RESEARCH
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IRRATIONAL USE OF ANTIBIOTICS IN ODONTOGENIC INFECTIONS-PATHWAY TO ANTIBIOMA – A CASE REPORT

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Abstract
Rationale - 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. Patient concerns, Diagnosis, and Interventions - Here we present a case of diagnosis and management of antibioma due to improper drainage of abscess following extraction of a carious tooth with improper and long-term usage of multiple antibiotics and treatment by drainage of consolidated abscess and prescribing serratiopeptidase and anti-inflammatory drugs.
Outcomes and Lessons- The frequent and over dosage of antibiotics leads to variety of consequences including formation of Antibioma. They are characterised by the formation of a localized pathology surrounded by thick fibrous tissue in response to prolonged use of antibiotics.
Key words – Antibiotics, Antibioma, Consolidation, Prolonged use, Odontogenic infections

Introduction
Antibiotics are used for treating variety of dental infections and since majority are odontogenic infections, prolonged use of broad spectrum antibiotics are an integral part of Dental treatment.[1] Due to the availability of over the counter drugs there is significant misuse by the patients as well as the quacks advising antibiotic coverage injudiciously.[2] Several clinicians have been found to prescribe the drugs without the awareness and the knowledge of susceptibility of the microbes to the particular antibiotics.[3] The management of odontogenic infections of pulpal and periodontal origin requires operative interventions as antibiotics are unlikely to resolve such infections, still they are commonly prescribed. Long term use of antibiotics may lead to undesired effects such as (gastrointestinal disturbances, development of antibiotic resistance and anaphylaxis or local effects like Antibioma).[1] If proper drainage of pus is not established and treated only by antibiotics, pus localizes and forms a tough fibrous painless swelling known as antibioma.[1,4] It is characterized by localized swelling which is smooth, non-tender, and firm on palpation, sporadically causes fever and constitutional symptoms.[1,2,5] The established treatment for antibioma is to surgically incise and drain it like an abscess under analgesics and sometimes antibiotics. Here we present a case of antibioma which resulted due to inadequate pus drainage along with inappropriate use of antibiotics.

Case Report
A 41-year-old male patient reported with a chief complaint of swelling on left side of face for past 1 month. On eliciting history, swelling occurred gradually following pain in maxillary posterior back tooth region of jaw associated with gradual trismus. Patient visited the local Dentist and was prescribed following medications – Injection Taxim and Tab Omnicortine. Patient was advised OPG. Patient did not obtain relief from above prescribed medicines and then visited another Dentist and was advised extraction of root stump in relation to 26 which was considered as prime cause of swelling due to periapical abscess as was revealed in OPG. [Figure 1] Extraction was performed under local anaesthesia. Even after 2 days post extraction, swelling did not resolve, and patient was advised hospitalisation by concerned Dentist. In the hospital, patient was prescribed the following medicines – Injection Cefixime BD/IV, Injection Metrogyl TDS/IV, Injection Amikacin BD/IV, Injection Dynapar BD/IV, Injection Pan, DNS, Multivitamins. On 4th day of hospitalisation, patient was discharged with a reduced swelling but persistent trismus. Thus, patient reported here. Patient did not reveal any significant medical or drug allergy history.

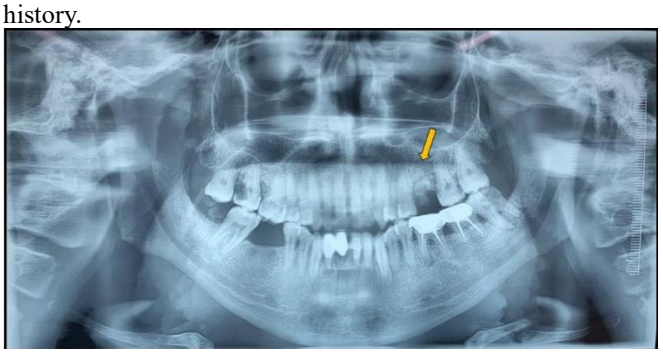

Figure 1 – OPG reveals root stump i.r.t 26 with chronic periapical lesion (Indicated with yellow arrow).

On extraoral examination, a solitary well-defined swelling was evident on middle 1/3rd of left side of face extending from ala-tragus line till 1-2 cm superior to inferior border of mandible supero-inferiorly and from ala of nose till imaginary line joining outer canthus of eye till middle of face medio-laterally. Overlying skin surface was normal with no colour changes, scarring or draining sinus. Swelling was firm in consistency, non-tender, afebrile. Soft, non-tender, mobile left submandibular lymph nodes were palpable. [Figure 2]

Figure 2 – Extraoral swelling involving middle 1/3rd of left side of face (Indicated with yellow circle).

Figure 3 - Limited mouth opening of patient due to swelling.

On intraoral examination, healing socket with 26 was evident and severe trismus with only 2-3 cm mouth opening was present, thus thorough intraoral examination was not possible. [Figure 3] Thus, based on history and clinical examination, a provisional diagnosis of Buccal space infection secondary to consolidated periapical abscess i.r.t 26 region was made and differential diagnosis of Antibioma (due to extensive and prolonged use of multiple antibiotics) was given. Patient was advised CECT scan of face and neck region which revealed left masseteric space infection involving buccal space, multiple tiny abscess in left masseter muscle, no underlying osseous erosion. [Figure 4a and 4b] Patient also reported with USG of swelling which revealed infective aetiology. Thus, a conclusive diagnosis of Antibioma was given. Patient underwent drainage of abscess which yielded thick consolidated pus. Antibiotics were stopped and patient was kept under tablet Chymoral Forte, Trypsin, Chymotrypsin, Bromelain, Rutoside and Diclofenac potassium for 2 weeks and was advised jaw stretching exercises. Patient reported complete reduction in swelling in 2 weeks and reported for follow-up every month for consecutive 6 months.

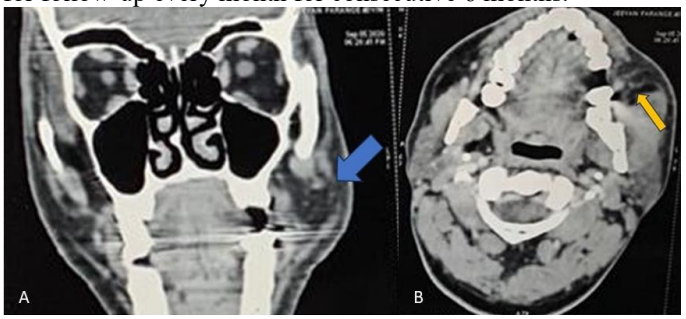

Figure 4 a – Coronal section of CECT showing fat stranding within the left masticator space with swelling of the left masseter and buccinator muscle (Indicated with blue arrow).

Figure 4 b – Axial section depicting foci of breakdown with peripheral enhancement (Indicative of inflammatory changes) of left masseter muscle (Indicated with yellow arrow).

Discussion

Odontogenic infections with fulminant progression should be treated based on clinical and imaging data with immediate surgical incision and drainage including elimination of odontogenic foci along with intra and postoperative irrigation. Immediate antibiotic treatment along with antibiogram is of utmost significance.[6]Current guidelines indicate that antibiotics should be prescribed only after the elimination of the infectious aetiology. Studies have demonstrated that, prolonged use of antibiotic therapy were not found to be significantly beneficial and are not recommended and usually result in serious consequences.[7] Although, inappropriate use of antibiotics results in unwanted systemic side effects including gastric, haematological, dermatological, or neurological disorders.[1,8] The most significant side effect is the appearance of resistance to anti-microbial drugs. The rational and guidelines for using any antibiotic in dental clinics should be considered, to ensure maximum efficacy while at the same time minimizing the side effects and the appearance of resistances.[1,9] Although antibiotics have cured many diseases at the same time benefiting a large number of individuals, however, a sharp increase in the number of drug resistant bacterial strains have occurred in parallel mostly due to their inappropriate use.[1] Inappropriate and irrational use of antimicrobials creates favourable conditions for resistant organisms to appear, spread and persist, causing infections which do not respond to standard treatment.[10]The problem is not the antibiotics themselves, as they are one of medicine's most potent weapons against diseases. Instead, the

problem is in the way the drugs are prescribed and consumed over the counter. The inappropriate overuse of antibiotics has resulted in a crisis due to bacterial mutations developing resistant strains.[8] Thus, the present case responded well following drainage of consolidated abscess, followed by use of anti-inflammatory and proteolytic enzymes. Thus, condition of Antibioma can be avoided, if medical practitioners on first visit itself identify the aetiology and treat it followed by prescribing appropriate antibiotics in minimal doses, instead of prescribing alternative and multiple antibiotics on every visit, if swelling and infection does not subside.

Conclusion

Along with the dramatic benefits of systemic antibiotics, there has also been an explosion in the number of bacteria that have become resistant to a variety of these drugs. The negligence regarding judicious antibiotic usage during the management of odontogenic infections may result in serious consequences. Thus, the pros and cons of prescribing antibiotics should be seriously considered. Proper training and continuing education programs are required to educate health professionals as well as the public about the proper usage of antibiotics and the associated side effects. Such measures are likely to reduce the unnecessary use of antibiotics. Here, we presented a case of antibioma, due to long term injudicious use of antibiotics, and due to lack of early management of abscess by drainage, hence this case can help to generate awareness in Dental physicians, to properly plan the treatment and remove aetiology first instead of prescribing prolonged and multiple antibiotics alone in few initial visits.

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