

## Post-Intubation Vocal Fold Granuloma in a Case of Twin Pregnancy with Disseminated Intravascular Coagulopathy: A Case Report

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**Abstract:** Laryngeal granuloma is an uncommon complication arising from irritation of the laryngeal structures. We present a case where bilateral laryngeal granuloma became clinically evident 3 month post-intubation after Caesarean section followed by ICU stay for 2 weeks. The patient, a 28 year old female, developed progressive hoarseness after experiencing gradual voice loss. Clinical examination showed bilateral vocal cord granulomas crossing the midline and also bilaterally on the false cords. Total Microlaryngeal excision was done followed by conservative voice therapy and oral steroids. No recurrence was noted.

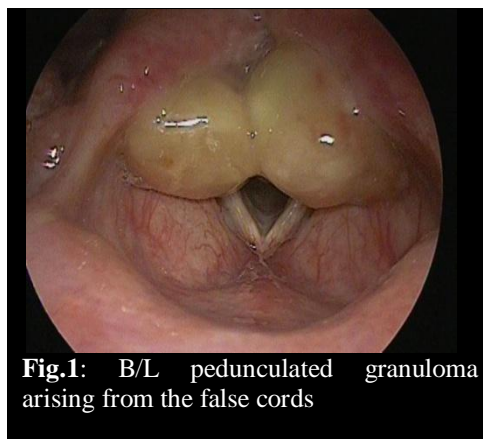
**Keywords:** Laryngeal granuloma, hoarseness, microlaryngeal, voice therapy.

### 1. Introduction

Vocal process granuloma was first described by Chevalier Jackson in 1928 as “Contact ulcer of the larynx”. It is known in the literature by many names, including laryngeal contact ulcer, contact granuloma, post intubation granuloma, and arytenoids granuloma [1]. The most common symptom is hoarseness combined with persistent throat clearing, sore throat, and globus sensation. Despite its infrequent occurrence, contact granuloma has received considerable attention in the literature because of frustration encountered in its clinical management. The healing time is long, regardless of treatment, and the recurrence rate after surgery is greater than 90% [2]. Intubation trauma associated laryngeal granuloma lesion is called intubation granuloma. Intubation granuloma is rare with an incidence around 1/10,000 and is usually smaller than 5mm in diameter [3]. It is observed equally or more commonly in female patients than in male patients. It has a high rate of spontaneous resolution. If it does not resolve spontaneously, its surgical excision yields a low recurrence rate, in contrast to contact granuloma [4, 5].

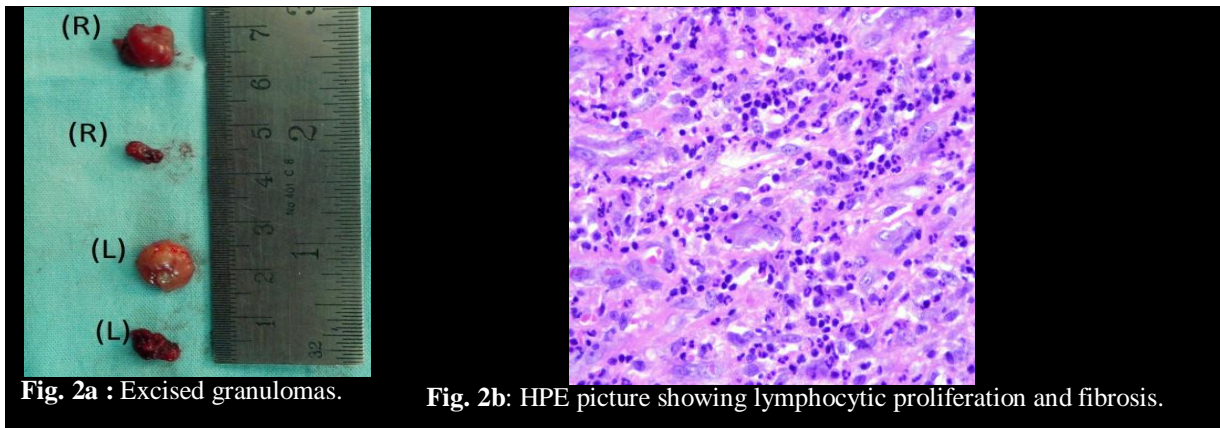
### 2. Case Report

A 28 yr old female patient reported to our ENT OPD with a complaint of progressive hoarseness with gradual voice loss over the 6 months. She had a history of twin pregnancy loss due to IUD 6 months back which led to DIC and subcapsular hematoma of liver. She underwent emergency caesarean section followed by drainage of the hematoma. She was admitted to ICU and kept under mechanical ventilation for duration of 2 weeks. Postoperative recovery period was uneventful. On direct laryngoscopic examination 2 granulomatous fleshy growths were observed from the false cords bilaterally. A 70 degree endoscopy was done to confirm the findings. The vocal fold mobility was restricted due to mass effect but there was no stridor or any sign of respiratory distress.



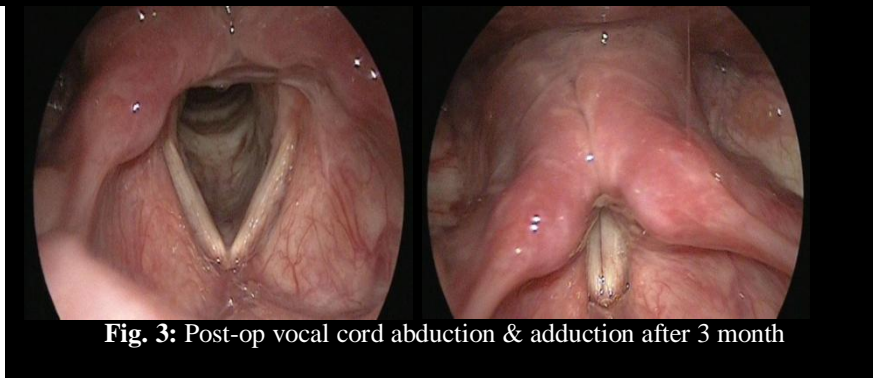
**Fig.1:** B/L pedunculated granuloma arising from the false cords

Intraoperatively, four granulomas were visualised obstructing the airway (fig.1). The granulomas were pedunculated, arising from the false cords and from the vocal processes of the arytenoid cartilages. She underwent microlaryngeal excision of the granulomas under general anaesthesia. The false cord granulomas excised measured 8mm (R) and 8mm (L) while the granulomas from the true vocal cord measured 4mm (R) and 6mm (L) (fig.2a). The excised tissues were sent for histopathological examination (fig.2b). A diagnosis of vocal cord granuloma was confirmed. Post operative recovery period was uneventful. She was prescribed oral steroid and PPI to be continued for a duration of 14 days and advised voice rest. The patient was followed as an outpatient for several months, and no recurrence was noted.



**Fig. 2a :** Excised granulomas.

**Fig. 2b:** HPE picture showing lymphocytic proliferation and fibrosis.



**Fig. 3:** Post-op vocal cord abduction & adduction after 3 month

### 3. Discussion

Vocal process granuloma (VPG) can be a formidable problem for the patient, speech language pathologist, and the otolaryngologist [1]. Aetiologies include voice abuse, gastroesophageal reflux, and endotracheal intubation. Intubation-related VPG is often diagnosed shortly after extubation and resolves rapidly with conservative therapy.

Diagnosis of contact granuloma is simple to perform by means of clinical examination alone, because of its characteristic location and peculiar appearance. No other tests are necessary. Biopsy is performed if malignancy is suspected. Despite its name, contact granuloma is not a granuloma in the pathological sense. On a specimen of contact granuloma, under light microscopy we may observe focal ulceration, epithelial hyperplasia, and necrotic tissue with desquamating epithelium, acute and/or chronic inflammation, capillary proliferation, fibrosis, and partially necrotic arytenoid cartilage [5].

Farwell et al [6] have proposed a grading system for contact granuloma based on its endoscopic appearance. A grade 1 lesion is limited to the vocal process, there is no ulceration, and the lesion is sessile. A grade 2 lesion is limited to the vocal process and is ulcerated or pedunculated. A grade 3 lesion extends beyond the vocal process but does not cross the midline of the fully abducted vocal fold. A grade 4 lesion extends beyond the vocal process and crosses over the midline of the fully abducted vocal fold. Unilateral cases are designated as “A” and bilateral ones as “B.” The granuloma in our case report had a grading of 4B.

Barton [6] similarly studied cases of laryngeal granuloma and divided decisive causes into three categories: endolaryngeal trauma, extralaryngeal trauma, or infection. The majority of these cases appear endolaryngeal in origin. One such cause is traumatic intubation, whereby the tube is forced between the adducted cords, thus causing abrasion as it passes into the subglottic region. In addition, the use of an oversized tube or excessive cuff pressure can produce trauma and possible ischemia of the tracheal wall [8].

The treatment options include intralesional injection of steroids (triamcinolone) or Botulinum toxin [9]. Conservative management include management of laryngopharyngeal reflux and voice therapy [10]. Surgical treatment consists of microlaryngeal excision under direct laryngoscopy if the lesion has reached the pedunculated stage and is causing respiratory embarrassment. Removal at the sessile stage is contraindicated due to the high incidence of recurrence [11]. The recuperative phase must include vocal rest; otherwise continued adduction of the cords will lead to abrasion in the midline, which can result in bilateral ulceration and subsequent recurrence. Laser assisted microlaryngoscopic excision, cryotherapy, and electrocautery are other alternatives for contact granuloma treatment. Mucosal graft was used to cover the mucosal defect after surgical excision to prevent granuloma recurrence. Low-dose radiotherapy has been suggested for cases resistant to other forms of treatment [12].

#### **4. Conclusion**

Vocal granuloma is a highly recurrent disease. Treatment of the inciting cause is necessary. If the original inciting cause persists, it may recur locally. Though lots of treatment modalities have been advised, for large pedunculated bilateral granuloma microlaryngeal excision followed by oral steroids and conservative voice therapy is an ideal treatment regimen which prevents recurrence of the pathology.

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