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Pyogenic granuloma of the larynx: A rare cause of hemoptysis☆,☆☆

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ABSTRACT

Pyogenic granuloma (PG) may involve gingival mucosa (granuloma gravidarum) in pregnancy but rarely involves the airway. This case report is perhaps the only reported presentation of PG in the larynx causing hemoptysis at a late stage of pregnancy. On laryngoscopic exam, a vascular, right false vocal fold neoplasm was identified with pathological characteristics consistent with PG. Conclusions: Pyogenic granuloma is a relatively common tumor of pregnancy but rarely involves the larynx. In the case of airway involvement during pregnancy, it is best managed in coordination with the high-risk obstetrical team and can be removed safely via standard microsurgical techniques.

1. Introduction

Pyogenic granuloma (PG), also called lobular capillary hemangioma, is a vascular tumor characterized by its distinct appearance on pathology with proliferation of capillary sized vessels arranged in lobules. PG involving the oral mucosa typically present in pregnant patients and have also been termed granuloma gravidarum. Histologically, oral mucosal PGs may be subdivided into lesions that have a distinct lobular architecture of closely packed capillaries and those with a nonlobular architecture of more widely spaced vessels [1]. Interestingly, the term “pyogenic granuloma” has been frequently described as a misnomer since it does not contain purulence and is not histologically a granuloma [2]. In the past, it was thought to be caused by pyogenic organisms, most accused being *Bartonella* spp.; however, this has yet to be proven [3].

This benign vascular tumor most frequently occurs on the skin and mucous membranes [4]. The occurrence of mucosal PGs has been associated with hormonal changes, with a higher incidence in men in the first two decades of life and then a preponderance for women during childbearing years. Classically, these lesions have been described as arising during pregnancy only to regress postpartum (hence the term granuloma gravidarium). There are few reports of PG occurring in the airway.

2. Case report

A 23-year-old female presented for Laryngology consultation in her third trimester of pregnancy for evaluation of hemoptysis:

She reported symptoms which initially had included throat pain described as burning pain, progressing to episodes of scant hemoptysis when sneezing or coughing. During week 20 of gestation, she experienced an episode of frank hemoptysis and presented to the Emergency Room where she was referred to Gastroenterology for evaluation. During week 26 of gestation, she had a second episode of hematemesis associated with new symptoms of shortness of breath and globus sensation in her throat.

She was referred to the Otolaryngology clinic. Upon evaluation at 36 weeks gestation, she was found to have a vascular, right false vocal fold neoplasm on flexible laryngoscopic examination. A collaborative discussion regarding the patient's treatment plan was undertaken with the high-risk Obstetrics team. Given the concern for hemorrhage and airway compromise while still pregnant or during delivery, it was recommended that the patient undergo elective induction at 38 weeks gestation in the high-risk obstetrical unit with Otolaryngology on standby and a difficult airway cart available. It was also recommended that excision of her lesion be scheduled for the day following delivery to prevent morbidity associated with further hemoptysis. Induction proceeded with an uneventful delivery, however, the patient refused to proceed with scheduled laryngeal mass excision the following day.

Six weeks later the neoplasm was removed uneventfully via suspension microlaryngoscopy using KTP laser. Intraoperatively, the lesion was noted to be pedunculated and anchored on the medial right arytenoid mucosa by a vascular appearing stalk (Images 1 and 2). Histopathologic examination demonstrated a pyogenic granuloma characterized by a lobular proliferation of closely packed capillaries in an edematous stroma (Images 3 and 4). The patient tolerated the

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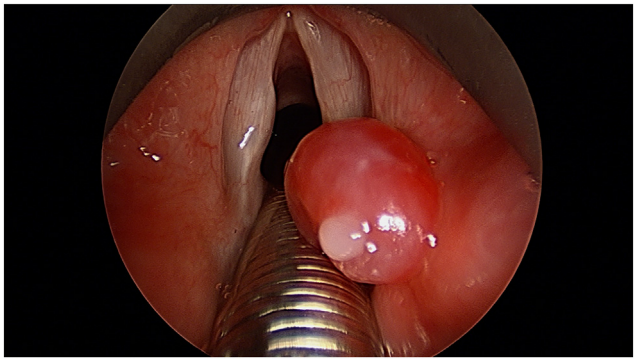

Image 1. Intraoperative view, laryngeal neoplasm.

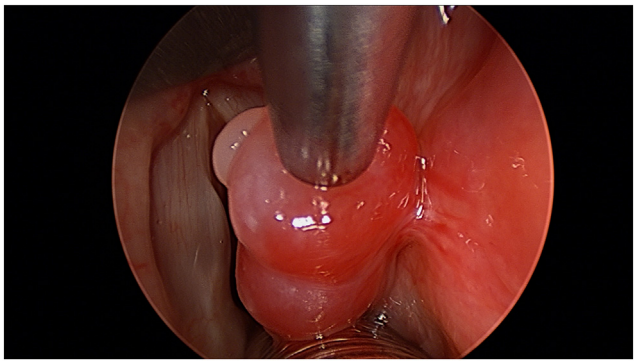

Image 2. Intraoperative view, hyper-vascular stalk anchoring pedunculated lesion.

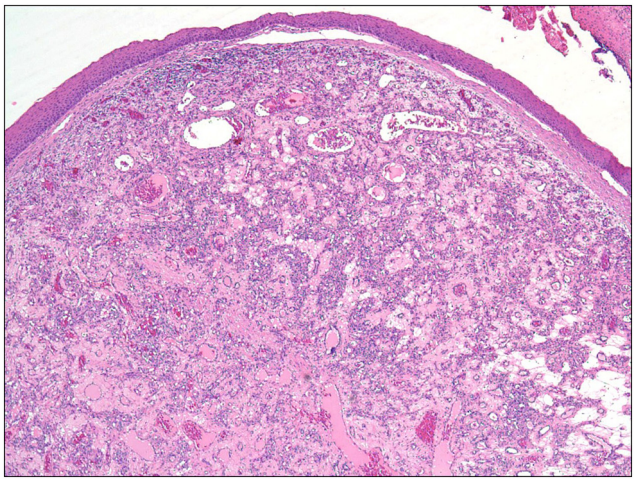

Image 3. Laryngeal pyogenic granuloma, 40× magnification.

procedure without complications and resection was complete (Image 5). She did not experience lasting morbidity due to this neoplasm and on subsequent follow up exams has had no evidence of recurrence.

3. Discussion

This case report describes a rare clinical situation and perhaps the only reported presentation of pathologically confirmed PG in the larynx causing hemoptysis at a late stage of pregnancy. Most commonly, PG appears on the gingival mucosa, lips, fingers and face. In a review performed at University of Virginia Medical Center and Martha Jefferson Hospital between the years of 1958 and 1978, 639 vascular lesions of the oral cavity and upper airway were analyzed. Of these, 73

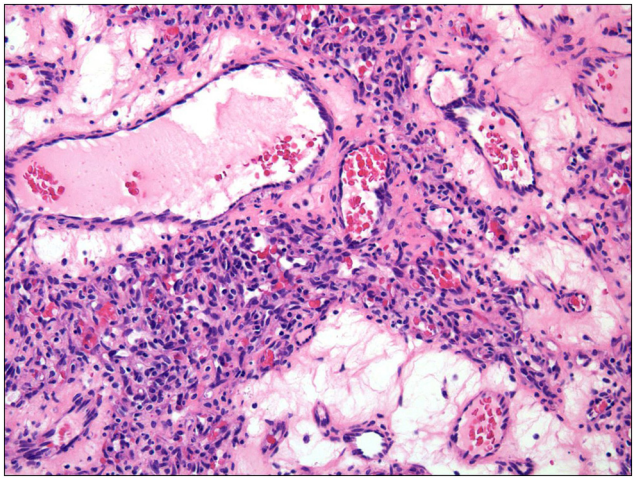

Image 4. Lobular vascular proliferation of capillaries, 200× magnification.

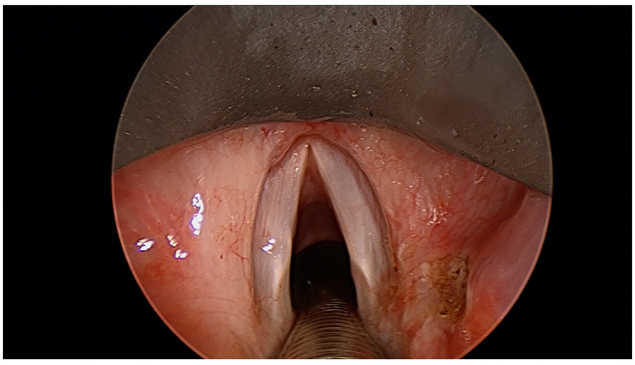

Image 5. Intraoperative view, post-excision.

cases were diagnosed as PG (eight of which (11%) presented during pregnancy) with the most common sites being the lip (38%), nose (29%), oral mucosa (18%), and tongue (15%). None of the lesions found in the larynx or trachea resembled PG on initial microscopic examination [5].

Reported incidences of this lesion occurring in the airway have been associated with antecedent trauma [6,7]. The argument has been made that traumatic vocal cord granulomas due to phonotrauma, intubation or laryngopharyngeal reflux are frequently misclassified as PG while the pathologic diagnosis would more accurately be described as simple granulation tissue [5,8]. In fact, it has been claimed that PG does not occur in the larynx or trachea [9]. Notably, our patient did not have antecedent trauma to the larynx, and her neoplasm presented in an anatomical location not typically associated with phonotrauma.

Although the patient described in this case study did not require surgery during her pregnancy, it is worth considering her hypothetical requirement of urgent intervention. For example, it is plausible that she could have developed a more significant hemorrhage or that her mass could have expanded to cause airway compromise and obstruction. Either instance would have necessitated more urgent surgery. The need for nonobstetric surgery requiring general anesthesia during pregnancy occurs in 75,000 pregnant women every year or 1.5–2.0% of all pregnancies [10]. Evidence suggests that if a surgery must occur during gestation, it should be performed as late in pregnancy as possible to reduce teratogenicity. Given that surgeries occurring later in pregnancy increase the risk of premature labor, it is best, if feasible, to perform elective surgery after 34 or more weeks gestational age to allow for proper lung maturity of the fetus in the womb. Had urgent surgery become necessary for our patient, who was in the third trimester, specific recommendations for surgical planning have been published.

An article by Kuczkowski et al. suggests fetal monitoring, close attention to hemodynamics with special emphasis on preventing hypoperfusion of the uteroplacental complex, and careful selection of anesthetic agents with use of local or regional anesthetic when possible [10]. Unfortunately, rigid direct laryngoscopy for excision of our patient's vocal fold neoplasm would require general anesthetic and paralysis.

It is important to note the paucity of literature regarding emergent airway management during pregnancy. Further studies investigating or reporting experience in managing this issue should be considered. Fortunately, the reported patient's episodes of hemoptysis were controlled with conservative measures, and her surgical management was reasonably deferred until after delivery.

4. Conclusion

Pyogenic granuloma is a common tumor of pregnancy but has been unknown to involve the larynx. In the case of airway involvement, it is best managed in coordination with the high-risk obstetrical team and can be removed safely and effectively via standard microsurgical techniques.

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