**ABSTRACT**

Objectives
To review our experience with pyogenic granuloma (PG) of the nasal cavity to determine if any underlying hormonal changes contribute to its etiology.

Study Design
Retrospective Chart Review

Methods
Clinical records of twelve patients who underwent surgical excision of nasal PG from 2005 to 2011 at Weill Cornell Medical College by the senior author (AK) were reviewed for age, sex, location of mass, clinical presentation, and underlying medical problems to look for possible hormonal etiologic factors.

Results
Twelve patients with 13 PGs (one male patient had bilateral PGs) were identified. There were 8 females (66.67%) and 4 males (33.33%) with an average age of 42.7 (range 14-67 years). All patients presented with epistaxis and were found to have a mass on nasal endoscopy. In 9 patients the site of origin of the PG was the anterior nasal septum, in 2 patients it was the inferior turbinate, and in the final patient (with bilateral PGs) it was from bilateral anterior septum. The site of origin was right side in 8 patients (66.67%), left side in 3 patients (25%), and bilateral in 1 patient (8.33%). All patients underwent surgical excision in the OR using endoscopic techniques. Final pathology confirmed pyogenic granuloma in all cases.

In reviewing the patients’ medical history, we found that 2 out of 4 males (50%) had an underlying hormonal issue (1 had prostate cancer and was taking Lupron; 1 had hepatocellular carcinoma causing liver failure and was awaiting liver transplant). The male with bilateral PGs had a history of rhinoplasty with a dorsal filler injection. The other male had no medical problems. Five out of the 8 females (62.5%) had underlying hormonal changes (1 from oral contraceptives, 2 from pregnancy, and 2 from receiving infertility treatment [1 of which developed 2 recurrences]). The remaining 3 (37.5%) females had no underlying medical problems.

**SURGICAL TECHNIQUE**

All patients were brought to the operating room and were given local anesthesia with sedation (unless either the patient requested general anesthesia or if it was thought the patient could not tolerate local anesthesia with sedation). A thorough nasal endoscopy was first performed to evaluate the site of origin and extent of the lesion. The lesion was then excised with needle tip monopolar cautery or cold technique along either the subperichondrial or subperiosteal plane with a few millimeters cuff of normal mucosa around. The site of origin was then cauterized with suction cautery to obtain hemostasis.

**REFERENCES**


**DISCUSSION**

Pyogenic granuloma, also known as lobular capillary hemangioma, is a benign capillary proliferation that affects preferentially the oral cavity and to a lesser extent, the nasal cavity. Multiple theories have been postulated as to their development, including trauma, hormonal changes, viral oncogenes, and underlying microscopic arteriovenous malformations.

They occur in up to 5% of pregnant women and are called pyogenic granuloma gravidarum or “pregnancy tumor.” This is postulated due to increased levels of estrogen and progesterone, which can stimulate endothelial proliferation of the mucosal surfaces. Even asymptomatic pregnant women have been found to have glandular hyperplasia in similar mucosal surfaces, thought to be due to the sensitivity of oral and nasal mucosa to sex hormones. They typically involve the oral gingiva followed by the lips, tongue, buccal mucosa, and palate. Involvement of the nasal mucosa is uncommon. Most of these lesions normally involute spontaneously after childbirth and do not require any intervention; however, growing or symptomatic lesions require intervention during pregnancy.

The goal of our study was to review all cases of nasal pyogenic granuloma in the last six years to assess for any underlying hormonal factors (in males or females) that could be contributing to their etiology. We found that 7 out of 12 (58.33%) patients had an underlying hormonal factor that could have potentially been contributing to their pyogenic granuloma. One male had prostate cancer and was taking Lupron, which is also used to treat precocious puberty and endometriosis. Another male had hepatocellular carcinoma, which caused liver failure, requiring a liver transplant. A third male had dorsal filler injections during rhinoplasty and developed subsequent bilateral nasal PGs. Although not hormonally related, it was a potential risk factor and was important to report. Five females also had underlying hormonal factors. Two were pregnant at the time, one was taking oral contraceptives, and two were undergoing infertility treatment with clomiphene (which is a selective estrogen receptor modulator). One of the patients undergoing infertility treatment developed two recurrences after complete excision of the original PG while she was continuing her infertility treatment. Only 1 male and 3 females (4 patients total) had no medical problems and developed the PG spontaneously.

**CONCLUSION**

A total of 7 out of 12 (58.33%) patients had an underlying hormonal issue that likely contributed to their PGs while 1 had dorsal filler injections from a rhinoplasty. Only four out of 12 (33.33%) had no underlying medical problems. It appears that there is hormonal predilection for the development of pyogenic granuloma.