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Case Report

Grey Teeth - A Case Report on Tetracycline Staining

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Abstract

Tetracycline was earlier the choice of antibiotic in several bacterial infections. However due to its adverse effects such as discolouration of teeth and the ability to cross the placental barrier, its use is now contraindicated in pregnancy and in children. This is a case report of a patient with tetracycline-induced discoloration in permanent teeth due to usage of the drug during the period of tooth development.

Keywords: *Tetracycline Stain; Discolouration; Grey Teeth*

Introduction

Tetracyclines are a family of inexpensive broad-spectrum antibiotics discovered in the 1940s, used extensively in the prophylaxis and therapy of human and animal infections [1]. Since the 1990s, tetracyclines have become the preferred drugs in the treatment of acne vulgaris in adolescents [2]. They have a wide range of adverse effects including staining of dental hard tissues [1]. Teeth affected by tetracycline have a yellowish or brown-grey appearance which is worse on eruption and diminishes with time [3]. Here we report a case of tetracycline staining in a 27-year old male patient.

Case Report

A 27-year-old male patient reported to the dental out patient department with a complaint of discoloration of teeth since childhood. The patient's mother presented history of usage of tetracycline drug during pregnancy, which was prescribed by a regional medical practitioner for fever. On examination, there were gray and yellow bands on the cervical third of the labial/buccal surface of maxillary and mandibular anterior teeth and molars. Grayish discolouration was also seen on the entire buccal surface of maxillary and mandibular premolars (Figure 1). Stains were not scrapable by a dental explorer or a scaler. The case was diagnosed as intrinsic staining due to tetracycline and the patient was referred to the Department of Endodontics for further treatment.

Figure 1: *Generalized staining on the labial and buccal surfaces of maxillary and mandibular arches [A,B and C].*

Discussion

The prevalence of tetracycline induced staining is approximately 3 to 4%. Anterior primary teeth are susceptible from four months in-utero through nine months post-partum and anterior permanent teeth are susceptible from three months post-partum to eight years and in pregnancy in general. In the case reported here the patient's mother gives history of usage of tetracycline drug during pregnancy. The discolouration is due to the formation of tetracycline-calcium orthophosphate complex [1]. Tetracycline is not only built into forming enamel, but also into enamel that has already initially mineralized [2].

The hue depends on the type of tetracycline while the intensity depends on the dosage and duration of drug treatment. Change in color is because of the oxidation process of the tetracycline compound when exposed to light [1]. Chlortetracycline produces a slate grey colour and oxytetracycline causes a creamy discolouration. Borksman and Jordan in 1983 have classified tetracycline staining into five scores (Table 1), the score in our case being III [4]. Since tetracycline fluoresces under ultraviolet light so do affected teeth, giving off a bright yellow colour [3]. Minocycline, a tetracycline derivative, has been reported to stain adult dentition in 3-6% of patients taking a daily dose of 100mg for longer than 1 month [5].

Score	Clinical Presentation
0	No tetracycline staining evident
I	Uniform light yellow, brown, or gray stain confined to incisal three quarters of the crown
II	Deep yellow, brown, or gray stain, without banding
III	Dark gray or blue stain with marked banding
IV	More severe or extreme staining

Table 1: *Tetracycline stain classification [4].*

One of the most difficult esthetic procedures in dentistry can be the improvement in appearance of tetracycline stained teeth. The yellow-brown-orange stain is the easiest and fastest to remove whereas the blue-gray stains respond the poorest. Enamel micro-abrasion is used for superficial surface discolorations whereas bleaching can lighten the stains. Porcelain veneers are a proven excellent treatment to treat even the most discolored teeth. They provide a much more conservative approach to changing a tooth's color, size, or shape and have a lower biological cost which is why it was the treatment opted in our case [6]. The use of whitening strips has been proposed as a viable option for longer-term whitening [4]. Vital bleaching by using Karium-Titanium-Phosphoric acid (KTP) laser could be achieved in shorter time than simple chemical treatment [7].

Conclusion

The American Academy of Pediatrics states that preparations of the tetracycline family should not be administered to children under 8 years of age because of their side effects in developing hard tissues. They should also not be prescribed to breastfeeding and expectant mothers. When prescribing oral tetracycline is unavoidable, it is important to advise on oral hygiene measures and on avoidance of sunlight to minimize staining of teeth. Prevention of staining of teeth can be done by reducing the dose of the drug and avoiding the drug in the critical period of mineralization of teeth.

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