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A Rare Case Report of Impacted Metallic Rhinolith

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ABSTRACT

Introduction- Rhinolithiasis is an uncommon condition. It is usually confused with both benign and malignant nasal tumors. They have various clinical presentations.

Case Presentation: We report a rare case of rhinolith due to inhalation of industrial fumes. The patient presented to the OPD of Saraswathi institute of medical sciences, hospital with history of nasal obstruction, yellowish nasal discharge, frequent headache and epistaxis of 3 months duration. The patient was an industrial worker by profession and gave history of inhalation of industrial fumes (zinc oxide). After taking a thorough history of the patient local examination including anterior rhinoscopy and nasal endoscopy was carried out. Nasal endoscopy revealed a greyish irregular densely impacted solid mass. Computed tomography (CT) scan of nose and paranasal sinuses showed a radiopaque mass in right and left side of nasal cavity. Rhinolith was removed endoscopically under general anaesthesia, leading to the complete resolution of his symptoms.

Discussion: Diagnosis of rhinolithiasis can be made by keeping a strong suspicion based upon history and symptoms. The current case report shows the importance of rigid nasal endoscopy and radiological assessment in diagnosis and management of rhinolith.

Keywords: *Rhinolith, rhinolithiasis, Metallic rhinoliths, Zinc oxide.*

INTRODUCTION

Rhinolith is of Greek origin; "rhino" meaning nose, and "lithos" meaning stone. They are not commonly seen but attract attention because they can be confused with both benign and malignant nasal tumours which need aggressive surgical management. Rhinoliths are usually asymptomatic; as they progress they can develop into a symptomatic destructive entity. It can be seen on radiographs as a radiopaque object in the nasal fossa and may be confused with several pathologic entities that will call for more invasive surgical procedures.

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CASE REPORT

A 40-year-old zinc metal factory worker presented to E.N.T outpatient department of Saraswathi institute of medical sciences with complaints of nasal obstruction, foul smelling nasal discharge, frequent headache and epistaxis of 3-month duration. These symptoms were preceded by history of accidental inhalation of zinc oxide fumes. The patient also suffered burn injuries to his head, chest, legs and ears and there was no history of systemic disease. After taking a thorough history of the patient, local examination including anterior rhinoscopy and nasal endoscopy was carried out. Nasal endoscopy revealed an irregular, grey, stony impacted mass covered with secretions was present in right and left nostril. Computed tomography (CT) scan of nose and paranasal sinuses showed a radiopaque mass in right and left side of nasal cavity. (Figure 1). Based on clinical and radiological presentations, patient was diagnosed with

rhinolith of both nostrils. The patient was immediately planned for surgery keeping in mind both endoscopic and lateral rhinotomy method. All investigations were done necessary for general anesthesia fitness. An intraoral intubation was done. The rhinolith was examined endoscopically and was carefully delineated by doing a thorough decongestion all around it. Proper mucosal handling of tissue done and the impacted rhinolith from nasal cavity removed endoscopically. The rhinolith removed seems to be metalloid and crusted zinc oxide vapors. (Figure 2). The patient had an uneventful recovery and was seen two weeks later at clinic where he was devoid of any nasal symptomatology.

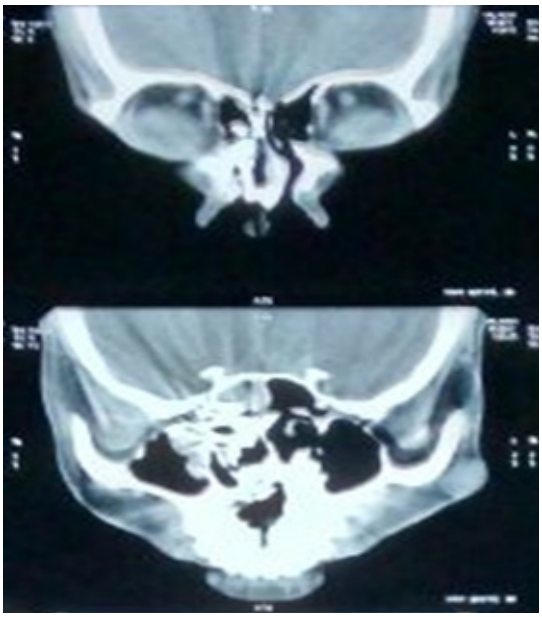

Figure 1: preoperative ct-scan

Figure 2: removed rhinolith

Figure 3: endoscopic view of rhinolith

DISCUSSION

Rhinolith also called as nasal calculi are calcareous concretions that arise secondarily to the complete or partial encrustation of intranasal foreign bodies[1]. Polson in 1943 reported that his colleague had seen a rhinolith as big as a pinecone[2]. Bartholin gave the first documented description in 1654.

Rhinolithiasis is an uncommon condition.[3] The pathogenesis of rhinolith is not clear. It has been speculated that a foreign body in the nose acts as a nidus and incites a chronic inflammatory reaction with deposition of mineral salts and forms a rhinolith.[1,4]The foreign body is expected to enter through the anterior nares, although some have been reported to have entered through the choana during vomiting or coughing. Based on the nature of foreign body involved, rhinoliths are classified as true and false rhinoliths[5]. Most foreign bodies are exogenous (false) such as beads, pebbles, buttons, paper, food, cherry pits, stones, sand, fruit seeds, peas, parasites, dirt, cloth, wood, glass, jewellery, plastic, cotton wool or retained nasal packings.[1,4] A rare case of opioid (codeine and opium) associated with rhinolith has also been reported.[6] The endogenous (true) agents causing rhinolith includes bacteria ,leukocytes, misplaced teeth, sequestra, blood clots, dried pus, mucus, desquamated epithelia, nasal crusts and bone fragments.[1,4,5,]

Radiologic examinations include orthopantomography (OPG), maxillary occlusal view, water's view, lateral skull views and CT[5]. In 1900; MacIntype gave the first radiological description of rhinolith. The typical radiological features are mixed radiopaque-radiolucent mass arranged in a concentric circle or in the form of lamellations.[7] The other radiological features such as coral-like mass, displacement, perforation, thinning, expansion and destruction of the nasal wall have also been listed.[5] CT (Computed tomography) appearance includes a homogenous, high-density periphery with central area of lower density.[7] CT also plays an important role in exact localization of the mass and in demonstration of any associated complications.[8]

First chemical analysis of rhinolith was performed by Axmannin 1829. It is found that they predominately contain in organic materials such as calcium phosphate, magnesium, carbonate, oxalate and urates.[3,7] Other materials such as siderite (FeCO3) and ferrihydrite with a nidus of high iron content has also been reported.[11] Over the years, various methods have been employed for mineralogical analysis of rhinolith and this includes electron-ray microprobe, X-ray diffractometry and infrared-spectroscopy.[4]The treatment is removal of the rhinolith. In most cases, rhinoliths are removed through the nostrils using local anaesthesia either by crushing or as a complete fragment.[7] Endoscopically controlled surgery can be helpful in complete and uneventful removal of the rhinolith. A rhinolith that cannot be removed surgically could be disintegrated using a lithotripsy.[7] In case of septal or antral perforation the surgical option includes alar release, Caldwell-Luc or lateral rhinotomy.[3,7] Rarely, in extensively destructive cases, reconstruction of Sino nasal anatomy may be required.[9]

CONCLUSION

Although rhinoliths are quite uncommon, it is quite probable that an otolaryngologist will occasionally be confronted with such cases during his practice. Since clinical and radiological findings may be similar to other benign or malignant nasal lesions, knowledge of this clinical entity and a high degree of suspicion are necessary in order to accurately diagnose and treat this condition.

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