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Combined management strategy for perimylolysis in gastro esophageal reflex diseases: a case report

KEYWORDS: Perimylolysis, Erosion, GERD, xerostomia

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ABSTRACT *Erosive tooth wear is of increasing concern as a significant cause of tooth destruction in younger persons. Consumption of numerous dietary sources of acids is increasing in modern societies. In addition, involuntary regurgitation may be a significant cause of tooth erosion i.e (GERD) as GERD has increased in prevalence in many countries, and may have severe health effects if not adequately treated. These primary causes can be exacerbated by xerostomia, which is induced by many drugs. Initial preventive treatments are directed at neutralizing the effects of the acids, and initial restorative treatments should be conservative, using adhesive materials. Treatment of advanced tooth tissue loss is difficult and expensive, and preventive management is emphasized.*

Introduction
Perimylolysis (dental erosion) is an irreversible chemical dissolution of tooth structure unrelated to microbial involvement caused by either behavioral (include citrus abuse, bulimia, use of chewable vitamin C tablets and overconsumption of carbonated beverages etc) or physiological etiologies, and may be the secondary manifestation of systemic illnesses (e.g. GERD).(1,2) Gastro esophageal reflux disease (GERD) is a common disease of the gastrointestinal tract that affects children, adolescents and adults and defined as involuntary muscle relaxing of the upper esophageal sphincter, which allows refluxed acid to move upward through the esophagus into the oral cavity.(3) It is a disease of great medical and social importance due to its increasing incidence and long-lasting symptoms, which hinder patient's quality of life. The oral lesions resulting from GERD are not usually noticed by patients, physicians or dentists until they cause significant damage. They may range from pruritus and burning of the oral mucosa, tooth sensitivity, aphthae, sour taste, decrease in the vertical dimension of occlusion to irreversible damage such as dental erosion, which can be increased by friction or abrasion.(4,5)

A recent systematic review found a median prevalence of 24% for tooth erosion in patients with gastroesophageal reflux disease (GERD) and a median prevalence of 32.5% for GERD in adult patients who had tooth erosion. Therefore, dentists may be the first person to diagnose the possibility of GERD, particularly in the case of "silent refluxes." This diagnosis is important, as GERD has increased in prevalence in many countries, and may have severe health effects if not adequately treated. Referral to a physician or gastroenterologist is necessary to define the diagnosis; however, dental expertise may be essential in distinguishing between differential diagnoses such as bulimia,attrition and abrasion. (6,7) Successful treatment of this medical condition is necessary before dental rehabilitation can be initiated successfully.

This case report describes the management strategy of tooth surface loss as a result of gastroesophegal reflex diseases by physician and dentist.

CASE REPORT
A 25 years old woman presented with complaint of severe dental sensitivity. On examination, we found good oral hygiene, thin translucent enamel, yellow discoloration and loss of enamel with a smooth and shiny appearance; depressions or concavities at the cervical areas of the palatal aspect of the maxillary anterior teeth. (Figure 1) with incisal loss of tooth structure. (Figure 2).

Medical evaluation of the patient confirmed the diagnosis of GERD. The patient was taking omeprazole 20 milligrams per day and she was advised to limit eating fatty and spicy meals, especially right before bedtime, and to avoid alcohol, caffeine, soft drinks, citrus and hard candy.

After the patient's condition was controlled medically, we suggested a multiphase dental treatment plan. Impression was made with putty and light body single mix technique and palatal metal veneer fabricated up to the level of middle and incisal third junction which was cemented using resin based cement such as Panavia X (Kuraray Medical Inc. Kurashiki, Okayana, Japan) Figure. 3. Incisal wear was restored with direct composite material (Z350, 3M) Figure 4.

Discussion
Erosion begins as superficial demineralization of the enamel, which can cause dissolution of the subsurface layers and eventual loss of tooth structure. Any acid with a pH below the critical pH of dental enamel (5.5) can dissolve the hydroxyapatite crystals in enamel. Gastric reflux has a pH of less than 2.0 and thus has the potential to cause dental erosion. (3,8)

Causes of dental erosion are classified as extrinsic or intrinsic. Extrinsic causes include carbonated or acidic beverages, acidic foods, citric lozenges, various medications, oral hy-

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giene swab sticks, saliva substitutes, recreational exposure to water in gas-chlorinated swimming pools and occupational exposure to corrosive agents such as battery acid fumes and industry aerosols.(9)

Intrinsic causes of dental erosion include bulimia, rumination or voluntary reflux phenomenon, subclinical regurgitation due to chronic gastritis associated with alcoholism, xerostomia, chronic vomiting during pregnancy and GERD.(10)

Howden (1971) first reported the association between GERD and dental erosion and revealed that dental erosion of palatal area in maxillary incisors may serve as a diagnostic sign of acid reflux.(11)The increasing prevalence of gastroesophageal reflux disease (GERD) in children and adults, increases the responsibility of dentists to be alert to this potentially severe condition when observing unexplained instances of tooth erosion.4,12 Although gastroesophageal reflux is a normal physiologic occurrence, excessive gastric and duodenal regurgitation combined with a decrease in normal protective mechanisms, including an adequate production of saliva, may result in many esophageal and extra esophageal adverse conditions. Sleep-related GERD is particularly insidious as the supine position enhances the proximal migration of gastric contents, and normal saliva production is much reduced.(13) Gastric acid will displace saliva easily from tooth surfaces, and proteolytic pepsin will remove protective dental pellicle. The pattern of erosion caused by intrinsic acid may be modulated by the protective influence of the tongue, which forces regurgitated acid over the tongue, along the palate and into the buccal vestibule that result tooth surface loss from palatal aspect of maxillary anterior teeth andoccusal surface of posterior teeth. (14,15)

Suspicion of an endogenous source of acid being associated with observed tooth erosion requires medical referral and prevention and control should be the primary method of the management in such patient .(16) While it is important to treat any acute dental sensitivity or pain resulting from the tooth surface loss it is also essential to establish the etiology, to eliminate the cause where possible, and to instigate proactive preventive strategies. Prevention of ongoing erosion can take two forms: reducing exposure to acid and enhancing the ability of the oral cavity to resist the effects of the acidic environment by minimally invasive methods. The goals of initial treatment include relief of symptoms, healing of esophagitis, prevention of recurrence, and prevention of complications. The principles of treatment include lifestyle modifications and control of gastric acid secretion using drugs or surgical treatment with corrective antireflux surgery.(17,18)

In more severe cases, when persistent sensitivity, pulpal exposure, uncontrolled tooth tissue loss or cosmetic problems exist, active treatment will be required. Erosive tooth wear in young people is often localized to the palatal aspects of upper incisors and the occlusal aspects of first permanent molars. Treatment should be aimed at restoring the missing tooth structure, preventing further tooth tissue loss and maintaining an occlusion with balanced contacts.(19)

Cast metal (most commonly nickel chromium cemented using resin based cement such as Panavia X (Kuraray Medical Inc. Kurashiki, Okayana, Japan) can be used highly successfully as palatal veneers.

Zagdwon and co-authors did acknowledge that these were completed with minimal additional tooth tissue removal, a factor of particular benefit when restoring eroded teeth which have already undergone significant tooth tissue loss. In young patients a particular problem can arise anteriorily, where the dull grey colour of the sandblasted litting surface of the cast veneer may "shine through" the thin translucent enamel of a young eroded incisor. Placement of direct composite after the cementation of the cast veneer may help to mask this.(20)

Despite the clear advantaged and proven durability of cast restorations, aesthetic considerations can make them unacceptable to some patients (and often, to their parents), composite resin is obviously more aesthetically acceptable and can be placed directly (for instance, for anterior labial veneers), or indirectly. The latter can be particularly useful with posterior teeth, where controlling the occlusion when placing multiple direct onlay-type restorations can be difficult.(21)

Conclusion

Dental erosion is important cause of tooth loss in both children and adults by either behavioural or physiological etiologies so it is usually necessary to manage dental erosion with a combination of both pharmacotherapeutic and behavioural (for example, diet) strategies. After successful medical intervention, dental therapy is necessary to restore dental form and function.

REFERENCE

1. Osbome-Smith KL, Burke FJT, Wilson NHF.The aetiology of the non-carious cervical lesion. International Dental Journal. 1999; 49:139-143. | 2. Eccles JD, Jenkins WG. Dental erosion and diet. Journal of Dentistry. 1974; 2:153-159. | 3. Taylor G, Taylor S, Abram's R, Mueller W. Dental erosion associated with asymptomatic gastroesophageal reflux. Journal of Dent Child. 1992; 59:182-185. | 4. Barlett D. Smith B. Clinical investigations of gastroesophageal reflux. Dental Update. 1996; 23:250-253. | 5. Davis WB, Winter P. The effect of abrasion on enamel and dentine and exposure to dietary acid. Brazalian Dental Journal. 1980; 148: 253-256. | 6. Gudmundsson K, Kristleifsson G, Theodors A, Holbrook WP. Tooth erosion, gastroesophageal reflux, and salivary buffer capacity. Oral Surgery Oral Medicine Oral Pathology Oral Radiology Endodontology. 1995;79:185-194. | 7. Asher C, Read MJ. Early enamel erosion in children associated with the excessive consumption of citric acid. Brazillian Dental journal. J 1987; 162:384–391. | 8. Lazarchik DA, Filler SJ. Dental erosion: predominant oral lesion in gastroesophageal reflux disease. American Journal of Enterology. 2000; 95:S33–41. | 9. Habsha E. The aetiology and pathogenesis of tooth wear: Part I. Oral Health. 1999; 83–92. | 10. Ibbetson R, Eder A. Tooth surface loss: editors introduction. Brazillian Dental Journal.1999;186:60–66. | 11. Howden GF. Erosion as representing symptoms in hiatus hernia: a case report. Brazillian Dental Journal.1971; 131:455-461. | 12. Gregory-Head B, Curtis DA. Erosion caused by gastroesophageal reflux: diagnostic considerations. Journal of Prosthodontics. 1997; 6:278-285. | 13. Rytomaa I, Jarvinen V, Kanerva R, Heinonen OP. Bulimia and tooth erosion. Acta Odontology Scandivian. 1998; 56:36-40. | 14. Smith BGN, Bartlett DW, Robb ND. The prevalence, etiology and management of tooth wear in the United Kingdom. J Prosthetic Dentistry. 1997;78:367-372. | 15. Eccles JD. Tooth surface loss from abrasion, attrition and erosion. Dental Update 1982; 9:373-381. | 16. Silverstone LM. The effect of fluoride in the remineralization of enamel caries and caries-like lesions in vitro. J Public Health Dentistry 1982; 42:42–53. | 17. Watson IB and Tulloch EN. Clinical assessment of cases of tooth surface loss. British Dental Journal. 1985; 159:144-148. | 18. Suzuki S, Suzuki SH, Cox CF. Evaluating the antagonistic wear of restorative materials when placed against human enamel. Journal of American Dental Association. 1996; 127:74-80. | 19. Hemmings KW, Howlett JA, Woodley NJ, Griffiths BM. Partial dentures for patients with advanced tooth wear. Dental Update. 1995; 22:52-59. | 20. Zagdwon AM,Fayle SA, and Pollard MA. A prospective clinical trial comparing preformed metal crowns and cast resorations for defective first permanent molars. Euro J of Paediatric Dentistry. 2003; 4:138-142. | 21. Welbury RR. A clinical study of microfilled composite resin for labial veneers.International Journal of Dentistry. 1985;1:9-15.