

> THE PATIENT

49-year-old woman

> SIGNS & SYMPTOMS

- Epistaxis
- Whitish mass in right nostril
- Normal vital signs and lab work

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> THE CASE

A 49-year-old woman visited our family medicine clinic because she'd had 3 episodes of epistaxis during the previous month. She'd already visited the emergency department, and the doctor there had treated her symptomatically and referred her to our clinic.

On physical examination, we noted a whitish mass in the patient's right nostril that was attached to the nasal septum. The patient's vital signs were within normal limits. She had a history of hypertension, depression, anxiety, gastroesophageal reflux disease, and post-traumatic stress disorder. Her medications included amlodipine-benazepril, atenolol-chlorthalidone, citalopram, clonazepam, prazosin, and omeprazole. The patient lived alone and denied using tobacco or illicit drugs, but she drank one to 2 glasses of brandy every day. She denied any past medical or family history of similar complaints, autoimmune disorders, or skin rashes.

A complete blood count, international normalized ratio, sedimentation rate, anti-nuclear antibody test, and an anti-neutrophil cytoplasmic antibody panel were normal.

THE DIAGNOSIS

We referred the patient to an ear, nose, and throat doctor for a nasal endoscopy and a biopsy, which showed granulation tissue. A maxillofacial computed tomography (CT) scan revealed a 1.44 cm x 0.8 cm polypoid soft tissue mass in the right nasal cavity adherent to the nasal septum with no posterior extension (FIGURE 1).

The patient underwent cauterization of the mass and was sent home with a prescription for fluticasone spray and a referral to a head and neck oncologist. Excision and biopsy of the mass revealed pyogenic granuloma (lobular capillary hemangioma) with surface ulceration (FIGURES 2 AND 3).

DISCUSSION

Pyogenic granuloma (PG) is a benign vascular tumor of the skin and mucous membranes that is not associated with an infection. Rather, it is a hyperplastic, neovascular, inflammatory response to an angiogenic stimulus. Several enhancers and

FIGURE 1

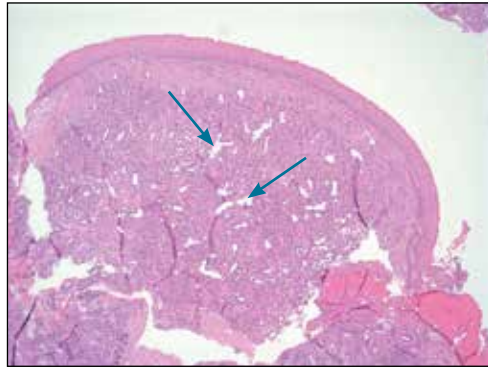
CT scan reveals mass attached to anterior nasal septum



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FIGURE 2

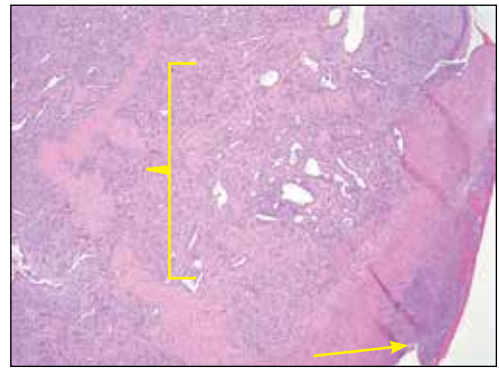
Biopsy reveals lobular arrangement of capillaries ...



Lobular capillaries (blue arrows), when considered along with the surface ulceration with fibrous exudate (yellow arrow) and granulation tissue (yellow bracket), are typical of pyogenic granuloma.

FIGURE 3

... and surface ulceration with fibrous exudate



inhibitors of angiogenesis have been shown to play a role in PG, including hormones, medications, and local injury. In fact, a local injury or hormonal factor is identified as a stimulus in more than half of PG patients.¹

■ **The hormone connection.** Estrogen promotes production of nerve growth factor, granulocyte-macrophage colony-stimulating factor, basic fibroblast growth factor, vascular endothelial growth factor, and transforming growth factor beta 1. Progesterone enhances inflammatory mediators as well. Although there are no direct receptors for estrogen and progesterone in the oral and nasal mucosa, some of these pro-inflammatory effects create an environment conducive to the development of PG. This is supported by several studies documenting an increased incidence of PGs with oral contraceptive use and regression of PGs after childbirth.²⁻⁴

■ **Medication may play a role.** Drug-induced PG has also been described in several studies.^{5,6} Offending medications include systemic and topical retinoids, capecitabine, etoposide, 5-fluorouracil, cyclosporine, docetaxel, and human immunodeficiency virus protease inhibitors.

■ **Local injury may also be a culprit.** Nasal PGs are commonly attached to the anterior septum and typically result from nasal packing, habitual picking, or nose bor-

ing.⁷ In this particular case, however, we were unable to identify the irritant.

The classic presentation

PG classically presents as a painless mass that spontaneously develops over days to weeks. The mass can be sessile or pedunculated, and is frequently hemorrhagic. Intranasal PG usually presents with epiphora.⁷ While the prevalence of intraoral PG was found to be one in 25,000 individuals³, data for nasal lesions is scarce. Most cases of PG are seen in the second and third decades of life.^{1,3} In children, PG is slightly more predominant in males.^{1,3} Mucosal lesions, however, have a higher incidence in females.^{1,3} Granuloma gravidarum, the term used to describe mucosal PG in pregnant females, was found in 0.2% to 5% of pregnancies.^{2,3,8}

Differential Dx includes warts, squamous cell carcinoma

The differential diagnosis of PG includes Spitz nevus, glomus tumors, common warts, amelanotic melanoma, squamous cell carcinoma, basal cell carcinoma, Kaposi's sarcoma, bacillary angiomatosis, infantile hemangioma, and angiolymphoid hyperplasia, among others.^{3,5} Foreign bodies, nasal polyps, angiofibroma, meningocele, Wegener's granulomatosis, and sarcoidosis should also be considered.

➤ In more than half of patients with pyogenic granuloma, a local injury or hormonal factor is at work.

Radiologic evaluation may be beneficial—especially with nasal lesions—when looking for findings suggestive of malignancy. Both CT and magnetic resonance imaging with contrast identify PG as a soft tissue mass with lobulated contours,^{9,10} but histopathologic analysis is required to confirm the diagnosis. The histopathologic appearance of PG is characterized by a polypoid lesion with circumscribed anastomosing networks of capillaries arranged in one or more lobules at the base in an edematous and fibroblastic stroma.

Treatment is determined by the location and size of the lesion

The most suitable treatment is determined by considering the location of the lesion, the characteristics of the lesion (morphology/size), its amenability to surgery, risk of scar formation, and the presence or absence of a causative irritant. Excision is often preferred because it yields a specimen for pathologic analysis. Alternative treatments include electrocautery, cryotherapy, laser therapy, and

intralesional and topical agents,^{3,6,7} but the recurrence rate is higher (up to 15%) with some of these modalities, when compared with excision (3.6%).³

■ **Our patient** underwent excision of the mass and was seen for an annual follow-up appointment. All of her symptoms resolved and no recurrence was noted.

THE TAKEAWAY

Although PG is a common and benign condition, it is rarely seen in the nasal cavity without an obvious history of a possible irritant. PG should be considered as a diagnosis for rapidly growing cutaneous or mucosal hemorrhagic lesions. Appropriate tissue pathology is essential to rule out malignancy and other serious conditions, such as bacillary angiomatosis and Wegener's granulomatosis.

Treatment is usually required to avoid the frequent complications of ulceration and bleeding. Surgical treatments are preferred. The location of the lesion largely determines whether referral to a specialist is necessary. **JFP**

➤ Alternatives to surgery include electrocautery, cryotherapy, laser therapy, and intralesional and topical agents, but the recurrence rate with these is often higher.

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