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MANAGEMENT OF SUPERFICIAL FLUORIDE STAIN USING MICROABRASION TECHNIQUE BASED ON CONCEPT OF MINIMAL INVASIVE COSMETIC DENTISTRY: A CASE REPORT

Case Report

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ABSTRACT : In an era of minimal intervensive treatment, Microabrasion has emerged as a technique of choice for the removal of intrinsic, discoloured but superficial stains from tooth surface. It is a cost effective, conservative treatment modality where enamel wear is minimal and clinically imperceptible. In this case report, mild flourosis was treated successfully with a slurry of 18% Hcl and pumice and fluoridated paste was applied postoperatively to improve lustre. Casein phosphopeptide-Amorphous calcium phosphate (CPP-ACP) was prescribed for topical application on the affected teeth to assist in remineralization.

Keywords:
Microabrasion,
flourosis, remineralising agent

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INTRODUCTION : Presence of superficial stains (white or brown) on anterior teeth might have a considerable psychological impact on ones social and personal life. These stains may be due to ingestion of fluoride at time of amelogenesis or it may be due to Idiopathic white enamel dysmineralization (1). Management of these stains can be done using conservative procedures such as Microabrasion and bleaching or by Invasive procedures such as Veneers and crown restoration which offer excellent aesthetics and function but may neglect the long term oral health, actual aesthetic needs and characteristics of the patient. Minimally invasive cosmetic dentistry serves to conserve healthy tooth structure by allowing the dentist to perform the least amount of dentistry needed. The treatment intervention in minimal invasive cosmetic dentistry is determined by type of defect and the aesthetic needs of the patient

Microabrasion has become the most preferred treatment modality for removal of superficial dysmineralization and decalcification defects as the treatment approach is conservative and results obtained after procedure are permanent. The technique was first described by Croll and Cavanaugh in 1986 who advocated the use of paste of pumice and hydrochloride for the removal of superficial stains (2). It involves removal of surface enamel by acid and superficial stains are removed by the abrasiveness of pumice. Since then, technique for microabrasion had evolved much for the quest of better method and material that ensure adequate safety for oral tissues while allowing for ease of use (3). Commercial products such as Prema compound (Premier Dental Products) and Opalustre (Ultradent, South Jordan, UT, USA) had been used in various studies (1,4) and had shown promising results.

CASE REPORT :

A 20 year old female patient reports to the department of conservative dentistry and endodontics with the chief complaint of brown enamel stains on his upper teeth (fig 1).

fig 1 Preoperative view

Clinical examination determined stains to be intrinsic and was assigned "mild" fluorosis according to Dean's fluorosis index (5). Considering the age, the patient was offered treatment option of microabrasion on upper front teeth followed by application of fluoride containing paste as the treatment was more conservative than laminates and veneers. Informed patient consent was taken and oral prophylaxis was done before starting the procedure. Both patient and operator wore eye protection during the procedure.

TECHNIQUE:

Gingival tissue was lubricated with Vaseline to protect tissue from inadvertent contact with acid. Rubber dam was applied (fig 2) and slurry of 18% Hcl and pumice (fig 3) was applied onto the affected teeth.

Fig 2 :After Dental dam placement

Fig 3: Slurry of 18% Hcl and pumice

Rubber cup in a slow speed headpiece was used to rub the slurry for three separate applications of 30 sec each (fig 4).

Fig 4: Polishing with 18% Hcl and pumice

Slurry was rinsed in between application to assess progress of stain removal. Finally polishing with fluoridated prophylactic paste (Prolax, Ammdent) (fig 5) was done to reduce post operative sensitivity and improve surface lustre (fig 6).

Fig 5: Fluoridated prophylacic paste

Fig 6: Polishing with prophylactic paste

Fig 7: Postoperative view

The patient was instructed to use Casein phosphopeptide-Amorphous calcium phosphate (CPP-ACP) topically thrice daily for two weeks. In the subsequent visit, patient did not complaint of any postoperative sensitivity and was contended with the treatment outcome.

DISCUSSION:

Treatment modalities nowadays are shifting towards more invasive procedures such as crown and veneer which are expensive and incur a sufficient loss of tooth structure without ethical considerations and future dental health. Treatment protocol involving minimal invasive dentistry is focussing on prevention, re-mineralisation and minimal dental intervention in the management of dental carious lesions while problems that negatively affect smile aesthetics, for example non-carious dental lesions, or developmental defects are being overlooked (6) .Thus a more holistic approach such as Minimal invasive cosmetic dentistry ,which addresses the health, psychology and aesthetics of patient while conserving the tooth structure is need of an hour. In this case report, superficial stains were successfully managed using

microabrasion followed by remineralisation as patient opted for more conservative approach to address flourosis stain on anterior maxillary teeth which were inflicting a sense of dissatisfaction within her.

In this case report, 18% Hcl and Pumice was used, as advocated by Croll (2) for the successful removal of stains. Dental dam was applied before the procedure to prevent inadvertent contact of acid with soft tissue. Eye protection was worn by clinician as well as patient to shield the eyes from any spatter arising while rubbing with rubber cup.Microbrush was used to precisely apply the paste on the localized area of the tooth to prevent any contact of acid with the soft tissue. Fluoridated prophylactic paste (Prolax, Ammdent) was used for polishing to restore surface lustre. CPP-ACP was applied on the tooth post operatively to assist in remineralisation. The use of CPP-ACP also resulted in reduction of post operative sensitivity.

So, the present case report describes the successful mangement of flourosis stains using a conservative microabrasion approach which is non invasive and cost effective.

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