



## Case illustrated

Rhinolithiasis caused by *Actinomyces* with a foreign bodyTeru Kamogashira<sup>a,b,\*</sup>, Naoyuki Matsumoto<sup>a</sup>, Satoe Numakura<sup>c,d</sup>, Yoshinao Kikuchi<sup>c,d</sup>, Ken Ito<sup>a</sup><sup>a</sup> Department of Otolaryngology, Teikyo University Hospital, 2-11-1 Kaga, Itabashi-Ku, Tokyo, 173-8606, Japan<sup>b</sup> Department of Otorhinolaryngology and Head & Neck Surgery, The University of Tokyo Hospital, 7-3-1 Hongo Bunkyo-ku, Tokyo, 113-8655, Japan<sup>c</sup> Department of Pathology, Teikyo University Hospital, 2-11-1 Kaga, Itabashi-Ku, Tokyo, 173-8606, Japan<sup>d</sup> Department of Pathology, Teikyo University School of Medicine, 2-11-1 Kaga, Itabashi-Ku, Tokyo, 173-8606, Japan

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## ABSTRACT

A 39-year-old man presented with chief complaints of epistaxis and pain on the right cheek that lasted for approximately 2 months. A very hard calcified black mass with a foreign body was found in the right inferior nasal meatus. The patient underwent endoscopic endonasal surgery and antimicrobial therapy, which included intravenous injection of Penicillin G 4 million units 6 times/day for 1 week and oral amoxicillin 1500 mg/day for 6 months. *Actinomyces* species was identified from the calcified foreign body that measured 5 mm in size. There was no recurrence for 1 year after the surgery. Surgical removal and long-term high-dose penicillin for 6 months or longer are necessary because death caused by poor compliance with antibiotics have been reported in previous studies.

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A 39-year-old man with no immunosuppression presented with chief complaints of epistaxis and pain on the right cheek that lasted for approximately 2 months. He worked in the construction industry where the environment was continuously dusty. The patient was prescribed clarithromycin 400 mg/day and carbocysteine 1.5 g/day for 2 months by a physician, however, his epistaxis continued, and his right cheek pain worsened. So, he was referred to our hospital for detailed examination and treatment.

A very hard calcified black mass with a foreign body was found in the right inferior nasal meatus on the endonasal examination at his first visit to our hospital (Figs. 1 and 2). The bacterial culture test of purulence from right nasal cavity detected  $\beta$ -lactamase non-producing ampicillin resistant *Haemophilus influenzae* and *Staphylococcus* species. The patient underwent endoscopic endonasal surgery (Figs. 3 and 4), and *Actinomyces* species was identified by the bacterial and pathological tests from the calcified foreign body that measured 5 mm in size (Fig. 5, hematoxylin and eosin stain; Fig. 6, Grocott stain; Fig. 7, Gram stain, bar, 50  $\mu$ m). The antimicrobial therapy of intravenous injection of penicillin G 4 million units 6 times/day for 1 week and oral amoxicillin 1500 mg/

day for 6 months had been continued after the surgery. There was no recurrence for 1 year after the surgery.

*Actinomyces* are anaerobic Gram-positive rods that resemble fungi. *Actinomyces israelii*, one of the oral flora, can cause actinomycosis when the host immunity is compromised. The infection of *Actinomyces* in the nasal cavity with a foreign body should be treated with surgical and long-term antimicrobial therapy with penicillin [1,2], because relapse cases with discontinuation of antimicrobial therapy [3], or the systemic multiple organ failure and the death cases have been reported [4].

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## Contributors

TK contributed to the writing of this manuscript. NM and KI contributed to the review of the manuscript. SN and YK contributed to the pathological experiments. All authors reviewed and approved the final version of this manuscript.

## Consent

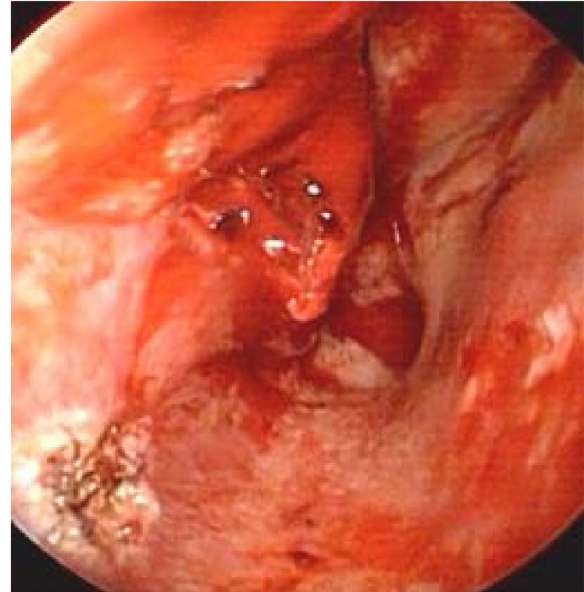
This work has been approved by the ethics committee of Teikyo University Hospital. The identifying details have been omitted

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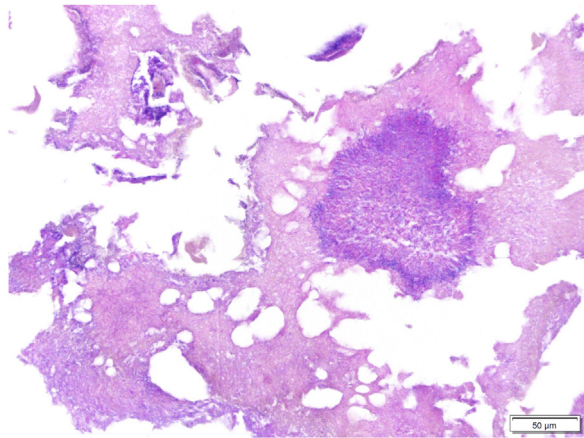
**Fig. 1. Endoscopic view of the right inferior nasal meatus.**  
A very hard calcified black mass with a foreign body was in the right inferior nasal meatus.



**Fig. 4. Nasal photography during surgery.**  
The presence of long-term lesions was suspected because the inferior turbinate was dented.



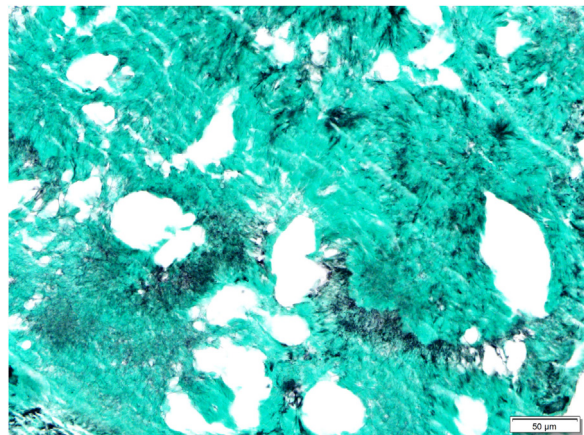
**Fig. 2. Sinonasal computed tomography.**  
A high-density, calcified mass was located between the inferior turbinate and nasal septum in the right nasal cavity.



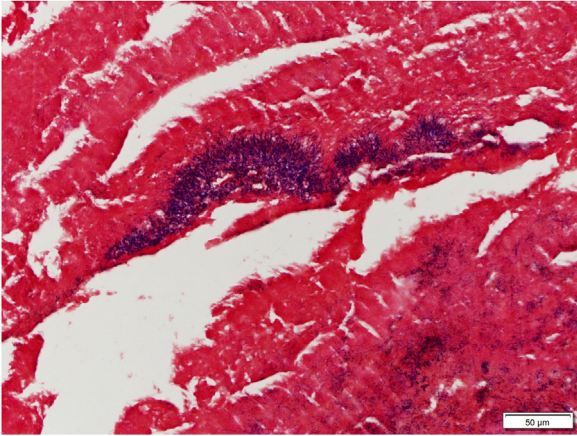
**Fig. 5. Histopathologic findings for the surgical specimen.**  
Hematoxylin and eosin stain (bar, 50  $\mu$ m).



**Fig. 3. The extracted rhinolithiasis with a foreign body.**  
A button-shaped foreign body was buried in the calcified black hard lesion.



**Fig. 6. Histopathologic findings for the surgical specimen.**  
Grocott stain (bar, 50  $\mu$ m).



**Fig. 7. Histopathologic findings for the surgical specimen.**  
Gram stain (bar, 50  $\mu$ m).

from the images. Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### **Declaration of Competing Interest**

We declare no competing interests.

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