Olgu Sunumu

SÜT DENTİSYONDA MALNÜTRİSYONA BAĞLI GELİŞEN DİŞ TAŞI BİRİKİMİ: NADİR BİR OLGU

Meltem KARSIYAKA HENDEK[1]
Merve ERKMEN ALMAZ[2]
Didem BEZİRCİ[1]

Makale geliş tarihi:28.12.2018

Makale kabul tarihi:14.02.2019

ÖZET

Sistemik olarak sağlıklı 3 yaşındaki bir çocukta malnütrisyona bağlı nadir bir diş taşı birikimi olgusu bildirilmiştir. Hastanın anamnezinde o güne kadar sadece yumuşak yiyeceklerle beslendiği öğrenilmiştir. Klinik dental muayenesinde ciddi bir diş taşı birikimi ve diş eti iltihabı gözlenmiştir. Genel anestezi altında, tüm ağız diş yüzey temizliği yapılmıştır. Operasyonu takiben, ebeveynlere ağız hijyeni bakımı ve beslenme alışkanlıklarını değiştirmeleri önerilmiştir. Literatüre göre, 3 yaşındaki bir çocukta malnütrisyona bağlı oluşan ciddi diş taşı birikiminin gözlendiği ilk olgu sunumudur.

Anahtar Kelimeler: Diş Taşı, Malnütrisyon, Süt Dentisyon

DENTAL CALCULUS ACCUMULATION DUE TO MALNUTRITION IN THE PRIMARY DENTITION A RARE CASE

ABSTRACT

A case of unusual calculus accumulation due to malnutrition in a 3-year-old systemically healthy boy is reported. The patient's history revealed that he was only fed with soft food. In clinical dental examination, there was a severe calculus accumulation and gingival inflammation. Under general anaesthesia, full mouth scaling was applied. Following operation, parents were advised for maintenance of oral hygiene and change the feeding habits. According to the literature, this is the first case report of severe calculus accumulation due to malnutrition in a 3-year-old child.

Key Words: Dental Calculus, Malnutrition, Primary Dentition

[1] Department of Periodontology, Faculty of Dentistry, Kirikkale University, Kirikkale, Turkey
[2] Department of Pediatric Dentistry, Faculty of Dentistry, Kirikkale University, Kirikkale, Turkey
Sorumlu Yazar: Meltem KARSIYAKA HENDEK mltmkrsyk@yahoo.com

INTRODUCTION

Dental calculus which is calcified mineralized plaque composed of calcium phosphate mineral salts coated by an unmineralized plaque (Roberts-Harry and Clerehugh, 2000). The development, amount and composition of calculus differ among people and also from region to region (Conroy and Sturzenberger, 1968; Corbett and Dawes, 1998; Gürgan and Bilgin, 2005; Hinrichs, 2006). Many factors such as age, gender, diet, location in the oral cavity, oral hygiene, bacterial composition, host response differences, mental or physical handicaps, systemic diseases and prescribed medications influence the amount of calculus (White, 1997). It can be considered that calculus plays an indirect or secondary role in the etiopathogenesis of periodontal diseases by providing bacterial plaque retention and growth as well as for toxic bacterial products (Jepsen et al., 2011).

Supra- and subgingival calculus accumulation has been reported in a large number of adults (White, 1997; Afshar et al., 2016). In the literature, there is no document reporting dental calculus accumulation in a 3-year-old child. This report describes a case of unusual calculus accumulation due to malnutrition in a 3-year-old systemically healthy boy.

CASE REPORT

A 3 year-old boy was referred to Kırıkkale University, Faculty of Dentistry, Department of Pediatric Dentistry with a complaint of dental calculus adversely affecting the feeding of the child. The parents of the patient reported an event that they had experienced a year ago during feeding their child. He swallowed a pea and his respiration was blocked for a while. After the incident, due to his parents' uneasiness, the patient was only fed with soft foods and drinks. Also, the family never brushed their child's teeth and had no oral hygiene knowledge.

Clinical examination revealed that there was a severe calculus acummulation around most of the teeth, even lower teeth cannot be seen with visual inspection and severe gingival inflammation was observed (Figure 1). All teeth were covered by dental plaque and edema, bleeding and mobility was determined during clinical examination. Also, it was observed that the child was caries free. Beacuse the patient was uncooperative, he received dental treatment under general anaesthesia. Full mouth scaling and root planing with manuel instruments were applied (Figure 2). His parents were advised for regular recall visits and instructed for maintenance of oral hygiene and change the feeding habits.

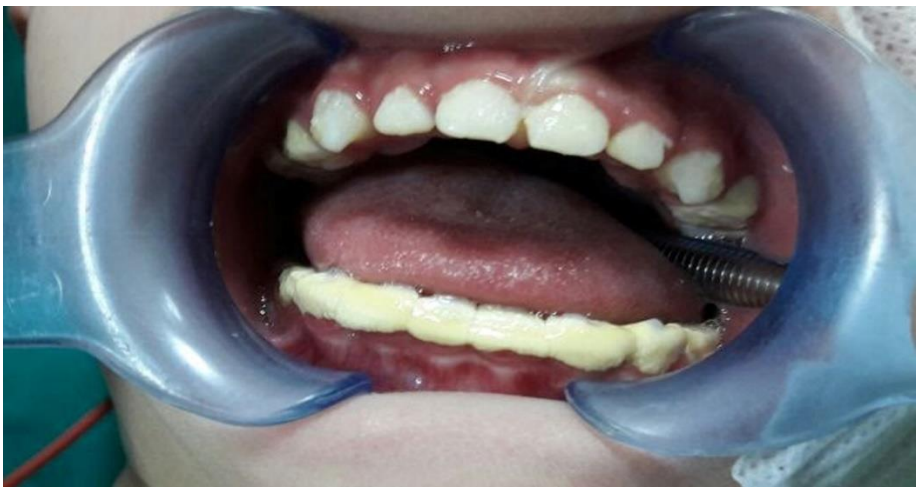

Figure 1: Intraoral image before treatment

Figure 2: Intraoral image after treatment

However, the patient did not attend any follow-up appointments because of a great extent of dental fear their parents indicated that they could not take him to the hospital. During 12 months, the parents were interviewed by telephone regularly and they told that they could not change the feeding habits of the child and dental calculus was re-formed.

DISCUSSION AND CONCLUSION

It was reported that formation of dental calculus is a very rare situation in primary teeth, however, it increases with age and eruption of permanent teeth, particularly the mandibular incisors (Frencken et al., 1991; Goel et al., 2000). Dental calculus in children with cystic fibrosis has been reported in 9 percent of four- to six-year-olds, 18 percent of seven- to nine-year-olds, and 33 to 43 percent of ten- to fifteen-year-olds, with a higher prevalence and severity (77 percent in seven- to nine year- olds and 90 percent in ten- to fifteen-year-olds) (Wotman et al., 1973). In cystic fibrosis, high concentrations of some salivary factors such as total proteins, phosphate and sodium could affect the high prevalence of dental calculus. However, in the present case, the patient was systemically healthy.

It is well known that saliva has a protective role in oral diseases. The calculus formation is affected by the composition, structure and the content of the saliva. Moreover, solid foods stimulate saliva secretion. Consuming soft foods cause low saliva flow rate and diminished protective properties of saliva in the oral cavity. In this case, since the patient has consumed solely soft foods, he has minimum chewing activity. In addition, the lack of adequate oral hygiene has also led to the formation of severe calculus.

In the study of Umer et al. (Umer et al., 2016), they have reported that 14.3% of the study population (children aged between 3–12 years) had calculus problem. Majorly, those children who were 9–12 years old were (8.7%) detected with calculus, followed by children who were 6-8 years old (4.8%), and 3-5 years old (0.8%). The results confirmed that dental calculus formation is a very rare condition for young age children.

In the oral cavity, dental caries and dental calculus have opposite biochemical processes. Dental caries is an infectious disease which is initiated by demineralization of teeth as a result of largely sucrose-driven acidogenic activity by cariogenic bacterial species in dental plaque (Fitzgerald and Keyes, 1960; Selwitz et al., 2007). On the contrary, dental calculus formation depends on progressive mineralization that occurs with precipitation of primarily calcium phosphate mineral salts onto tooth surfaces from saliva for supragingival and gingival crevicular fluid for subgingival calculus, even in the absence of dental plaque microorganisms (Fitzgerald and Keyes, 1960).

Interestingly, humans who consume a low-carbohydrate, high-protein diet are reported to have high prevelance of dental calculus accumulation (Skinner, 2003). Rare consumption of fermentable carbohydrates results in low acidogenic activity of oral cariogenic microorganisms (Loesche, 1986) and high protein intake increase dental plaque pH to more alkaline levels by increasing salivary urea secretions, which, after being metabolized into ammonia and CO2 by oral ureolytic bacteria (Dawes, 1970). In addition, dental calculus and dental caries are independent from each other, the major cariogenic bacterial species, Streptococcus mutans, is not found in the microbiota attached to supragingival or subgingival dental calculus deposits (Sidaway, 1978). It is not surprising that an inverse clinical relationship has been observed between dental calculus and dental caries in this case.

Although at a very early age; in this case because of minimum chewing activity as a result of consuming soft foods and poor oral hygiene habits resulted severe calculus formation. Since the patient did not change eating habits, calculus was re-formed. Parents should be advised for proper nutrition and adequate oral hygiene for young age children to prevent periodontal diseases.

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