

## Case Report

**Naso-oral fistula due to rhinolithiasis: a rare presentation**

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**Abstract:** Naso-oral fistula, as the name suggests, is an abnormal communication between the nasal and oral cavities. It is an extremely rare clinical entity encountered in routine rhinology clinics across the world. The occurrence of this fistula due to rhinolithiasis is much rarer. We present one such case in a 40-year-old man, who came to us for assessment of a “hole” in his palate. The cause of this naso-oral fistula was found to be a rhinolith in the right nasal cavity. This report emphasizes that trainee rhinologists should be vigilant about this little recognized and rare condition. (*J Oral Sci* 51, 481-483, 2009)

**Keywords:** naso-oral fistula; rhinolith; palate; nasal endoscopy.

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### Introduction

A fistula by definition is an abnormal duct or passage resulting from injury, disease, or a congenital disorder that connects an abscess, cavity, or hollow organ to the body surface or to another hollow organ. Correspondingly, naso-oral fistula is an abnormal communication between the nasal and the oral cavities. Various causes have been attributed to this condition, the most prominent being congenital, traumatic, tumors, and iatrogenic. We report one such case in a 40-year-old man, who presented with nasal regurgitation of fluids and a “hole” in his palate. Further examination and investigations revealed that the fistula was caused by a rhinolith that had lodged in the floor of the right nasal cavity. Here we describe this case, focusing on

the presentation of rhinolithiasis as a naso-oral fistula, in view of the rarity of rhinolithiasis in general.

### Case History

A 40-year-old man presented at our outpatient clinic with chief complaints of nasal regurgitation of fluids and a “hole” in his palate, which had been evident for 6 months. There was no history of trauma, oral cavity or nose surgery, sinusitis, bleeding from the oral or nasal cavity, pain or tenderness. Examination demonstrated a fistulous opening measuring about 1.3 cm × 0.7 mm to the right of the midline of the hard palate (Fig. 1). It was found that a probe could be passed through the opening into the nasal cavity, and the presence of a hard mass was apparent. Rigid nasal endoscopy revealed a chalky white, ‘stony’ hard calcified mass on the floor of the right nasal cavity between the inferior turbinate and the nasal septum. The mass was immobile, non-tender to touch, non-friable and did not bleed



Fig. 1 Photograph showing the naso-oral fistula to the right of the midline.

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on probing. The probe could not be passed beneath the mass. A fistulous opening (naso-oral fistula) could be seen anterior to the end of the mass. On further enquiry, the patient admitted that he had been aware of partial obstruction of the right nasal cavity and an occasional bad taste, but had not noticed any foul smell. He had not been aware of any foreign body entering his nose. The septum was intact and properly located along the midline. The left nasal cavity and the rest of the otolaryngological results were unremarkable. A provisional diagnosis of rhinolith in the right nasal cavity with a naso-oral fistula was made.

Various routine investigations were carried out along with radiography of the paranasal sinuses, which showed an opaque shadow in the right nasal cavity (Fig. 2). CT scan was not ordered in view of the poor socio-economic status of the patient and the relatively certain diagnosis. On the following day, the rhinolith was removed as a single mass under local anesthesia (Fig. 3). The fistula was not repaired, and a second-stage operation was planned for this purpose. However, as the patient was a convicted prisoner who had been brought to the hospital from a local jail, he did not return for fistula repair.



Fig. 2 Radiograph of the patient showing the rhinolith in the right nasal cavity.

## Discussion

Naso-oral fistula is a relatively uncommon entity with a varied etiology. Apart from the well documented causes of this condition, a few rare causes have included septal abscess (1), cocaine abuse (2), angiocentric T-cell lymphoma (3), tertiary syphilis (4), intranasal teeth (5), and lethal midline granuloma (6). Although rhinolith has been described previously as a cause of naso-oral fistula, the presenting symptoms in all of these cases were that of a rhinolith, i.e. a fetid odor, nasal obstruction, etc. (7-9). The presentation of a rhinolith as a naso-oral fistula appears to be unique.

Rhinolithiasis is due to mineralized, calcareous concretions resulting from calcification of an endogenous or exogenous nidus within the nasal cavity. The mineralization is generally secondary to an object that has become lodged in the nasal cavity (10). The most frequent symptoms are nasal obstruction with purulent rhinorrhea, with nasal and oral malodor (10). These mass lesions are most typically located in the floor of the nasal cavity, either between the maxillary sinus wall and the inferior turbinate, or between the inferior turbinate and the nasal septum, halfway between the anterior and posterior nares (10). There have been occasional reports of rhinolith along with antrolith (11). Sometimes, inflammatory changes secondary to rhinolith can lead to a purulent form with complications, intracranial propagation and dacryocystitis (12). The rhinolith consists of a strongly elliptical core of calcium stearate ( $C_{36}H_{70}CaO_4 \cdot H_2O$ ), surrounded by concentric growth rings consisting of sodium-containing whitlockite ( $Ca_{18}Mg_2(Na,H)(PO_4)_{14}$ ) (13). Diagnosis can be difficult because of the possibility of varying clinical

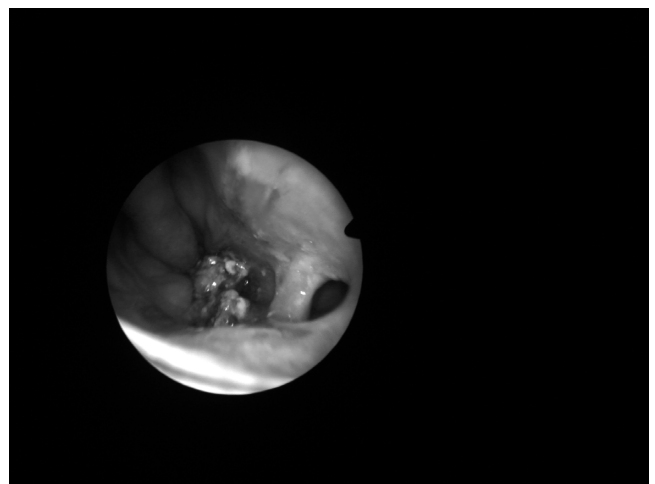


Fig. 3 Endoscopic photograph showing the intranasal view. The rhinolith has been dislodged and the fistula can be seen.

presentations. The protocol should include anamnesis, meticulous endonasal endoscopy, and plain radiography (with or without CT scan) (14). Failure in diagnosis is attributable to the presence of superimposed adjacent structures on plain films and inadequate exposure of the posterior located mass by routine anterior rhinoscopy (15). Treatment consists of removal of the rhinolith, which is usually achieved via an anterior approach assisted by rigid nasal endoscopy (10).

Naso-oral fistula is a rare condition encountered in routine ENT practice. Among the various causes seen, rhinolith is very rare. The present case is described to highlight the need for meticulous anamnesis and nasal endoscopy in patients presenting with naso-oral fistula, and the possibility of rhinolith should always be borne in mind when dealing with such cases.

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