

## Case Report

## Antibioma in Maxilla (Hard Palate), resulting from Injudicious use of Antibiotics - A Pioneer Case Report.

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### Abstract

Odontogenic infections are associated with a variety of microorganisms and dentists do not routinely investigate which bacterial species is responsible for the infection, and hence prescribe broad spectrum antibiotics. The frequent and over use of antibiotics has been associated with the various issues such as the selection of resistant strains and the development of drug resistance in general. The prescription of antibiotics in dental clinics has increased from 6.7% to 11.3% in recent years. The injudicious (prolonged or repeated) use of antibiotics to treat infections without proper surgical treatment results in antibioma. This is the first case report of its kind, reporting an antibioma in the maxilla (hard palate).

**Keywords:** Antibiotics overuse, antibioma, abscess.

### Introduction

The management of microbial infections in ancient Egypt, Greece, and China is well-documented [1]. The modern era of antibiotics started with the discovery of penicillin by Sir Alexander Fleming in 1928 [1, 2]. Antibiotics were first prescribed to treat serious infections in the 1940s, but now the use of antibiotics has become overzealous. Unfortunately, resistance has eventually been seen to nearly all antibiotics that have been developed [3].

The rapid emergence of resistant bacteria is occurring worldwide, endangering the efficacy of antibiotics, which have transformed medicine and saved millions of lives [4, 5]. The antibiotic resistance crisis has been attributed to the overuse and misuse of these medications, as well as a lack of new drug development by the pharmaceutical industry due to reduced economic incentives and challenging regulatory requirements [1,5, 6]. Antibiotics target and inhibit essential cellular processes, retarding growth and causing cell death. However, if bacteria are exposed to the drugs, below the dose required to kill all bacteria in population (the minimum bactericidal concentration or MBC), they can mutate and resist antibiotic treatment via natural selection for resistance-conferring mutations. These genetic mutations can arise from the adoption of a phasmid encoding a resistance gene or by mutation to the bacterial chromosome itself [7].

There are particular characteristics of antibiotic used in dentistry. In practice, antibiotic prescription by the dentist is without knowing the microorganism causing the infection, as any pus or draining exudate

does not usually go under culture sensitivity tests. On the basis of microbial epidemiology and clinical data, the microbes responsible are suspected and then, on this basis treatment is decided [8].

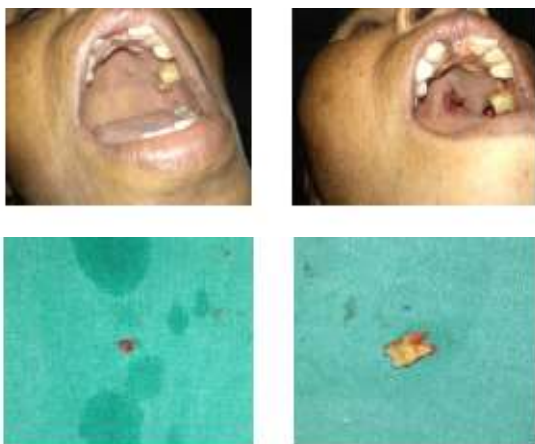
A wide category of microbes can be isolated from the oral microbial flora and as it is well known that all of them are not potent for pathogenesis. Although the list of bacteria causing oral infections is long (aerobes, anaerobes, bacilli, cocci, gram positive as well as gram negative) but as discussed above, a limited range of antibiotics is used typically, at times only a few. As a result of use of broad spectrum antibiotics, prescriptions are specifically given for a shorter period of time, not exceeding 7 days. There is a growth in the resistant strains of bacteria found in the oral cavity due to the decrease in the antibiotic sensitivity testing, especially *Prevotella* and *Porphyromonas*. [9] But sometimes either the patient himself takes over the counter drugs more than the prescribed time duration or some doctors advice antibiotics more than the defined time. Thus, if proper drainage of pus is not established by incision and drainage and treated only by adequate antibiotics over a longer period of time leading to a condition where pus localizes and becomes sterile with a thick fibrous cover. This leads to condition known as Antibioma. Antibioma, if diagnosed early, it can be treated with localized massage and moist fomentation. If diagnosis is delayed, it can be a constant source of irritation for the patient.

On reviewing the literature only 3 case reports stated about antibioma in the oral cavity and that too in the

mandible. Hence, this is the first case to be reported as antibioma in maxilla(hard palate).

### Case Report

A 55 years old female patient reported to Department of Periodontology in Rama Dental College, Hospital and Research Centre with chief complaint of swelling along with burning sensation on the hard palate since 2 months. Patient gave history of visiting to some dentist with same complain 8 months before. The dentist did extraction of 24 and prescribed antibiotics (Amoxicillin 500 mg) for 7 days. Initially, swelling decreased in size and patient got symptomatic relief. 2 months after extraction, patient again started complaining of increase in size of swelling and irritation at the same site and so, without visiting the doctor she started taking antibiotics at her own, which she continued for almost 3months. After taking antibiotics for so long swelling was still there, then patient visited Rama Dental College Hospital and Research Centre. Patient gives history of swelling being soft and fluctuant in nature initially, but on continuous usage of antibiotic for long duration, the swelling decreased in size and its consistency turned to fibrotic. It was associated with continuous discomfort and burning sensation. The swelling was 5 mm x 6 mm in dimension, tender on palpation present on hard palate near mid palatine rapheirt 27. On clinical examination, 27 was attrited & tender on percussion and radiographically periapical lesion was seen irt 27. After thorough clinical examination, radiographic assessment and blood investigations, 27 was found to be the offending tooth responsible for the swelling.



Patient was advised for lukewarm rinses and massage over swelling along with RCT of 27, so that the swelling would subside, but patient wanted to get rid of swelling, immediately as it was irritating for her. Surgical excision of the swelling and extraction of offending tooth i.e. 27 was planned. Since patient

was reluctant for RCT IRT 27, so it was simultaneously extracted. After anesthetizing the site, excision of the swelling and extraction of 27 was done. Then the socket area was cleaned and irrigated with saline and betadine. The sutures were placed irt 27 and at the site of excision. The excised tissue was send for histopathological reporting. Patient was advised with antibiotics and was recalled after 7 days.

### Follow Up

Patient was kept under follow-up. Complete healing was seen after a month.



### Histopathological Findings

The H&E stained section showed highly dense and moderately cellular fibrous connective tissue stroma with numerous dilated and proliferative blood vessels, with part of fibrocollagenous cyst wall lined by inflammatory granulation tissue containing moderately dense infiltrates of lymphocytes, plasma cells and occasional histiocytes. Stain for gram negative and acid fast bacilli was negative. No definite lining epithelium was seen. There was no evidence of dysplasia or malignancy.



After correlating the patients history with clinical and histopathological findings, the diagnosis of antibioma was reached.

### Discussion

Antibiotics are commonly used for the management of various dental infections and have a proven role in decreasing morbidity and mortality caused by infectious diseases. The frequent and over usage of antibiotics has been associated with a number of

consequences such as the selection of drug resistant strains, and the formation of antibiomas [9]. In this case, patient underwent extraction of wrong tooth i.e of 24 and medicines were prescribed to the patient for 7 days. Due to which the abscess was not treated completely, and the swelling reoccurred after 2 months. Unaware of the consequences, patient took antibiotics for almost 3 months, though they were prescribed by her doctor for just a week.

If proper drainage of pus is not established and treated only by antibiotics, pus localises and becomes sterile (flaques) with a thick fibrous tissue cover. This leads to the condition known as antibioma. It is characterized by swelling which is painless, smooth, non-tender, and hard on palpation [10]. Antibioma is formed in patients with odontogenic abscess who take medications for prolonged duration without proper surgical treatment, the abscess instead of becoming pointing and draining, it gets organized and an sporadically causes fever and constitutional symptoms (Bailoor and Nagesh, 2005) [11]. It is an established fact that antibioma is a organized and fibrous collection of pus with a thick fibrous capsule outside.

Antibiotics were seen as the ‘wonder drug’ in the mid 20th century. At the time, there was an optimistic belief that communicable disease was nearly coming to a complete halt. Antibiotics were considered a magic bullet that selectively targeted microbes that were responsible for disease causation but at the same time, would not affect the host. Fleming was the first who cautioned about the potential resistance to penicillin if used for inappropriate time [12]. The prescription of antibiotics in dental clinical has increased from 6.7% to 11.3% in recent years. Inappropriate use of antibiotics involves unwanted systemic effects such as gastric, hematological, dermatological or neurological disorders. The most significant side effect is the appearance and selection of resistance to antimicrobial drugs. In order to ensure maximum efficacy and to minimize side effects (such as delaying the development of drug resistances), the rational and guidelines for using any antibiotic in dental clinics should be considered. For instance, the overuse of antibiotics has resulted in the selection of bacterial mutations that make those microorganisms no longer susceptible to these drugs. Antibioma can be diagnosed by FNAC of the swelling, occlusal radiograph, ultrasound, MRI, biopsy.

Antibioma can be treated surgically which aims to remove the cause of infection and to provide drainage of accumulated pus and necrotic debris. After surgical removal, and treating offending tooth

endodontically or by extraction, antibiotics should be prescribed to the patients. Preoperative use of antibiotics does not have the advantage because once an abscess has formed; an antibiotic cannot penetrate the avascular slough lining the cavity. It is only after the abscess have been incised and the slough is scrubbed away so as the antibiotic as well as cellular & humoural body defenses gain access to the cavity and eradicate the infection.

## Conclusion

The medical profession is considered a noble profession because it helps in preserving life. We believe life is God given. Thus, a doctor figures in the scheme of God as he stands to carry out His command. A patient generally approaches a doctor based on his reputation. He is expected to use his special knowledge and skill in the most appropriate manner keeping in mind the interest of the patient, who has entrusted his life to him. The negligence regarding judicious antibiotic usage during the management of odontogenic infections may result in serious consequences. Therefore, the merits and disadvantages of prescribing antibiotics should be seriously considered. Sometimes doctor's negligence for the treatment of abscess and patients unawareness about proper doses of medicines leads to condition like these. So, doctors should have complete knowledge to diagnose and treat the case properly and should make patient aware about the doses and complications of the medicine.

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How to cite this article : I Gupta, R Sharma, R Gupta, J Singh Tuteja, A Khan. Antibioma in Maxilla (Hard Palate), resulting from Injudicious use of Antibiotics -A Pioneer Case Report. Rama Univ. J. Dent. Sci. 2017 December; 4(4):10-13.