Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Otorhinolaryngology

A Nasopharyngeal Actynomycosis: A Case Report

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DOI: 10.36347/sjmcr.2024.v12i06.056 | **Received:** 23.04.2024 | **Accepted:** 30.05.2024 | **Published:** 24.06.2024

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Abstract **Case Report**

Background: head and neck actinomycosis is an infectious disease due to a bacterium actinomyces israelii (AI), nasopharyngeal localization is exceptional. ***Case presentation:*** In this study we report a case of a 15-year-old male patient with no history of nasal mucosal breaks consulting for a neck lymphadenopathy with nasopharyngeal discomfort. The endoscopy revealed a mass of the nasopharynx, biopsy and anatomopathological study confirmed a nasopharyngeal actinomycosis. The patient was treated with a prolonged course of penicillin (45 days) which resulted in successful resolution of his condition. ***Discussion and Conclusion:*** Nasopharyngeal Actinomycosis is a rare bacterial infection that usually develops following nasal trauma or surgery. Happening without prior trauma make the diagnosis challenging and the physiopathology unclear.

Keywords: Actinomyces, nasopharynx, cavum, bacterium

List of Abbreviation: Actinomyces israelii (AI).

BACKGROUND

The head and neck bacterial infectious disease regroups a heterogenous populations of bacterium, however the actinomyces is exceptional; this bacterium is usually seen in cervicofacial (i.e., lumpy jaw), thoracic, and abdominal. Nasopharynx remain an unhabitual localization that have been reported in few cases in literature.

Our study is about a young man consulting for a mass without prior trauma of the neck and was later diagnosed with actinomycosis of nasopharynx.

CASE PRESENTATION

Mr. B.A. is a 15-year-old patient with no significant past medical or surgical history, particularly no dental extractions, traumas, or surgeries within the last few weeks. He presented with a lymphadenopathy on the right side of his neck. Fever, epistaxis, nasal obstruction, or anosmia were not present in the past. Upon physical examination, there was no skin involvement, shoulder palsy, or other symptoms, just an elastic, regular, painless mass in the right and upper carotid fossa. Furthermore, there were no dental carries, no additional cervical lymphadenopathy, or another suspicious oropharyngeal lesion observed.

Nasofibroscopic exploration of the upper aerodigestive tract revealed an ulcerative and budding swelling of the posterior and lateral wall of the nasopharyngeal space has been observed through. (Fig1)

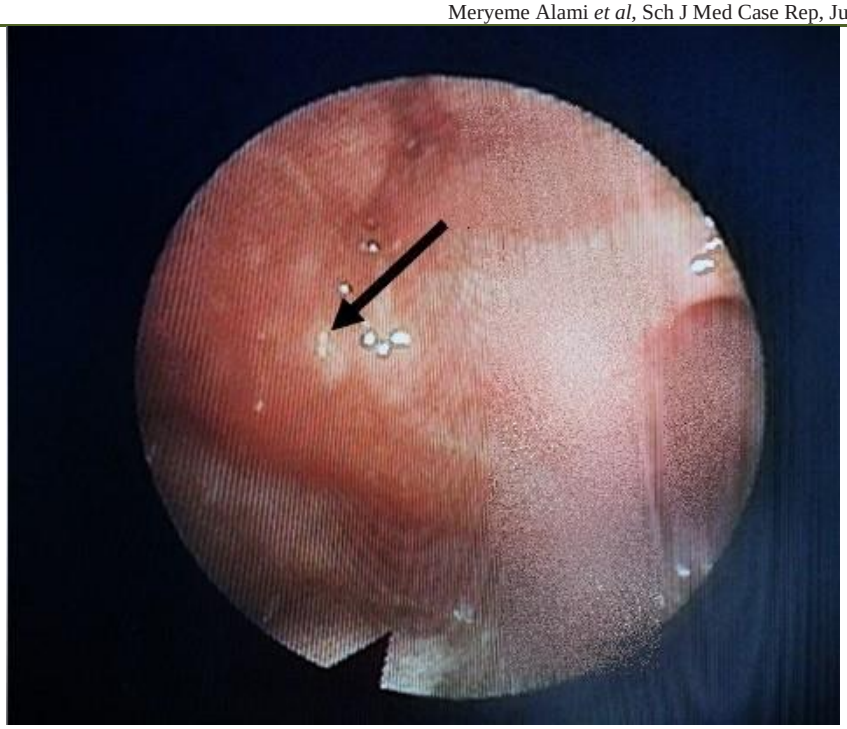

Figure 1: Nasofibroscopic image showing an ulcerative and budding swelling of the posterior and lateral wall of the nasopharyngeal space

Subsequent CT scan demonstrated a heterogeneous mass with thickening of the lateral and posterior walls of the right part of the cavum and an opacification of the right maxillary sinus, without evidence of destructive lesion (Fig2).

A biopsy was conducted on this mass. Two specimens, nearly 6 mm and 15 mm in size, were obtained for pathological analysis, which were preserved in formaldehyde (10%). Microscope examination of the specimen revealed ulcerated respiratory mucosa coated with fibrine and leukocytes, along with clusters of actinomycete strains lacking any inflammatory or atypical cells. no malignancy was detected.

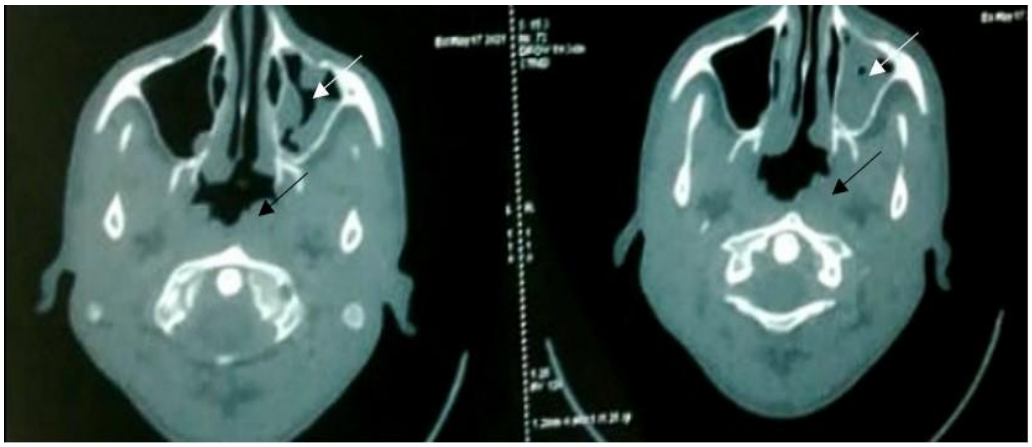

Figure 2: Axial CT scan view C- showing a thickening of the lateral and posterior wall of the right part of cavum (black arrow) with an opaque right maxillary sinus (white arrow)

The patient was treated with a prolonged course of penicillin (45 days) which resulted in successful resolution of his condition. No side effects has been reported during the prescription period. Four months after the treatment was started, follow up evaluation via nasopharyngoscopy showed no signs of recurrence, and clinical examination, revealed resolution of the lymphadenopathy. No additional CT scans or biopsies were counted required.

The patient's episodes of care are reported in Fig. 3

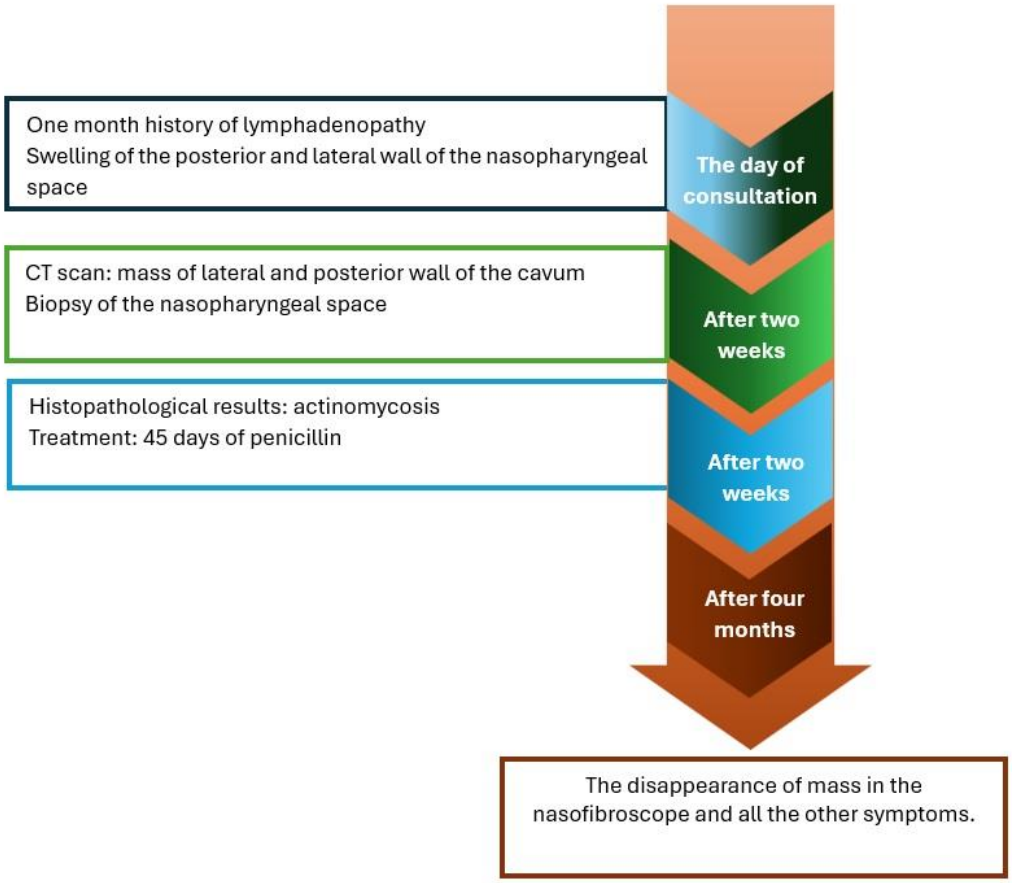

Figure 3: The patient episode of care timeline

DISCUSSION

Actinomycosis caused by Actinomyces israelii (AI), is a bacterial infection carachterized by its subacute to chronic nature. This bacterium, which is a part of the oral microbiota, becomes pathogenic after tissue damage. This infection is brought on by filamentous, gram-positive, anaerobic to microaerophilic bacteria that do not react quickly to acids. Contiguous spread, a suppurative and granulomatous inflammatory response, the development of numerous abscesses, and sinus tracts that release sulfur granules are its defining characteristics [1].

Studies show that AI species are isolated in 29% of saliva samples from healthy people [2]. Furthermore it most commonly affect the cervicofacial region in 40 to 70% of cases [3].

The key elements that allow AI to infect the head and neck area are any breaks in the mucosa that could act as an entrance point, such as tooth extractions, dental diseases, root canal therapy, jaw surgery, or inadequate dental hygiene.

Naeslund [4] isolated several strains of actinomyces from normal mouths, among which was an anaerobic type identical with the organism found in-cases of the disease. Wright's research, after carefully examining samples from two bovine animals and eleven humans, revealed that Actinomyces bovis may be causative agent of the disease. He also suggested that while the organism may be present in the normal mouth, it would not present in the form of granules as seen in pus from actinomycotic abscesses or sinuses, but rather as fragmented mycelial filaments.

The symptoms of actinomycosis vary depending on the localization of the disease, the virulence of the infection and the amount of secondary infection.

Nasopharyngeal Actinomycosis (NA), a rare bacterial infection, typically develops following nasal trauma or surgery. It has also been reported to happen in the absence of past trauma, which complicates diagnosis [5].

Diagnosis of actinomyces relies on culturing. While no single feature definitively confirms diagnosis, imaging studies, particularly CT scans, can be useful in determining the precise location and extent of involvement as well as bony destruction. An infiltrative mass with focal areas of decreased attenuation that enhance with contrast is typically observed, this infiltrative mass tends to invade nearby tissues [1]. Surrounding lymphadenopathy is rare [1].

Long-term antibiotic therapy and surgical debridement are the two main forms of treatment. The recommended antibiotic is penicillin at a high dosage [6]. For many centers, a course of treatment lasting one to three months is advised.

CONCLUSION

Actinomycosis of the nasopharynx is a rare entity. Once the bacteria in biopsy specimens have been identified, the diagnosis is verified. The treatment typically involves prolonged administration of antibiotic Our case presented two unique aspects: the rare localization of the infection and the absence of prior trauma. Understanding the pathophysiology in such cases can be challenging, however the treatment remain the same.

Patient perspective:

When I first heard the diagnosis of actinomycosis, it felt like being plunged into a world of medical jargon and uncertainty. Symptoms like a persistent discomfort in my nasopharynx and cervical mass prompted me to request medical advice. I found myself undergoing a battery of tests and procedures to pinpoint the cause. the diagnosis of actinomycosis emerged. I have realized with medical explanations that the physiopathology behind my illness is weird, and that I have to undergo an extended antibiotic therapy. As days passed, I noticed improvements in my condition. The discomfort in my nasopharynx eased and the cervical mass began to diminish. I owe a debt of gratitude to my medical team for their dedication and expertise in guiding me through this journey.

Acknowledgements

For the contribution of this work, we must thank to the radiology department of military hospital Mohammed V, MEKNES for the images.

Funding Information: Not applicable

Conflict of Interest: The authors declare no conflict of interest.

Ethics Approval: Not applicable

Consent for publication and data availability: An informed consent for publication purposes was obtained from the patient, written consent is available. The datasets generated and/or analyzed during the current study are not publicly available due to patient's data confidentiality but are available from the corresponding author on reasonable request.

Authors Contributions:

- M ALAMI has contributed to the diagnosis and the drafting of the manuscript.
- MA HASSANI has contributed to literature review and drafting of the manuscript.
- ELMESFIOUI has contributed to diagnostic procedures and manuscript drafting.
- K NADOR has contributed to treatment follow up and reviewed the manuscript for significant modifications.

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