Chondroma of the nasal bone:
A case report

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Abstract
Cartilaginous tumors are common in the long bones of the body and relatively rare in the head and neck. When they do occur in the head and neck, the most common site is the midface. Since the first case report by Morgan in 1842, approximately 150 cases of head and neck chondroma have been recorded in the English-language literature. In this article, the authors describe a new case in which a chondroma of the nasal bone caused an external nasal deformity in a 17-year-old boy. The lesion was excised via an external rhinoplasty approach. The authors believe that this is the first reported case of a chondroma arising from the nasal bone. The authors have made an attempt to comprehensively review the literature on this rare and controversial tumor and place special emphasis on its uncertain biologic nature. A detailed discussion of the diagnosis and management of this tumor is also included in this report.

Introduction
A chondroma is a benign cartilaginous neoplasm. Cartilaginous tumors make up the second-largest group of bone neoplasms. They are rare in the head and neck region; most lesions are found in the long bones, pelvis, and ribs.1 When they do arise in the head and neck, the sites of predilection are the maxillofacial region, the larynx, and the nasal septum.2 In this article, we report a rare case of chondroma arising from the nasal bone. We discuss the problems encountered in the clinical and histopathologic interpretation of this tumor, as well as the management of a histologically proven case.

Case report
A 17-year-old boy came to the otorhinolaryngology outpatient department for evaluation of a painless swelling over the nasal dorsum. While the swelling had been present for 3 months, it had rapidly increased in size during the previous month. The patient expressed no other complaints pertaining to the nasal cavity.

Examination revealed that the external nasal pyramid was grossly deformed by a firm, nontender, 2 × 1-cm swelling (figure 1). The skin over the swelling was normal and mobile. Endoscopic examination of the nose did not detect any distortion of the nasal cavities by the external mass.

Findings on blood testing and urine microscopy were within normal limits. An x-ray of the paranasal sinuses failed to detect the mass, but computed tomography (CT) did demonstrate a thickened and deformed left nasal bone (figure 2). The nasal cavities were not deformed, and the paranasal sinuses were well aerated. We made a provisional diagnosis of either a cartilaginous or fibro-osseous tumor of the nasal bone.

The nasal mass was approached through an external rhinoplasty transcolumellar incision. A well-defined 2 × 1-cm mass was found arising from the left nasal bone. The mass was well encapsulated and not attached to the nasal septum, the upper lateral cartilage, the adjacent frontal process of the maxilla, or the contralateral nasal bone. The mass, which was scooped out, had a firm, gritty feel to it. The remnants of the nasal bone were removed, and the nasal dorsum was augmented with a septal cartilage graft.

The histologic sections revealed lobules of circumscribed lesions made up of small chondrocytes with round nuclei in the lacunae and an intervening hematoxylin and eosin-stained chondroid matrix. The lobules of mature hyaline cartilage were surrounded by a scant stroma, and they lacked anaplastic features (figure 3). Findings on histopathologic examination were consistent with a benign chondroma of the nasal bone.

The patient’s recovery was uneventful. Three months postoperatively, he exhibited no evidence of recurrence, and his facial profile was satisfactory. He was lost to follow-up thereafter.

Discussion
Overall, the incidence of chondroma peaks during the sixth decade of life.3 However, in the facial skeleton, chondroma
generally occurs during adolescence and early adulthood. The most common reported sites in the facial skeleton are the ethmoid sinuses and the nasal cavity excluding the nasal septum (incidence: 50%); other common sites are the nasal septum (17%), the hard palate (6%), and the nasopharynx (6%).

To the best of our knowledge, a case of chondroma arising from the nasal bone has not been previously reported in the English-language literature. The way in which cartilaginous tumors arise at some sites in the head and neck is puzzling. These tumors may arise from the nasal septum and larynx because of their intrinsic cartilaginous nature. Cartilaginous tumors may also arise from bones that ossify in cartilage (e.g., sphenoid and nasal bones); these bones can harbor cartilaginous rests long after ossification is complete. Chondromas and chondrosarcomas can also develop in tissues that do not normally contain cartilage at any stage of development. Aberrant embryonic cell rests have been suggested to explain the origin of cartilaginous tumors at these sites (e.g., the maxilla). Multidirectional differentiation of the mesenchymal cells has also been implicated in the origin of cartilaginous tumors at these sites.

Macroscopically, benign chondromas are smooth, firm, and lobulated tumors with a gritty “ripe pear feel.” On microscopy, cartilage cells are consistently small and contain pale, vacuolated cytoplasm and small, round, dark-stained nuclei. Some fields may show binucleate cartilage cells, indicating a process of amitotic division, but most are monocellular and mononucleate.

Making a histologic distinction between a benign chondroma and a malignant chondrosarcoma may be difficult. In fact, many authors believe that a benign chondroma is actually a low-grade chondrosarcoma. In 1943, Lichtenstein and Jaffe identified three histologic criteria for a diagnosis of malignant chondrosarcoma: (1) the presence of many cells with plump nuclei, (2) more than a few cells with two nuclei, and (3) the presence of giant cartilage cells with large single or multiple nuclei or with clumps of chromatin. In brief, a chondroma duplicates normal cartilage despite increased cellularity, but a chondrosarcoma exhibits pronounced irregularity in the number and size of cells and in the degree of hyperchromatism. Although the final diagnosis is established by the histopathology report, a clinical differentiation between a benign and malignant lesion must be made so that the physician can plan the surgical management of the lesion. Some clinical features should raise a suspicion of malignancy, including older age at presentation, a rapid extension of growth, an invasion of surrounding structures, and a site of origin in the facial skeleton.

Surgery is the mainstay of treatment for both benign and malignant tumors. A wide excision should be performed when a presumptive diagnosis of a cartilaginous tumor of the facial skeleton is made because these tumors behave aggressively in the facial skeleton. Radiotherapy is of little value for histopathologically benign tumors, but it may be offered for the treatment of primary and recurrent tumors.
malignant cartilaginous tumors. Long-term follow-up of a benign chondroma is necessary because of the possibility that malignant transformation will occur.  

References