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*Case Report*

# Pyogenic Granuloma of the Vocal Cords: A Rare Benign Lesion Mimicking Malignancy

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## A B S T R A C T

The pyogenic granuloma (or botryomycoma) of the vocal cords is a rare benign tumor. It is typicallylocated in the posterior part, near the vocal process of the arytenoid cartilage. Etiologies includegastroesophageal refl ux, intubation and vocal strain.

Macroscopically, laryngoscopic examination usually reveals a nodular lesion; however, it may alsopresent as an ulceration of the vocal cord. Its appearance can therefore be misleading, resembling amalignant laryngeal lesion, with the diagnosis confi rmed by histopathological examination.

Histologically, a pyogenic granuloma is not a true granuloma. It is rather a reactive process,characterized by the presence of intact or ulcerated squamous epithelium overlying granulation tissue orfi brosis.

Treatment primarily involves surgical excision of the lesion, under direct laryngoscopy, coupled withmanagement of gastroesophageal refl ux, which may be silent. Despite its benign nature, pyogenicgranuloma has a potential for recurrence, especially if the underlying cause persists.

**Keywords:** Pyogenic granuloma; Botryomycoma; Vocal cords; Dysphonia; Gastroesophageal reflux; Intubation; Benign laryngeal tumor

## Introduction

Lesions of the glottic region, which primarily present as dysphonia, encompass a wide spectrum of pathologies with varying degrees of malignancy. These range from inflammatory conditions and benign lesions such as vocal cord nodules and polyps to malignant neoplasms. Management depends on the exact nature of the lesion and its underlying cause.

Vocal process granuloma, also known as pyogenic granuloma, is a benign lesion that can none the less raise clinical suspicion due to its presentation, which may resemble laryngeal cancer. Synonyms for this lesion include contact ulcer, intubation granuloma, vocal granuloma or inflammatory polyp of the larynx. A thorough clinical evaluation is therefore essential to differentiate this benign condition from malignant lesions and provide appropriate management.

## Case Presentation

A 58-year-old patient presented with a one-year history of dysphonia. His medical history included a smoking habit of 7 pack-years, stopped over 30 years ago, type 2 diabetes, hypertension and basal cell carcinoma (BCC) of the nasal tip. The BCC required six surgical interventions, including re-excisions for inadequate tumor margins and reconstruction procedures, each involving orotracheal intubation.

The reported dysphonia, present for a year, had worsened 15 days before consultation. No history of vocal strain was noted. The patient also described persistent respiratory discomfort due to nasal obstruction but denied dysphagia or pharyngeal pain.

Endoscopic examination of the vocal cords using a 70-degree rigid scope revealed a reddish, exophytic nodular lesion occupying the posterior glottic region, leaving only an anterior glottic gap. Vocal cord mobility was preserved.

Cervical-thoracic CT scan revealed a glottic lesion lateralized to the right, extending to the overlying ventricular band without proglottic space invasion. No abnormalities of the laryngeal cartilages were noted.

The patient underwent surgical management with complete tumor excision during direct laryngoscopy in suspension.

Histological examination identified polypoid fragments corresponding to polymorphic granulation tissue with numerous engorged capillary-sized vessels arranged in lobules. These vessels had thin walls lined by regular endothelial cells. No evidence of malignancy was observed, concluding the diagnosis of pyogenic granuloma of the vocal cords **(Figure 1)**.

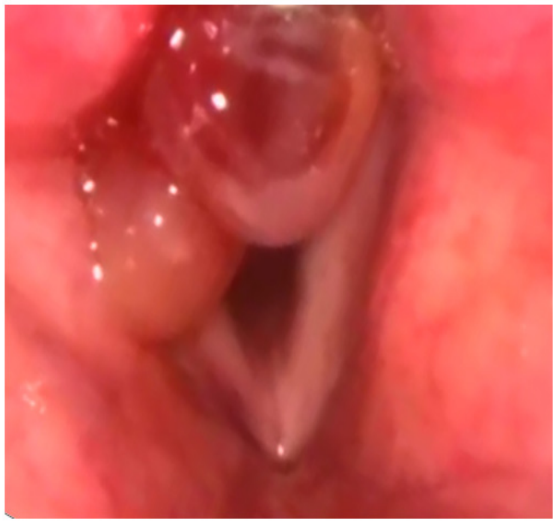

**Figure 1:** Polypoid lesion occupying the posterior part of the vocal cord

## Discussion

Pyogenic granuloma (PG) of the vocal cords, although rare, constitutes a benign pathology that can be misinterpreted as malignant due to its clinical and endoscopic presentation. In our case, the lesion's development was likely influenced by a combination of repeated orotracheal intubations during multiple surgeries for basal cell carcinoma (BCC) and a possible component of silent gastroesophageal reflux, which is a well-documented etiological factor.

The laryngoscope appearance of PG-a reddish, exophytic nodular lesion localized to the vocal process-is suggestive but not specific. As highlighted in the literature, these lesions may also present as ulcerations or masses, which can affect one or both vocal cords and, in rare cases, extend to other laryngeal regions[1,2]. Consequently, histological analysis is essential for an accurate diagnosis, confirming the presence of richly vascularized granulation tissue organized in lobules with endothelial cell-lined vessels, while ruling out malignancy.

PG is most commonly observed in the gingiva, lips and facial regions, with rare occurrences in the larynx. A review conducted at the University of Virginia Medical Centre and Martha Jefferson Hospital analyzed 639 vascular lesions of the oral cavity and upper airway. Among these, 73 cases (11% of whichoccurred during pregnancy) were diagnosed as PG, primarily affecting the lips (38%), nose (29%) oral mucosa (18%) and tongue (15%). Notably, none of the laryngeal or tracheal lesions initially resembled PG on microscopic examination[3].

Andrea et al. reported a rare case of laryngeal PG in a 23-year-old pregnant woman presenting with hemoptysis. Excision of the lesion after delivery revealed characteristic lobular proliferation of closely packed capillaries in an oedematous stroma[4]. Similarly, Arkadi et al. described a 12-year-old girl with hemoptysis caused by an exophytic, multilocular reddish mass nearly obstructing the hypopharynx and covering the laryngeal inlet. Histological examination ultimately confirmed PG, highlighting the importance of pathology in differentiating this benign condition from other vascular or malignant lesions[5].

Further, in a study by Epivatianos, et al., PG was documented as a lobular capillary haemangioma of the oral cavity, supporting its benign nature but emphasizing the potential for misdiagnosis due to its appearance[6]. Cawson, et al. highlighted that hormonal influences, particularly during pregnancy, could exacerbate the presentation of PG in areas like the oral cavity and upper respiratory tract[7].

Surgical excision remains the mainstay of treatment for PG, as demonstrated in our patient. However, addressing underlying etiological factors, such as silent gastroesophageal reflux, is crucial to minimizing recurrence risk. A multidisciplinary approach-encompassing otolaryngologists, gastroenterologists and potentially speech therapists-may be required to ensure comprehensive management and optimal outcomes.

This case underscores the critical importance of a systematic approach to persistent dysphonia, a common yet often overlooked symptom, necessitating vigilance for potential malignancy-mimicking lesions. While PG is a benign entity, delayed or inappropriate treatment can lead to complications or recurrence. Moreover, this report highlights the indispensable role of endoscopic exploration and imaging in evaluating lesion extent, guiding surgical intervention and optimizing postoperative follow-up.

## Conclusion

Pyogenic granuloma of the vocal cords is a rare benign lesion but can be challenging due to its clinical presentation mimicking malignancy. This case highlights the importance of a thorough diagnostic approach combining endoscopy, imaging and histopathological examination to establish an accurate diagnosis

and rule out malignancy. Identifying and managing underlying etiological factors, such as gastroesophageal reflux or laryngeal trauma, is essential to prevent recurrence. Multidisciplinary care remains the key to optimal management and follow-up.

## Declarations

The author confirms that patient consent for publication of this case report was received.

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