Recurrent Supraglottic Pyogenic Granuloma, Treated with Excision and Topical Mitomycin C

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Objectives

- Describe a previously unreported location of a pyogenic granuloma and review the existing literature.
- Discuss an effective treatment of recurrent laryngeal pyogenic granuloma.
- Review the literature and discuss the role of mitomycin C (MMC) in the treatment of pyogenic granulomas.

Introduction

Pyogenic granulomas, also known as capillary hemangiomas, are sessile or pedunculated smooth nodules formed by the proliferation of capillaries. Their histology is characterized by lobular capillary proliferation in a background of fibromyxoid tissue. Pyogenic granulomas of the mucosal membrane are most often identified in the oral cavity with the gingiva being the most common site. There have been only rare reports of pyogenic granulomas of the larynx. When present in the larynx these lesions have the potential to cause hoarseness, airway obstruction and foreign body sensation. Treatment of these lesions is often difficult as they tend to recur.

Case Report

A 35 year old male was referred to our institution with symptoms of a muffled voice and a foreign body sensation in his throat. The patient had been evaluated at an outside facility six months previously for similar symptoms and a mass was identified on the laryngeal surface of the epiglottis. The patient was treated at the outside facility with removal of the mass via suspension microlaryngoscopy and cold instrumentation. The surgeon reported a pedunculated lesion on a narrow pedicle. Pathology revealed granulation tissue. The patient’s symptoms resolved, but returned four months later. Transnasal fiberoptic laryngoscopy at our center showed a mass originating from the laryngeal surface of the epiglottis obstructing the view of the patient’s endolaryngeal airway (Figure 1).

The patient was treated using suspension microlaryngoscopy and excision of the granuloma from the laryngeal surface of the epiglottis, followed by topical application of mitomycin C. The surgery was performed under general anesthesia and he was intubated with a #5 endotracheal tube without difficulty. A Dedo-Pilling laryngoscope was inserted over an upper tooth guard to expose the patient’s larynx. Microlaryngoscopy was used to evaluate the patient’s airway. The true vocal folds appeared to be normal, and the laryngeal surface of the epiglottis showed a large pedunculated lesion. Lidocaine (1%) with epinephrine (1:100,000) was injected into the base of the lesion. The lesion was then transected using straight scissors, leaving behind a portion of the stalk. There was minimal bleeding. Next, topical mitomycin C (0.4mg/ml) was applied to a ½ by ½ inch cottonoid pledget which was placed on the area of resection for 4 minutes. This was then removed and the laryngoscope was removed. The patient was extubated at the conclusion of the case.

Two weeks after the surgery, the patient remained asymptomatic. Transnasal fiberoptic laryngoscopy was repeated and showed no evidence of a recurrent granuloma and showed the remaining stalk as it was left in the operating room. Five weeks after surgery, the patient was asymptomatic excluding a cough likely related to allergies. Transnasal fiberoptic laryngoscopy showed interarytenoid edema and full healing of the supraglottic lesion. The patient had no evidence of recurrence on his last follow-up a year later (Figure 2).

Discussion

This case is notable both for the use of mitomycin C (MMC) as a treatment for a pyogenic granuloma, and for the lesion’s location on the laryngeal surface of the epiglottis. Pyogenic granulomas of mucosal membranes are most often identified in the oral cavity, with the gingiva being the most common site. Additionally, they are seen intraorally on the lips, tongue, buccal mucosa and palate. All oral sites are subject to trauma. Pyogenic granulomas of the larynx have been reported in the literature on the true vocal cords, false vocal cords, ventricle, and the vallecula. None of our knowledge have been reported on the epiglottis.

Pyogenic granulomas of the mucosa are most often treated with simple excision. This treatment is often complicated by local recurrence requiring multiple re-excisions. Thus, a technique which would successfully decrease the recurrence of excised lesions would be very useful. Other modalities that have been used for the management of mucosal pyogenic granulomas include pulsed dye laser therapy and excision followed by corticosteroid injection. Mitomycin C (MMC) is an antineoplastic agent originally isolated from Streptomyces caespitosus or Streptomyces lavendulae species. It works by cross-linking guanosine residues in both bacterial and human DNA, thereby preventing DNA replication. It is a powerful inhibitor of human fibroblast activity without interfering with re-epithelialization. It has been used safely in ophthalmologic surgery for decades.

Discussion (cont.)

Mitomycin C has been used as an antitumor drug intravenously for esophageal and breast cancers. In ophthalmology it has been extensively used as a topical agent to prevent recurrence after pterygium surgery. In otolaryngology it has been used to prevent re-stenosis after dilatation of tracheal stenosis, and to maintain patency of myringotomy tubes. In urology it is widely used to prevent recurrence after resection of bladder carcinomas.

Numerous reports of MMC’s experimental use for other inflammatory and neoplastic processes exist, with only rare reports of complications. Only one case report posits a link between MMC and laryngeal cancer after repeated applications; however this stands alone against extensive safe use reports in the literature. To our knowledge there have been no reports of mitomycin C used in the treatment of pyogenic granulomas of the larynx. Santos et al successfully used MMC to treat pyogenic granulomas of the anophthalmic eye socket.

Based on mitomycin C’s proven efficacy in preventing the recurrence of other inflammatory processes such as pterygium and tracheal stenosis, this is a reasonable treatment to consider. In this case of a recurrent pyogenic granuloma of the larynx, we observed no recurrence after re-section of the pyogenic granuloma in the case report.

Conclusions

Pyogenic granulomas, also known as capillary hemangiomas, are sessile or pedunculated smooth nodules formed by the proliferation of capillaries. There have been only rare reports of pyogenic granulomas of the larynx. When present in the larynx these lesions have the potential to cause hoarseness, airway obstruction and foreign body sensation. Treatment of these lesions is often difficult as they tend to recur. In our experience excision with application of mitomycin C is a safe and effective way to prevent recurrence of laryngeal pyogenic granulomas.

References