



## **Actinomycosis and aspergillosis in the nose of a diabetic: A case report**

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## **ABSTRACT**

This is a rare case of an elderly diabetic with a short duration of nasal discharge and obstruction due to an infection of actinomycosis and aspergillosis on the inferior turbinate and floor of the nose.

**Keywords:** nose, turbinate, Actinomycosis, Aspergillosis, diabetes

## **INTRODUCTION**

Actinomycosis of the nose and turbinate is extremely rare<sup>1</sup>, and a combined infection with aspergillus is even more so<sup>2</sup>. The possible cause for this condition is discussed. The management of the particular patient is described.

## **CASE REPORT**

An 80 year old physician, a diabetic on treatment, was admitted with a productive cough of two weeks' duration. The patient had earlier undergone aortic valve replacement on two occasions and coronary artery bypass grafting. Five months ago he suffered a left basal ganglia infarct and was on regular physiotherapy for the resulting hemiplegia. Suspecting microaspiration the chest physician started the patient on Levofloxacin 500 mg. Two days later he complained of nasal obstruction and purulent discharge. This persisted even after completion of the antibiotic course. A diagnostic nasal endoscopy was performed which showed yellow colored debris and discharge on the floor of the nose and adjacent inferior turbinate on the right. The rest of the nose was normal. The discharge was subjected to microbiological examination which showed 1-2

polymorphs/HP field with occasional Gram positive bacilli and cocci. There was no growth on culture.

A week later the nasal endoscopy was repeated as the patients problem persisted. A thick encrusted plaque was found on the posterior part of the medial surface of the inferior turbinate and on the adjacent floor of the nose. This showed granules which were bright yellow in colour. On removing the crusts there was bleeding from the underlying mucosa. The particular colour of the lesion led us to suspect actinomycosis, and the material was sent for histopathological examination. The biopsy was reported as actinomycosis and aspergillosis. The patient was then treated with oral Penicillin for 3 months and Itraconazole for one month after all the mucosal lesions were removed endoscopically from the nose.

## **DISCUSSION**

Actinomycosis involving the nasal cavity is extremely rare<sup>1</sup>. Actinomyces sp. are a common commensal in the oral cavity, rectum and vagina. Infections caused by this organism are due to penetrating injury and immunocompromised states. Actinomyces are microaerophilic and these infections are generally deep giving rise to abscesses and osteomyelitis. Cervicofacial infections manifest commonly as odontogenic infections and rarely sinusitis and a nasopharyngeal mass. This patient had suffered a cerebrovascular accident a few months earlier and the mucosal trauma associated with a nasogastric tube may be the cause for the actinomycotic infection. A mixed infection of actinomycosis and aspergillosis has only been reported in the lung<sup>3</sup>. Aspergillus in the nose and paranasal

sinuses manifests as AFRS, invasive or non-invasive granulomatous infection. In this particular case it is likely that the actinomycosis was the primary infection and the fungal infection secondary to the antibiotic therapy. Isolated Actinomycosis and actinomycosis along with a fungal infection are rare in the nose and paranasal sinuses. Both can present as a granular mass, a discharging sinus or similar to osteomyelitis.

## **CONCLUSION**

In our case only debris and a plaque were visible. It is difficult to differentiate the two conditions clinically<sup>4</sup>. A history of concomitant dental infection in a diabetic or immunocompromised patient is usually present<sup>5</sup>. In our case an indwelling nasogastric tube causing trauma to the nasal mucosa in a diabetic was probably the cause. Even though fine needle aspiration cytology plays some role in the diagnosis of actinomycosis in a granular mass<sup>6</sup>, the diagnosis is confirmed only on histopathology.

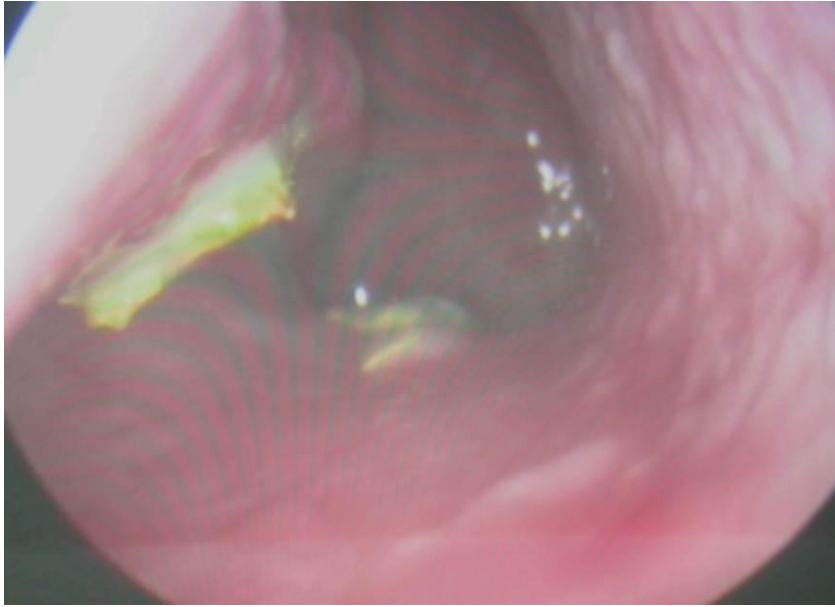


Figure 1. Endoscopic view of a thick encrusted plaque seen in the posterior part of the medial surface of the inferior turbinate and on the adjacent floor of the nose

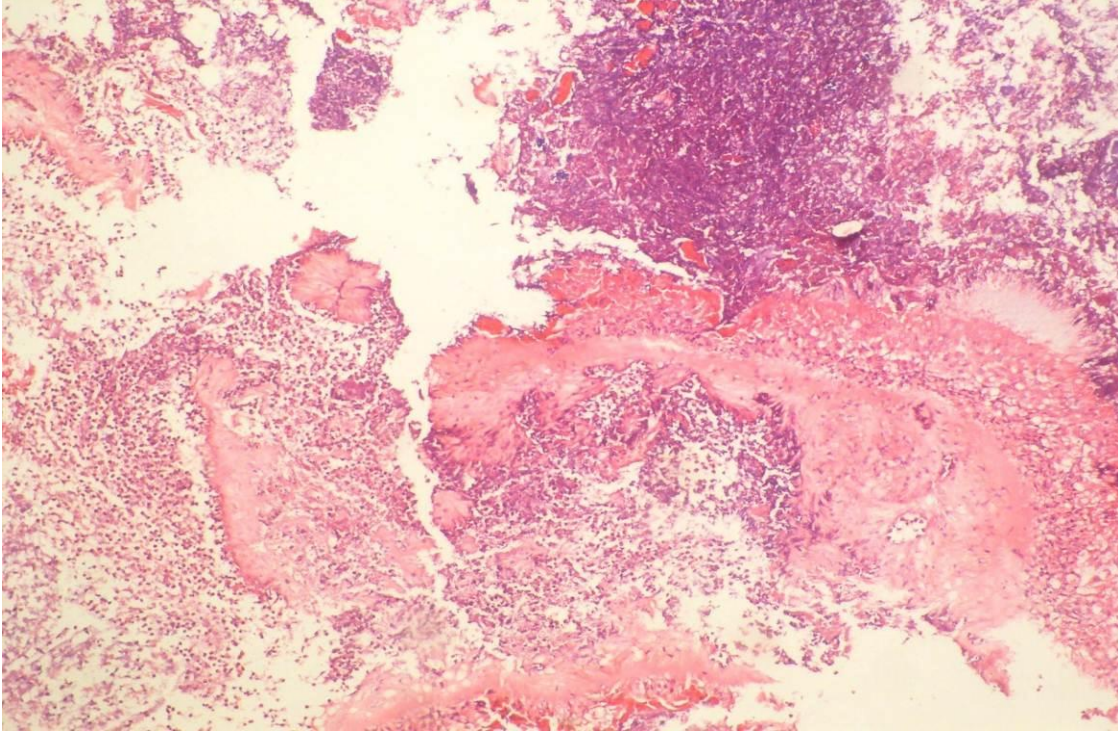


Figure 2. The section shows multiple actinomycotic colonies characterized by radiating filaments with the periphery showing eosinophilic Splendore-Hoeppli reaction. These are surrounded by an abscess with acute and chronic inflammatory infiltrate. Embedded in the abscess are aspergillus colonies, the fungal filaments show septate hyphae and branching at acute angles. Fruiting bodies are also seen (Haematoxylin & Eosin stain-100x)

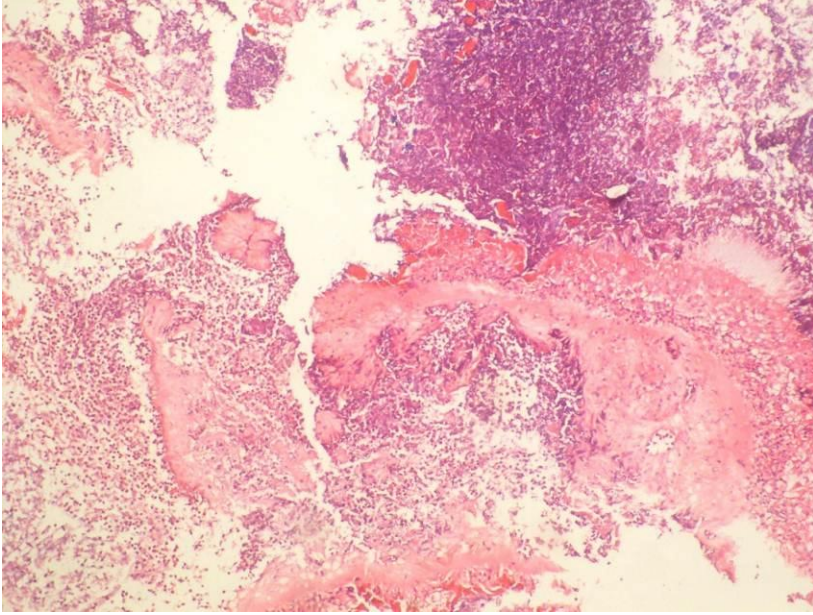


Figure 3. [H&E 400X]

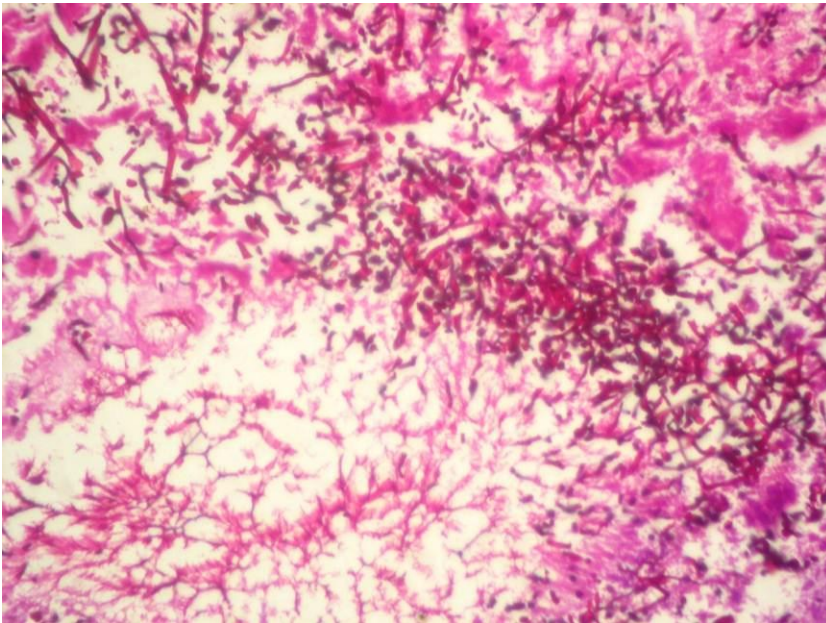


Figure 4. Section shows actinomycotic colonies surrounded by aspergillus colonies  
(Periodic Acid Schiff stain 400x)

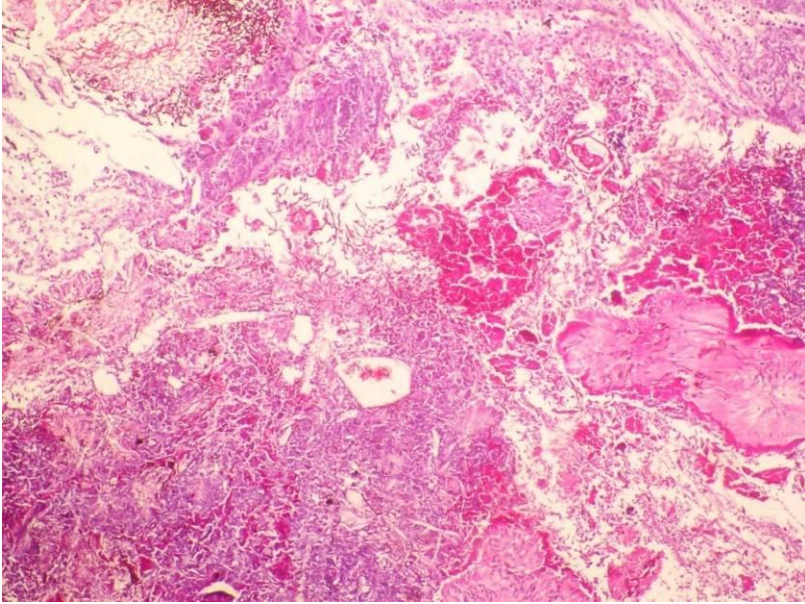


Figure 5. (PAS stain 100X)

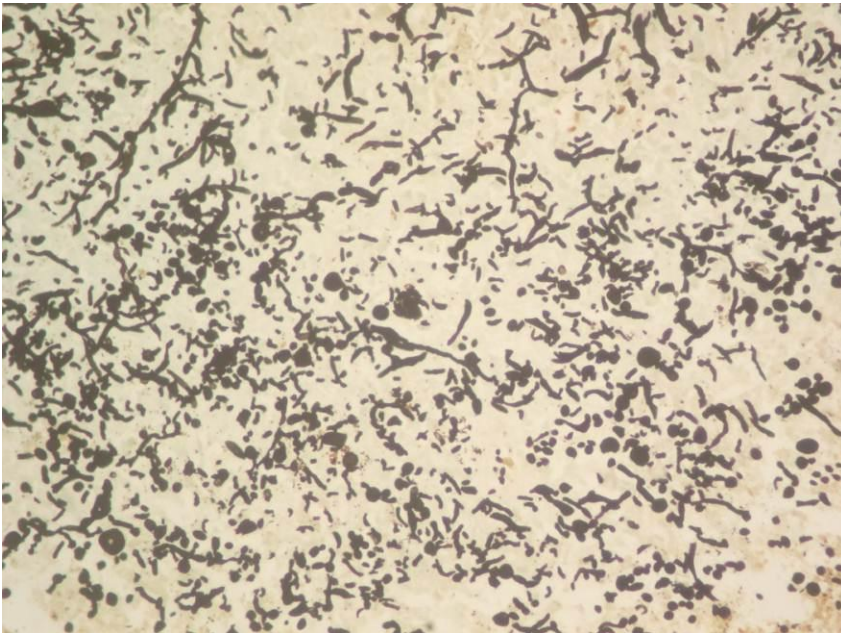


Figure 6. Section shows aspergillus colonies with septate hyphae, branching at acute angles. Some fruiting bodies are also seen (Gomori Methanamine silver Stain 400x)



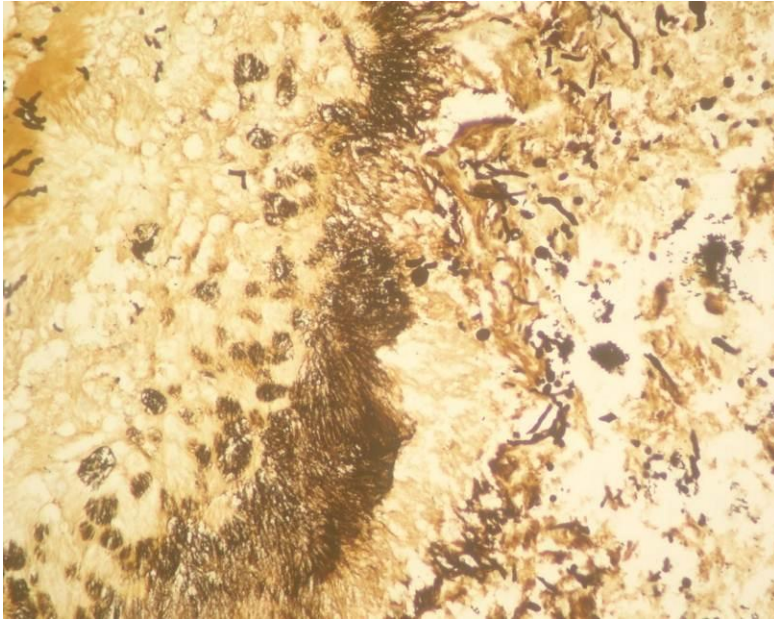


Figure 7. Section shows actinomycotic colonies along with aspergillus colonies (Gomori Methanamine silver Stain 100x)

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