such tracts is the definitive treatment. So as the histopathological report for confirmation of Actinomycosis.

## Case Report:

A 14 year old female, Hindu, unmarried, student presented with the chief complain of discharge from right side of neck. There was no pain, fever and difficulty in breathing or swallowing. On detailed history it was found that patient was relatively asymptomatic 10 years back when she developed symptoms of discharge from right side of neck which was insidious in onset, non progressive, yellowish, non foul smelling and intermittent. It was not associated with fever, swelling, difficulty in swallowing & breathing and change in voice. There was no history of trauma to oral cavity.

On inspection of local site, A single sinus was present anteriorly 1 cm above right clavicle's medial end, just in front of right sternocleidomastoid muscle. The opening of sinus is surrounded by a 0.5 cm thin rim of hyperpigmented skin, non discharging at the time of inspection. Surrounding skin had no scar marks, redness or swelling.

On palpation, inspectors findings were confirmed. Local part was non tender. Skin was not fixed to underlying structure. One lymphnode was palpable at Level Ib, non tender, not fixed to overlying skin and underlying structures.

Routine tests like CBC, Sugar, Creat, Serology and Chest X ray were normal. USG of local part reveals Infective ethology with 1.5 mm thick fistulous tract in branchial sinus formation along with bilateral cervical lymphadenopathy. To substantiate the above finding, Fistulogram was also done. (Fig 1)

Fistulectomy was done and the tissue sample was sent to the histopathology lab. It shows finding as The sections show cystic spaces lined by stratified squamous epithelium and surrounded by lymphoid tissue showing prominent lymphoid follicles with indistinct germinal centres. The lining epithelial cells do not show dysplasia. Peripheral areas show clusters of mucosal glands. The cystic lumen shows presence of Actinomyces. Malignancy is not seen. (Fig 2)



fig 1: Fistulogram showing fistulous tract

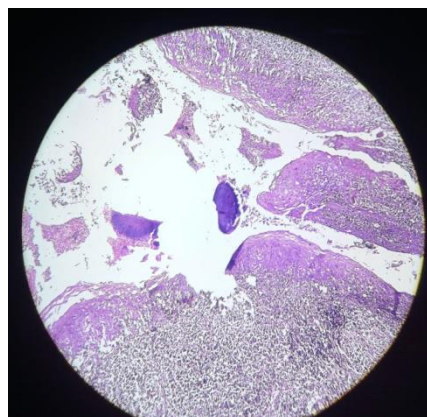


fig 2: Low power microscopy, H&E staining

## Discussion:

The clinicians had started empirical antibiotic but the actual cause was unknown to them. After histopathology report they came to know that the fistulous tract was infected by Actinomycosis.

Actinomycosis israelii is the most common causative bacteria in human cases of actinomycosis, with cervicofacial region being the most common site of infection [4] As described above it is gram positive, facultative anaerobic, non spore forming bacillus. The bacteria is part of normal oral and gastrointestinal flora. [5] Culture yields positivity in less than half of the patient.[6] Fastidious nature, poor culture preparation and injudicious use of antibiotic attribute to poor recovery rate. Thus, it is quite difficult to identify the microorganism. Diagnosis is mainly based on clinical symptoms and histological correlation. Infection may be polymicrobial. E. corrodens and Streptococcus species are the companion microbes.[7-9]

## Conclusion:

We report a case of second branchial cleft fistula infected with Actinomycosis in a 14 year old, female, pediatric patient without recent history of oral trauma. After confirming fistulous tract clinically and radiologically, fistulectomy done and histopathological report shows Actinomycosis.

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