

Nasal Polyp with Heterotopic Bone Formation (Osseous Metaplasia): A Case report

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Abstract

Osseous metaplasia is defined by the presence of heterotopic normal bone tissue in a soft tissue. Metaplastic ossification is a rare event in nasal polyps. The authors describe a rare case of bone formation in nasal polyp of a 28-year-old man with chronic right-sided nasal obstruction without history of trauma or allergy symptoms. To our knowledge, this finding has been reported in a few cases in the English medical literature. [GMJ. 2013;2(2):80-82]

Keywords: Ossification; Nasal polyp; Heterotopic; Metaplasia

Introduction

Metaplasia is defined by the transformation of one adult tissue or cell type to another tissue or cell type. Osseous Metaplasia (OM) is the replacement of heterotopic normal bone tissue in soft tissue [1]. Nasal polyp is a common disease that usually present in 4% of the population, followed by chronic sinonasal infection and inflammatory condition [2]. OM is an unusual event that may occur anywhere but its presence in the nasal polyps is very rare, and has been reported in only eight cases in the English language literature [1,3]. In this report we present a rare case of OM in nasal polyp. Informed consent was taken prior to publication from the patient.

Case Presentation

A 28-year-old man was referred to our clinic

with the chief complaints of right-sided nasal obstruction, nasal discharge, and snoring during sleep for almost a year. There were no histories of trauma, prior surgery, or allergy symptoms. On anterior rhinoscopy, no abnormality was noted. In nasal endoscopy a Polyp-like mass was observed in the posterior part of the right nasal cavity. The mass was attached to the inferior turbinate and extending into the nasopharyngeal space. Computed tomography (CT) scans showed a large mass lesion within the right nasal cavity that extended into nasopharynx and oropharyngeal space, and contained central ossified structure (figure 1). The patient underwent standard endoscopic surgery [4] and the mass was completely removed. The macroscopic study showed pink, firm, polypoid mass measuring 6×3×2 cm³ in size with irregular surface (figure-2). The definitive histopathology revealed a mature trabecular bone tissue covered with

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respiratory polypoid mucosa, squamous metaplasia, infiltration of inflammatory cells, and mild proliferation of mucinous glands (figure-3). In follow-ups, nasal endoscopy and CT scan were conducted at six months after surgery. These studies revealed that there were no endonasal lesions.

Discussion

Extra-skeletal bone formation is referred to as osseous metaplasia, metaplastic ossification, or ectopic bone formation [5]. Most cases of OM were reported in benign colonic and endocervical polyps [6]. Osteolipoma is the

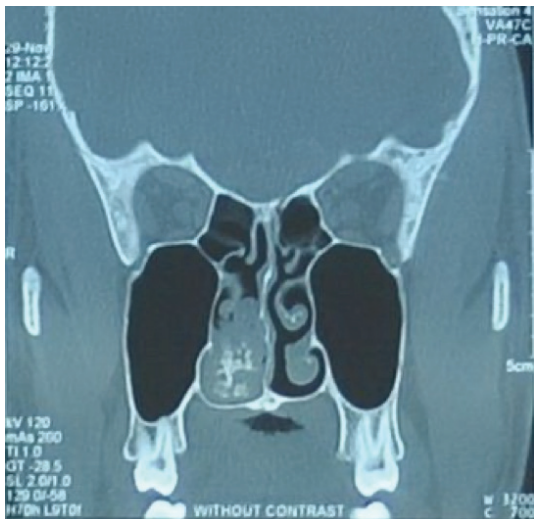


Figure-1. CT scan of Paranasal Sinuses, Coronal Slice; Tumor-Like Lesion in the Right Nasal Cavity with Central Ossified Structure.



Figure-2. Polypoid Mass Measuring 6×3×2 Cm3 In Size After Excision

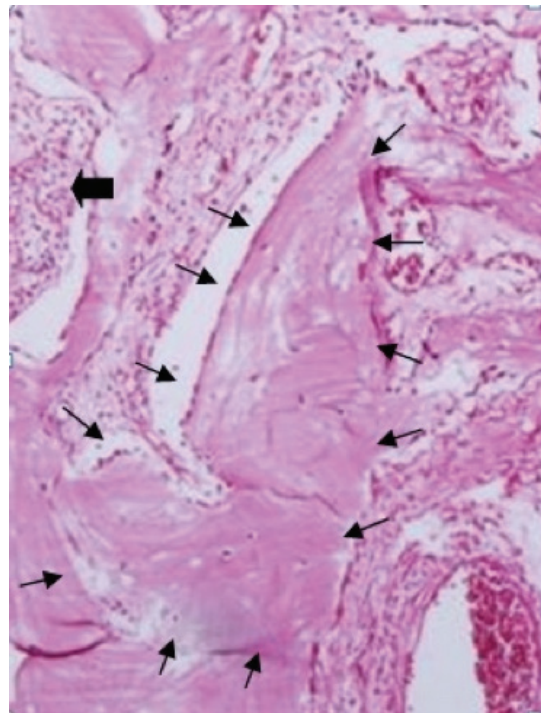


Figure-3. Histopathology (H&E; original magnification, ×40); Meteplastic ossification (thin arrows) in inflammatory nasal polyp (thick arrow).

most common lesion occurring with OM in the head and neck region [7]. Nasal polyps are common expansile lesions in the nasal cavity that form by fluid buildup in deep lamina propria of nasal mucosa and paranasal sinuses. These types of lesions usually occur following allergy, atopy, or infections. Secondary changes such as infarction, superficial ulceration, stromal cell atypia, and metaplasia of surface epithelium may also be seen in nasal polyps [8]. Although OM pathophysiology is not well known, there is a highly probable theory. According to this theory, the mesenchymatous pluripotent cells of mucosal polyp are differentiated into osteoblast progenitors under the influence of bone morphogenetic proteins (BMPs) and transforming growth factor β -1 (TGF- β 1); then, osteogenic signal stimulations lead to maturation of osteoblast progenitors into osteoblasts which can induce bone matrix secretion [9]. As mentioned before, the incidence of nasal polyps with OM is very low. It might be due to a low rate of diagnosis as in most cases, the polyps may be fragmented during surgery, or may not be sent for histopathological examinations. On CT, nasal

polyps are usually seen as homogeneous soft tissue masses with smooth convex margins. But OM appears on CT scans most commonly as multiple clustered densities seen in the center of polyp [9]. Many conditions such as rhinolith (sinolith), mycetoma, inverted papilloma, chondrosarcoma, osteosarcoma, and fibrosis lesions, can mimic nasal polyp with OM

on CT and magnetic resonance (MR) images [2,10], therefore pathological studies must be done to confirm the diagnosis. Hence, physicians should be aware at the time of treating nasal polyps and include osteoma and OM in their differential diagnoses.

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