# TONSILLAR ACTINOMYCOSIS: A CASE REPORT

## L'ACINOMYCOSE AMYGDALIENNE : À PROPOS D'UN CAS

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## ABSTRACT

Actinomycosis, caused by Actinomyces, is a saprophytic organism in the oral cavity. Its role in recurrent tonsillitis and tonsillar hypertrophy remains debated. A 21-year-old female with recurrent tonsillitis underwent tonsillectomy; histopathology confirmed actinomycosis. She received intravenous penicillin G followed by oral amoxicillin for six months, achieving complete remission. Actinomycosis, diagnosed histopathologically, is linked to mucosal disruption and microabscess formation. While its pathogenic role in tonsillar pathology is controversial, prolonged antibiotics are recommended post-tonsillectomy despite limited evidence. This case highlights the need for further research to clarify actinomycosis' role and optimize treatment strategies.
**Keywords**: Actinomycosis / Tonsillar Hypertrophy / Tonsillitis / Histopathology / Anti-Bacterial Agents

## RÉSUMÉ

L'actinomycose, causée par Actinomyces, est un organisme saprophyte présent dans la cavité buccale. Son rôle dans les amygdalites récurrentes et l'hypertrophie amygdalienne reste débattu. Une femme de 21 ans souffrant d'amygdalites récurrentes a subi une amygdalectomie ; l'histopathologie a confirmé la présence d'actinomycose. Elle a reçu de la pénicilline G par voie intraveineuse, suivie d'amoxicilline orale pendant six mois, avec une rémission complète. L'actinomycose, diagnostiquée par histopathologie, est associée à une disruption muqueuse et à la formation de micro-abcès. Bien que son rôle pathogène dans les pathologies amygdaliennes soit controversé, une antibiothérapie prolongée est recommandée après une amygdalectomie, malgré des preuves limitées. Ce cas souligne la nécessité de recherches supplémentaires pour clarifier le rôle de l'actinomycose et optimiser les stratégies thérapeutiques.
**Mots-clés** : Actinomycose / Hypertrophie amygdalienne / Amygdalite / Histopathologie / Antibactériens

## INTRODUCTION:

Actinomycosis is caused by a gram-positive anaerobic bacillus, Actinomyces. This saprophytic organism, typically found in the oral cavity, tonsillar crypts, and gastrointestinal tract, can become pathogenic under certain conditions, such as the disruption of mucosal barriers [1]. Its role in recurrent tonsillitis and tonsillar hypertrophy has been described in the literature; however, it remains a topic of debate [2]. This case study aims to explore the potential involvement of actinomycosis in tonsillar hypertrophy and chronic tonsillitis. Identifying this role is crucial due to the therapeutic implications, as actinomycosis might require prolonged penicillin-based antibiotic regimens, extending up to six months post-tonsillectomy [3] .

## OBSERVATION:

A 21-year-old female patient, with no significant medical history, presented with recurrent tonsillitis for two years. She had approximately one episode per month. Clinical examination revealed cryptic palatine tonsils with mild hypertrophy (Friedman scale 2). There was no evidence of other clinical abnormalities. The patient underwent extracapsular dissection tonsillectomy. Postoperative recovery was uneventful. Histopathological analysis confirmed tonsillar actinomycosis (Figures 1 and 2). The patient was treated with intravenous penicillin G (20 MU/day) for 15 days, followed by oral amoxicillin (2g three times daily) for six months. Following the completion of the antibiotic regimen, the patient achieved complete remission, and remained symptom-free during follow-up.

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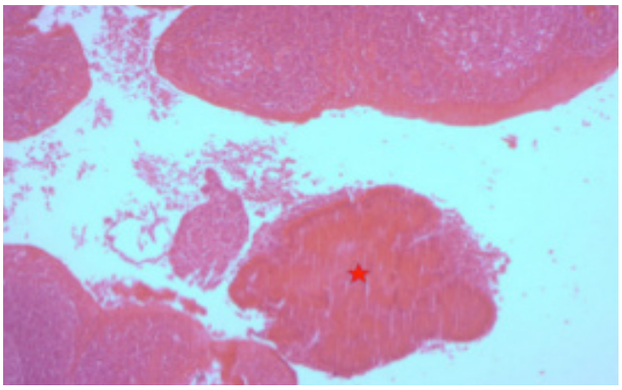

**Figure 1**: Tonsil biopsy showing granulomatous foci within the crypts, centered by actinomycosis granules with a filamentous appearance (asterisk) (hematoxylin and eosin stain, magnification ×100)

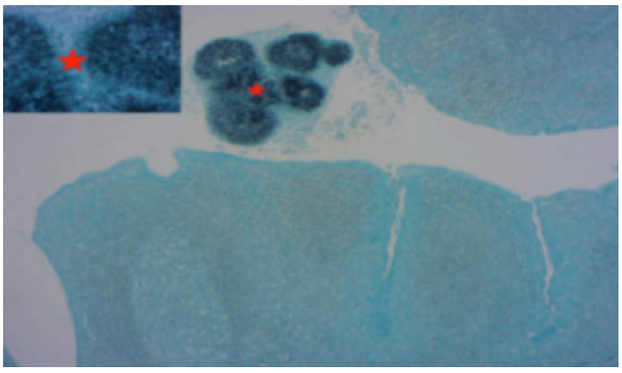

**Figure 2**: A section of the tonsillar biopsy showing the non-septate filamentous appearance of the grains (asterisk) (Grocott x100, Grocott x400).

## DISCUSSION:

Actinomycosis is a saprophytic organism of the oral cavity whose pathogenic role remains controversial [1]. The diagnosis of actinomycosis can be established through histopathological examination or positive cultures of sulfur granules [4]. However, cultures yield positive results in only 50% of cases [5]. Consequently, histopathological findings are the preferred diagnostic method for detecting this organism. Typically, actinomycosis presents with an external zone of granulation tissue and a central necrotic area containing numerous granules representing microcolonies of Actinomyces [6].

The condition predominantly affects individuals in their second and third decades of life, with a peak incidence around the age of 24. The pathophysiological process begins with the disruption of the oropharyngeal mucosa, often due to oropharyngeal trauma. Dental caries, dental manipulation, and maxillofacial trauma are predisposing factors that facilitate exposure to the organism [1].

The infection spreads contiguously, infiltrating soft tissues and bone, leading to the formation of multiple microabscesses surrounded by granulation tissue that exhibits poor healing tendencies. This lesion process extends to the surface, forming purulent material and resulting in the classic lesion, characterized by the presence of sulfur granules: yellowish, granular aggregates of bacterial colonies surrounded by inflammatory cells and fibrosis [6,7]. The pathogenicity of Actinomyces is linked to its ability to act as an intracellular parasite, resisting phagocytosis while breaching anatomical barriers [4].

The pathogenic role of actinomycosis remains a contentious issue. A 2008 study, by Ozgursoy et al. [8] examined the correlation between histological findings and tonsillar pathology. The study identified a higher prevalence of actinomycosis in patients with obstructive tonsillar hypertrophy, which was characterized by an increased size and number of lymphoid follicles. While this study suggested a potential role for actinomycosis in tonsillar hyperplasia, it failed to establish its involvement in active infections.

Anton et al. [2] raised this issue in the pediatric population by studying the prevalence of actinomycosis in the tonsillar crypts of 172 children who underwent bilateral extracapsular dissection tonsillectomy. The organism was identified in 11% of children with obstructive sleep apnea, 11% with chronic tonsillitis, and 9% with both conditions. No statistically significant association was established, refuting the link between actinomycosis and pathogenicity. However, the study noted a significantly higher prevalence of the organism in children older than five years.

Arvisais-Anhalt et al. [9] conducted a study on 134 patients who underwent tonsillectomy aiming to better characterize association between Actinomyces and tonsillitis (62 patients), compared to non-tonsillitis tonsillectomies (72 patients). Actinomycosis prevalence was not different between the two groups (95% vs 83%; p = 0,11). These findings highlight the high prevalence of Actinomyces in tonsillar affections but fail to establish a link between the organism and tonsillitis.

The necessity of antibiotic therapy following tonsillectomy in cases of actinomycosis remains a critical consideration. Actinomycosis is known for its chronic, indolent nature and its tendency to form microabscesses and sulfur granules, which are often resistant to standard surgical removal alone. Prolonged antibiotic therapy, particularly with penicillin-based regimens, is essential to eradicate residual organisms and prevent recurrence. Rašić et al. [3] highlighted this in their case report of unilateral tonsillar hypertrophy caused by actinomycosis, emphasizing the importance of postoperative antibiotics to ensure complete resolution and prevent complications. This approach aligns with the general consensus that actinomycosis requires extended antibiotic treatment, often lasting several months, to achieve definitive cure and minimize the risk of relapse.

## CONCLUSION:

This case highlights an ongoing debate regarding the causal relationship between Actinomyces and tonsillar pathologies, particularly recurrent tonsillitis and obstructive sleep apnea syndrome.

**Ethical Considerations:** Patient consent was obtained.

**Conflict of Interest Statement:** The authors declare that they have no conflicts of interest related to this article.

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