

Case Report

Effect of dried sunflower seeds on incisal edge abrasion: A rare case report

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Abstract

Tooth surface loss (TSL) is a complex phenomenon characterized by the loss of hard tooth structure at various locations of the teeth, usually due to more than one factor. TSL due to abrasion can be significant in patients consuming coarse, abrasive diet. The present case reports an interesting incisal edge abrasion in a female patient, attributed to a particular dietary behavior of long-term consumption of sunflower seeds. All her family members and most of the people from her native place were also reported to have similar lesions by the patient. Larger epidemiological studies to assess the prevalence and severity of such abrasive lesions in geographic areas with this particular dietary habit need to be carried out so that people may be made aware and educated about alternative ways of eating sunflower seeds that will not cause any form of tooth wear.

Keywords: Habit; incisal edge; sunflower seeds; tooth surface loss

INTRODUCTION

Tooth wear is a collective term used to describe the surface loss of dental hard tissues from causes other than dental caries.^[1] It is a complex, multifactorial, irreversible phenomenon which involves an interplay of mechanical, chemical, and biological factors.^[2] Although the process is considered physiological, which is cumulative with age, excessive wear not proportionate to the age may affect the normal function or esthetics, hence may be deemed pathological.^[1,3]

Tooth wear as found in the dental literature includes abrasion, erosion, attrition, and abfraction.^[4] Abrasion is the pathological wear of dental hard tissue by abnormal mechanical processes which usually occurs by the friction of exogenous material forced over tooth surfaces.^[5]

The pattern of abrasion is highly variable depending on the type of agent causing it. The most common of

them include faulty toothbrushing that usually leads to wedge-shaped defects in the cervical regions, followed by the use of abrasive dentifrices that can cause lesions on labial surfaces of teeth.^[6,7] Toothpicks and floss can cause abrasion on the proximal surfaces of exposed roots.^[8] Occupational abrasion as seen in hairdressers and cobblers due to opening of bobby pins with teeth, holding nails between teeth, etc., can present as notching of incisal edges of anterior teeth.^[6] Wearing of anterior teeth has also been reported in cases of pipe smokers in the region where the pipe stem is held.^[9]

Although a number of factors such as dental hygiene aids, certain occupations, habits, and cultural practices have been associated with abrasion, the most common yet most overlooked factor is food. Variations in severity and pattern of abrasion between populations are attributed to the abrasiveness of the diet and the use of teeth as tools. The action of abrasive food on enamel can cause pitting, gouge marks, and other characteristics of mechanical breakdown.^[3]

Occurrence and pattern of abrasion as a result of cultural and eating habits is of great importance, as some of these

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may be abnormal or pathological, affecting both function and appearance of teeth and may require attention from both patients and dentists. Hence, we report this case of an incisal edge abrasion caused due to an abnormal pattern of eating sunflower seeds.

CASE REPORT

A 44-year-old female patient reported to our dental outpatient clinic with the chief complaint of deposits on her teeth. No significant medical history was reported. Her previous visit to the dentist was 4 years ago in for getting her teeth cleaned.

Her dietary history included a mixed diet. It also revealed about her habit of consuming sunflower seeds as a snack since her childhood for about 35 years. Raw, unroasted seeds were cracked in between her upper and lower incisors one at a time to remove the shell and the kernels were consumed. The main reason for consuming sunflower seeds was that it was easily accessible as her father was a farmer and grew sunflower.

On further inquiry, a positive family history was reported. The patient told that her brother, sister, mother, grandfather, and her husband were all having the same habit of consuming sunflower seeds in a similar manner from the past 30 to 35 years.

Regarding oral hygiene practices, the patient used a soft-bristled toothbrush and toothpaste for cleaning her teeth since childhood. She brushed twice daily for about 2–3 min in a vertical direction. She cleaned her tongue with the toothbrush itself. No other oral hygiene aids were used.

On intraoral examination, all permanent teeth were present. Patient had fair oral hygiene and no carious lesions. Mild calculus was present in the lingual aspect of lower anterior teeth. No pockets or loss of attachment was



Figure 1: Dental photograph of the patient displaying incisal edge abrasion in relation to upper and lower central incisors

detected. Further examination of anterior teeth revealed a prominent notching on the incisal edges of upper and lower incisors [Figure 1]. The lesions were symmetrical and complimentary in their location to each other. The lesion extended to about 2 mm in depth in enamel. None of the posterior teeth showed any sign of wear. The case revealed no history of dentinal hypersensitivity in affected location. Informed written consent was obtained from the patient to click and publish photographs of her teeth. Since all her other family members were in her native place, we could not examine them personally. Hence, the patient was requested to provide the dental photographs of all the affected members with their consent.

Dental photographs of patient's husband, grandfather, sister, father, and uncle showed similar findings on their anterior teeth [Figure 2]. Patient reported the prevalence of such similar notching on incisors among many of her friends and relatives from her native place.

DISCUSSION

Abrasion is the predominant wear mechanism caused by the mastication of hard fibrous material which can involve foreign objects or substances repeatedly introduced in the mouth, contacting the teeth.^[10] Several types of abrasion due to eating habits have been reported in the past. A generalized tooth wear manifested as abrasion affecting all teeth and restorations were reported in patients with pica, resulting from eating of nonnutritive substances such as clay, soil, needles, chalk, pencil, coal, and wood.^[11] In another case, a localized tooth wear manifested by a combination of abrasion and erosion lesions attributed to eating fresh chilies after most evening meals followed by an immediate toothbrushing was reported.^[12] In another report of a bizarre case of eating sand for more than 20 years, extensive abrasive lesions were found on all teeth.^[13]

Few studies have reported a mild-to-severe degree of incisal notching seen with a particular type of habit which includes



Figure 2: Dental photograph of the patient's sister displaying incisal edge abrasion in relation to upper and lower left central incisors

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eating of dried and roasted seeds as seen in Jordan, Syria, Iraq, Saudi Arabia, Lebanon, Egypt, etc., The seeds may be from watermelon, pumpkins, squash, or sunflower.^[14,15] In a study conducted on 141 patients attending an oral center in Jordan, about 57% reported regular eating of watermelon seeds. A significantly higher tooth surface loss scores were recorded in the incisors of these patients.^[14]

Another study also conducted in Jordan on 502 participants having a history of consumption of salted and roasted watermelon seeds, different grades of incisal edge abrasions in the form of V-shaped notches were found.^[15]

In the present case also, incisal edge notching was due to the particular style of cracking the shell of the seed by keeping it vertically in between the upper and lower incisors and applying some amount of force to crack it. Hence, the pattern of tooth wear corresponded to the seed shape. Since the seeds used were raw, unroasted, and unsalted in the present case, no other factor could be attributed to the abrasive notches other than mechanical force used to break open the seeds unlike in previous studies where salt and citric acid used for coating the seeds have been attributed to cause abrasion-erosion lesion. It was also reported by the patient that most of the families living in and around patient's native place were of poor socioeconomic status and thus this habit was widely prevalent.

Another interesting fact was that the patient was not concerned with the esthetic appearance as she thought it was normal since most of the people in her town exhibited similar teeth. This indicates a total lack of awareness about dental health.

The present report indicates that abnormal eating habits such as cracking seeds of sunflower with teeth can lead to tooth wear. Lack of awareness about the impact of such habits among patients may lead to extensive tooth wear with time and may hamper normal function and esthetics.

Hence, epidemiological studies to assess the prevalence and severity of such abrasive lesions on incisors due to such cultural habits need to be carried out. People should be educated about the impact of such dietary habits on dental health and also about alternative ways of eating sunflower seeds that will not cause any form of tooth wear.

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Conflicts of interest

There are no conflicts of interest.

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