

Case Report

A Rare Giant Cell Lesion Originating from the Nasal Septum

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Abstract

Both giant cell tumors and giant cell granulomas are uncommon lesions of the head and neck and are even more uncommon lesions in the sinonasal cavity. We present a case report of a 77-year-old woman with complaints of nasal congestion and intermittent epistaxis from the right nasal cavity for about a year. Following our biopsy, the histological specimen demonstrated unevenly dispersed osteoclast-like giant cells in areas of hemorrhage, representing a lesion more likely to be giant cell granuloma than giant cell tumor. Several case reports in the literature have stated that these two diagnoses can be difficult to differentiate under the microscope. By presenting this giant cell lesion originating from the nasal septum, we hope to spark the interest of others to conduct additional research on these uncommon osteoclastic-type lesions.

Introduction

Giant Cell Tumors of bone (GCTs), also known as osteoclastomas, are benign tumors [1,2]. About 75% of the time, GCTs are found in the epiphyseal region of long bones [3]. Histopathologically, they exhibit a uniform-like pattern of multinucleated giant cells without osteoid and rare hemosiderin deposits [4-6]. GCTs of the head and neck region make up about 2% of all true giant cell tumors and usually affect the mandible or the sinonasal region [3]. GCTs have the potential to undergo malignant transformation [5,7]. Malignant Giant Cell Tumors (MGCTs) are highly aggressive and account for about 10% of all giant cell tumors [7]. The 5-year survival rate of these aggressive tumors is about 32% [7]. Radiation may be a risk factor for this transformation, and metastasis usually affects the lungs [2,7].

Giant Cell Granulomas (GCGs) are benign non-neoplastic lesions that are exceedingly rare in the head and neck region [8]. In 1953, Jaffe was the first to describe these lesions, calling them Giant Cell Reparative Granulomas (GCRGs) due to the possible presence of a pre-existing trauma to the bone, which was believed to induce a reparative granulation reaction in areas of hemorrhage [2,4,8-10]. Since this initial characterization by Jaffe, these lesions have been identified without any history of predisposing trauma, and thus the term “reparative” has been dropped [5,10,11]. There are several other theories of the pathophysiology of GCGs, some of which implicate infection, developmental predisposition, or chronic inflammation as possible causal agents [4]. To date, however, the pathophysiology of GCGs is still unknown.

Histopathologically, GCRGs can be identified and differentiated from GCTs. GCGs exhibit a disorganized pattern of sparse multinucleated giant cells in areas of surrounding hemorrhage [4,8-10]. GCGs more commonly affect women than men and are typically seen in the third and fourth decades of life [7]. They can be divided into peripheral and central lesions. Peripheral lesions commonly involve the gingival soft tissue and have been described as immobile spongy masses [5,8]. Central GCGs more commonly involve either the mandible or maxilla but can be seen in extragnathic sites as well [4]. These locations include the small bones of the hands and feet, long tubular bones, the paranasal sinuses, the orbit, and the cranial vault [4,9]. There are only two case reports of GCGs arising from the nasal cavity, and only one arising specifically from the nasal septum [4,10,12]. Similarly, to the best of our knowledge, there have been no reported cases of a GCT arising from the nasal septum [10].

Case Presentation

A 77-year-old Caucasian woman presented to our Otolaryngology clinic with a history of nasal congestion and intermittent epistaxis from the right nasal cavity. She had a total of about three to four episodes of bleeding over the past one and a half years without a known history of trauma to the nose. On initial physical exam, there was deviation of the septum to the left and a concavity on the right with no source of bleeding identified. Conservative measures were recommended, including no nose blowing and the application of topical ointment to both nares three times a day to prevent dryness. The patient returned to the clinic as directed in three weeks and noted continued epistaxis from only the right side in spite of her compliance with our recommendations. At this time on physical, a lesion was noted on the right side of the septum at the posterior edge of the concavity surrounded by crust. The rest of the head and neck exam was unremarkable.

The decision was made to take a biopsy of the nasal mass while in the clinic and consent was obtained. After topical application of a 50% topical 4% lidocaine and 50% oxymetazoline admixture for five minutes, the lesion was excised with cup forceps under visualization with a zero-degree nasal endoscope. Bleeding was controlled with silver nitrate. The mass appeared pedunculated at the bony

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cartilaginous junction. Patient tolerated this procedure well. The lesion was then sent off for pathologic evaluation.

The gross evaluation described the lesion as a gray-tan, irregular, firm, nodular fragment of tissue about 0.8 cm in size with a granular external surface. The microscopic description of this lesion showed focal stromal proliferation of uniformly spaced osteoclast-type giant cells with surrounding uniform ovoid to spindle shaped cells and rare osteoid formation. These histopathological features were identified as an osteoclast-type giant cell lesion, such as giant cell tumor or giant cell reparative granuloma. There were no features of malignancy seen on pathology.

The patient presented to the clinic a couple weeks later at the follow up appointment and the pathology report was reviewed with the patient. During this visit, a rigid nasal endoscopy was performed to evaluate the site of nasal mass biopsy. The right anterior nasal septum was noted to be healing well with no active bleeding, no evidence of persistent mass. A photograph was taken post-biopsy of the right nasal septum (Figure 1). The patient was recommended to continue using the topical ointment as needed for nasal dryness and to follow up in another two to three weeks.

Discussion

Both Giant Cell Granulomas (GCGs) and Giant Cell Tumors (GCTs) are uncommonly seen in the head and neck region and are even more rarely described originating from the nasal cavity, paranasal sinuses or nasal septum [4,8,12]. As mentioned before, there has only been one report of a giant cell reparative granuloma arising from the nasal septum [4,10]. There have been no reports of a GCT originating from the nasal septum [4,10]. On histopathology, GCGs are typically described as having disorganized multinucleated giant cells, sparsely dispersed within a fibroblastic background. In cases of GCRGs, this fibroblastic background is hemorrhagic [4,8,9]. Both GCGs and GCRGs may also have deposits of hemosiderin and foci of osteoid tissue which GCTs typically do not [4,5,9]. GCTs have been noted to have a larger number of multinucleated giant cells that are more uniformly distributed within a more cellular surrounding stroma [3,6,13].

In this case report, the histological features demonstrate a proliferation of round to oval mononuclear cells in a well-vascularized stroma. There is also osteoclast-like giant cell containing 8-20 nuclei unevenly dispersed and located in areas of hemorrhage. There is no evidence of pleomorphism or increased mitotic cells (Figures 2 and 3). Several case reports have stated that both GCT and GCG can be very difficult to differentiate under the microscope. However, this lesion best fits with GCG due to microscopic findings of these giant cells are in areas of microscopic hemorrhage [4,8-10]. Likewise, giant cells in GCTs are typically more evenly distributed, and in our biopsy these cells were in a more disorderly pattern [4-6].

Our patient had symptoms of nasal congestion and intermittent epistaxis for less than two years. This is surprisingly similar to the initial presentation of the GCG arising from the nasal septum reported by Amin and Samuel [10]. Their patient, a 32-year-old male, complained of persistent epistaxis also from the right side and nasal obstruction. He also had symptoms of anosmia on the right and right eye discomfort, which our patient did not. On their exam, a friable mass was identified on the right nasal septum and extended towards the lateral nasal wall [10]. The giant cell lesion identified in our patient also involved the right bony nasal septum.

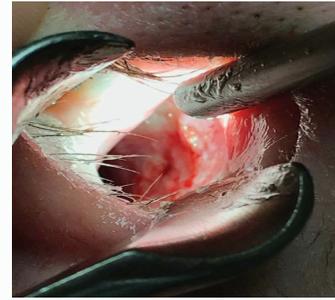


Figure 1: This is an image of the patient's right nasal cavity and the post-biopsy area of the right anterior nasal septum in the Otolaryngology clinic at the follow up visit (black arrow-pointing to area of lesion).

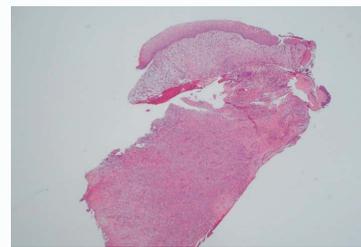


Figure 2: Low-power view demonstrating squamous epithelium and underlying stromal proliferation. Giant cells can even be identified at this low-power magnification (H & E stain, 40x).

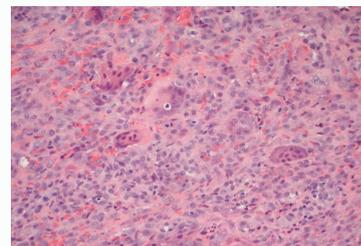


Figure 3: Osteoclast-like giant cells are present in a surrounding mononuclear stromal proliferation. The giant cells were unevenly dispersed and present in areas of hemorrhage (H & E stain, 200x).

In the literature, the treatment for both GCGs and GCTs is surgery [3,4,7,8,11]. However, treatment options depend on the aggressive nature of these lesions. GCGs vary in aggressiveness, with recurrence rates ranging from 10% to 35% in the literature [5,14,15]. For GCG, local excision can be curative. Other treatment options include intralesional administration of corticosteroids, oral steroid administration preoperatively, calcitonin therapy, alpha-IFN administration and radiation therapy [8]. There is one report of a patient with GCRG who was treated with radiation therapy that presented with an osteogenic sarcoma at the same site several years later [10].

In comparison, GCTs can have a more destructive course than GCGs and a higher rate of recurrence [1,3,6,7]. Treatment options for GCTs, however, are similar to that of GCGs; complete surgical excision is the primary mode of treatment. Radiation therapy is reserved for inoperable cases. It has been reported that about 85% to 90% of all GCTs cases will have local control after complete excision and with incomplete resection, recurrence rates can be up to 50% [16,17].

Due to the rarity of both GCGs and GCTs within the nasal region, a concrete treatment algorithm has not been developed, and as such, treatment has been typically determined on a case by case basis. Following surgical excision of the lesion, whether that of a GCG or a GCT, appropriate follow up is agreed upon as being of utmost importance to evaluate for any recurrence [4,13]. In our case report the patient's lesion was excised when obtaining the biopsy. Active surveillance for recurrence was recommended, with the intent of further surgical management of any subsequent recurrence.

Conclusion

Giant cell lesions are not commonly identified in the head and neck region. Even more so, giant cell lesions are exceedingly rare involving the nose [8,9,12]. There has been only one case report identifying a GCG arising from the nasal septum and no reports to date of a GCT arising from the nasal septum [10]. In this case report, we presented a giant cell lesion originating from the anterior nasal septum. Additional research is recommended in order to gain a better understanding of these uncommon osteoclast-type lesions in order to improve treatment outcomes for our patients.

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