PYOGENIC GRANULOMA OF THE NASAL CAVITY: AN UNUSUAL COMPLICATION OF PREGNANCY

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SUMMARY

Objective: Nasal tumor in pregnancy is exceedingly rare. We present a case of pyogenic granuloma that manifested as a nasal mass and epistaxis in pregnancy and which was successfully treated after delivery.

Case Report: A 30-year-old woman, gravida 1, para 0, was referred to our hospital due to progressive nasal obstruction and intermittent epistaxis at 37 weeks of gestation. A brownish mass occupying the right nasal vestibule was found at our clinic. Magnetic resonance imaging showed a well-defined, soft-tissue mass within the ethmoid sinus involving the right nasal turbinate. Pre-contrast T1-weighted images revealed one isointense mass crossing over the midline and post-contrast T1-weighted images revealed heterogeneous enhancement. The patient underwent endoscopic excision 2 weeks postpartum and histopathology revealed pyogenic granuloma. The postoperative course was uneventful and there was no evidence of recurrence during 3 months’ follow-up.

Conclusion: Due to its rarity, pyogenic granuloma may be overlooked or misdiagnosed in pregnant women and cause undue anxiety. An awareness of pyogenic granuloma in the differential diagnosis of an enlarging intranasal mass in a pregnant woman is important. The management should be individualized, with the focus on presenting gestational age and the progression of symptoms. [Taiwanese J Obstet Gynecol 2005;44(1):101–104]

Key Words: nasal tumor, pregnancy tumor, pyogenic granuloma

Introduction

Pyogenic granuloma is an acquired lesion occurring mostly on the lip, in the oral cavity and, infrequently, in the nasal cavity. The etiology is unclear. The term “pregnancy tumor” has been used to reflect pyogenic granuloma’s association with pregnancy. Many articles have appeared in the literature pertaining to this lesion and its relationship to the hormone changes in pregnancy [1–4]. Obstetricians should be familiar with it since morbidity may occur and misdiagnosis can lead to unnecessary alarm and over-treatment.

We report a case of a pregnant woman with a rapidly enlarging right-side nasal mass during the third trimester. She underwent endoscopic excision of the nasal mass 2 weeks postpartum and the diagnosis of pyogenic granuloma was confirmed.

Case Report

A 30-year-old woman, gravida 1, para 0, was referred to our hospital at 37 weeks’ gestation due to rapidly progressive right-side nasal obstruction and intermittent epistaxis for 2 weeks. She denied a history of nasal trauma, diplopia, or fever during the course of the pregnancy. Other history was unremarkable. The course of the current pregnancy had been uneventful so far except for the nasal symptoms.

On her arrival at our otolaryngologic department, we performed a physical examination based on her presenting symptoms. A brownish mass fully occupying
the right nasal vestibule was found (Figure 1). Neither foul odor nor localized knocking pain was found. Nasal pyogenic granuloma was suspected due to the dramatic growth pattern and gross appearance of the lesion. Expectant management and further histologic confirmation after delivery were advised based on the gestational age and the benign nature of our tentative diagnosis. After spontaneous labor at 39 weeks, she delivered a healthy female baby weighing 3,452 g via the vaginal route. The labor course was complicated by one episode of nasal bleeding that lasted for 40 minutes. She visited our clinic 1 week postpartum for further evaluation of the nasal mass. We arranged magnetic resonance imaging (MRI) in order to clarify the diagnosis and determine the origin and possible intracranial extension of the lesion. MRI showed a well-defined, soft-tissue mass within the ethmoid sinus involving the right nasal turbinate and crossing over the midline. The right nasal cavity was obscured by the mass and the nasal septum was deviated to the left. T1-weighted images without contrast (Figure 2A) revealed one iso-intense mass, and post-contrast T1-weighted images (Figure 2B) revealed heterogeneous enhancement by gadolinium diethylenetriaminepentaacetic acid. Biopsy for histopathology was suggested even though a benign lesion was suspected. However, the presenting symptoms prompted the patient to choose early and complete surgery rather than expectant management.

She underwent endoscopic sinus surgery via endotracheal intubation 2 weeks postpartum. A dark red tumor about 4 cm in size over the right nasal cavity was found. A sickle knife was used to transect the stalk of the tumor, which was pulled out meticulously. The sinonoscope was applied again and no residual lesion was noted. Laceration over the inferior turbinate and septum was found and several pieces of Surgicel were inserted over the rough surface of the necrotic area for hemostasis. The right nasal cavity was packed with one Merocel and two finger stalks. No significant blood loss was noted during the operation. The excised lesion was a single solid mass measuring 4.0 × 2.8 × 2.0 cm (Figure 3). Histopathology showed marked proliferation of vascular channels with intensive inflammation, necrosis, and hemorrhage (Figure 4), compatible with the histologic diagnosis of pyogenic granuloma. The postoperative course was uneventful. She was discharged 3 days after surgery. No evidence of recurrence was found 3 months after the operation.
that the lip was the most common site (38%), followed by the nose (29%), oral mucosa (18%), and tongue (15%) [6]. The nasal cavity is involved in only 7–10% of patients [7–9].

The etiology of pyogenic granuloma in pregnancy is still unclear. Most authors conclude that this lesion may be the result of the interaction between local irritants and a subsequent tissue inflammatory response enhanced by female sex hormones [3,4]. According to current research, there is a close correlation between the severity of gingival inflammation and circulating levels of estrogen and progesterone [10]. The levels of these two hormones are markedly increased in pregnancy and could exert a greater effect on the endothelium of the pyogenic granuloma [2]. There is a gradual increase in the incidence and number of these tumors as hormone levels rise in late gestation [1], and the tumors probably regress after delivery when hormone levels decline to the non-pregnant state [3]. During pregnancy, the estimated incidence of pyogenic granuloma ranges from 2% to 5% [3,11].

Pregnancy tumor specifically refers to the occurrence of pyogenic granuloma during pregnancy. Clinically, pyogenic granuloma is a red or reddish purple, nodular or ulcerative tumor that bleeds easily during pregnancy. Due to its rapid growth, this lesion may be mistaken for a malignancy, increasing anxiety in the patient and family. Unlike non-pregnant subjects [12–14], in whom most pyogenic granulomas occur as a complication of nasal trauma and nasal packing, all pregnant subjects denied previous nasal trauma or nasal packing [4,15] (Table). This suggests that female sex hormones are a factor in nasal pregnancy tumor. However, most obstetricians are not familiar with this unusual condition.

Patients with nasal pyogenic granuloma may present with unilateral epistaxis, nasal obstruction or protruding mass, epiphora, and even alterations in smell. Although pyogenic granuloma is a benign mass without infiltrative or malignant potential, the frequently dramatic growth pattern may alarm both the patient and clinician. Many benign and malignant lesions should be considered in the differential diagnosis of nasal pyogenic granuloma, including nasal polyp, papilloma, capillary hemangioma, and lymphangioma.

**Discussion**

Pyogenic granuloma is a benign, acquired vascular neoplasm that occurs on the skin and mucosa of the aerodigestive tract. According to the current consensus, the terminology (pyogenic granuloma) is a misnomer. The histopathologic appearance is a lobular capillary hemangioma [5]. Local overgrowth of microvasculature, instead of inflammation, is the main cause of this tumor. In a study of 73 cases of pyogenic granuloma occurring in the aerodigestive tract, Mills et al found

<table>
<thead>
<tr>
<th>Author</th>
<th>Gender</th>
<th>Age (yr)</th>
<th>Pregnancy</th>
<th>Trauma/nasal packing</th>
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<td>50</td>
<td>–</td>
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<tr>
<td>Bhattacharyya et al [13]</td>
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<td>43</td>
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<tr>
<td>Lee et al [14]</td>
<td>M</td>
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<td>Lance et al [15]</td>
<td>F</td>
<td>34</td>
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<td>Present case</td>
<td>F</td>
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Figure 3. Pyogenic granuloma after excision.

Figure 4. Microscopic appearance of the pyogenic granuloma with marked proliferation of vascular channels, intensive inflammation, necrosis, and hemorrhage (hematoxylin & eosin, × 40).
simple granulation tissue, sarcoid granulomatosis, squamous cell carcinoma, fibrosarcoma, amelanotic melanoma, Kapoši’s sarcoma, and lymphoma [4]. If the diagnosis is uncertain, office biopsy provides sufficient material for histologic evaluation and is well tolerated. In this case, the rapid growth rate, presenting features, and symptoms led to the impression of pyogenic granuloma. Histologic confirmation was delayed until after delivery because of concern about excessive bleeding during surgery in pregnancy.

Unlike management in non-pregnant women or men, the management of pyogenic granuloma in a pregnant woman should be modified, and depends on the severity of the symptoms. Although the lesion can be effectively treated using endoscopic excision, about 16–23% of pyogenic granulomas may recur due to inadequate treatment [4]. Expectant management is advised for small, painless, and stable lesions, since the lesion may recur or ultimately resolve spontaneously several months after childbirth [1]. Excision postpartum may minimize the risk of recurrence and bleeding during surgery. However, pyogenic granuloma in pregnancy may be complicated by severe bleeding or secondary infection, which may threaten the pregnancy through uncontrolled hemorrhage and systemic infection, and definitive treatment (surgical excision) should be considered. Although pyogenic granuloma may regress after delivery, previous case reports of nasal pyogenic granuloma reveal continued growth [4,15]. After discussion with the patient, the decision for immediate excision was made from the definite histopathology, resolving symptoms, and cosmetic concerns.

In summary, pregnancy tumor of the nasal cavity is an uncommon benign cause of nasal obstruction and bleeding in pregnancy. The management of nasal pyogenic granuloma in pregnancy should be individualized. Although this lesion is effectively treated by surgical excision, expectant management is preferred during pregnancy unless severe symptoms occur. Excision after childbirth is recommended to prevent recurrence. The timing of excision should be based on presenting symptoms and the growth behavior of the lesion.

References