

# Congenital Fibrotic Band in the Neck: A Rare Case Report

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**Abstract:** *Due to its complex embryological development, neck is prone to develop numerous forms of congenital malformations. Epidemiological surveys and clinical practice portray multiple types of congenital deformities of neck. In children under 15 years, 90% of neck masses are benign and of these up to 55% may be congenital. (1) We hereby present to you a case report of a 9 year old female child who presented in our hospital with whitish, firm band like structure in the neck present since birth. She was brought to our outpatient department by her guardians only for cosmetic concerns.*

## 1. Introduction

In our clinical practice we frequently encounter different congenital malformations in the neck. A brief overview of congenital anomalies of neck is essential to rectify the diagnostic skills of physicians and manage the patients promptly. Congenital anomalies of the neck arise as a consequence of disturbances in the complex development of the branchial apparatus of the fetus. They are classified according to their branchial cleft or pouch of origin as well as their anatomic relationships. They may take the form of a fistula, sinus, or cyst, based on the degree of completion of development of the anomalous structure. (2) Notably Thyroglossal cyst, Thyroglossal fistula, Ectopic thyroids and sometimes cervical clefts and rarely a fibrotic band in the midline. To understand the complex embryological development of the neck, we will have to review in brief the embryology related to development of neck.

### Embryology of neck in brief

During the third week of development, the flat trilaminar embryo undergoes a series of complex folds that result in the formation of a cylindrical embryo. During this time, the laterally placed clefts, known as branchial clefts, appear. These clefts are due to flexion folds of the fetus within the amniotic cavity. The basic tissues of development within the head and neck (ectoderm, endoderm, mesoderm, neuroepithelium) become organized into the pharyngeal apparatus, also known as the branchial apparatus, which is the forerunner of the head and neck structures. Development of the branchial apparatus begins during the second week of gestation and is complete by week 6 - 7. (3)

## 2. Case Discussion

### 2.1 Initial presentation and History:

9 year old Female child brought by parents to our hospital with C/o persistence of a whitish, constricting, vertical, fibrous band in the anterior midline neck since birth. It extended from submental region superiorly to the suprasternal notch inferiorly. There was no fistula or sinus visualised however a pinpoint aperture was seen in the inferior pole through which the probe could not be passed. She had no history of pain, redness, discharge, discomfort or difficulty in breathing or swallowing. She had complained only of restrictive head movements and cosmetic concern secondary to the deformity.

On examination, On inspection - there was evidence of approximately 7.5cmx1cm fibrous tract/band in midline of anterior neck. It did not move with swallowing, also did not move with protrusion of tongue.

On Palpation: Soft to firm in consistency, non movable, fixed in the midline of size 7cmx1cmx0.5cm. It was non tender and there was no induration surrounding the lesion. No neck nodes were palpated. Bilateral Carotid pulsations were normal.



Figure 1: Pre Op clinical picture



Figure 2: Fibrous band in anterior neck with tiny non probable aperture at lower end

### Differential Diagnosis

From examination and history we were able to rule out the following:

- Thyroglossal cyst as there was no cystic swelling, also there was no fistulous tract and no h/o discharge so thyroglossal tract was ruled out.
- As there was no anomalous opening or cleft and no h/o difficulty breathing or swallowing, enough to rule out midline cervical cleft.
- There was no neck swelling or lymphadenopathy,
- No suspicion of malignancy either.
- There were no signs of infection or inflammation.

### 3. Investigations

As we were subjected to a rare clinical picture, we had to go for a battery of investigations like USG, CECT and MRI and routine blood investigations.

**USG local** report founded that there is a hypoechoic structure extending from mentum to suprasternal notch in superficial and subcutaneous plane. Underlying structures were normal.

**Cect Neck** was s/o bilateral symmetric midline linear mildly enhancing soft tissue in subcutaneous plane arising from mentum of mandible and extending upto manubrium of sternum of length 5.6cm and thickness of 3.5mm. Enclosing a blindly ending sinus tract in suprasternal region of length 6mm and width 2.7mm. All features suggestive of anomalous muscle or fibrous tract.

**MRI Neck** reported a linear T2 hyperintense tract from menti of mandible to suprasternal notch with no e/o any obvious collection or discharge. F/S/O Fibrous tract ? Partially fibrosed thyroglossal tract. Rest all the routine blood investigations were in normal limits.



Figure 3: CECT NECK sagittal view with anterior fibrous band like structure



Figure 4: MRI neck coronal view showing anterior fibrous structure



Figure 5: MRI neck sagittal view with anterior fibrous band like structure

### 4. Treatment

After confirmation of our diagnosis of fibrous tract and there is no curative medical management, patient was planned for Fibrous Tract Excision under General Anesthesia.

**{Operative Procedure}**: Patient was in supine position with neck moderately extended. Curvilinear incision was taken on both sides of the tract. Tract was separated from superior pole first and dissected down till lower attachment. Lower aperture was probed to check for fistulous tract, none was detected. Tract was removed in total.



**Figure 6:** Curvilinair incision around the Tract



**Figure 7:** Dissection of the tract



**Figure 8:** Specimen after excision

### Histopathology Report

Sections showed

- 1) Tissue bit partly covered by stratified squamous epithelium
- 2) Underneath adnexal structures along with mononuclear inflammatory infiltrates surrounding them
- 3) Deeper tissue shows fibromuscular and fibroadepose tissue along with salivary gland tissue
- 4) Also seen a strip of pseudostratified columnar epithelium with lymphoid aggregates underneath

### Outcome

Pt was followed after 2 weeks of operation. Head movements appeared improved. The scar was much cosmetically acceptable.



**Figure 9:** Post Op follow up picture

### 5. Conclusion

The evaluation and management of patients presenting with neck abnormalities should include a systematic and uncompromising clinical approach. (4) A thorough knowledge of embryology of neck and clinical anatomy of neck followed by history and physical examination are still the cornerstones of the workup for neck anomalies. (5) A comprehensive understanding of the differential diagnosis of the neck abnormalities is integral to the practice of Otolaryngology–Head and Neck Surgery. Patients with congenital anomalies can be managed easily if are investigated and followed promptly. (6) A set of investigations will lead to the diagnosis and proper planning will lead to betterment of patients.

### References

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