

Talon Tuberculosis and Conservative Approaches: Two Case Reports

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Abstract

Talon tubercle, which can occur in both permanent and deciduous teeth, is a rare dental anomaly with a tubercle-like structure found in the enamel-cementum junctions or cingulums of maxillary and mandibular anterior teeth. Although the etiology is not clearly known, hereditary and environmental factors are thought to be effective. Early diagnosis of talon tubercle is as important as its treatment. It was predicted that in cases that cause problems in occlusion and irritate the tongue, the abrasive procedure will be performed by controlled selective molding.

In this case report, talon tubercles were detected in the right and left upper lateral teeth of 27 and 20 years old female patients. As a result of radiological and intraoral examination, a "V" shaped radiographic appearance was detected in the patient, which was not related to the pulp. Caries tissue was carefully removed and direct restorations were made with composite filling material to prevent food retention. The talon tubercle, which was present in both patients, was not intervened as it did not disturb the tongue during speech and did not affect the occlusion during chewing.

In these case reports, the treatment approach to the bilateral talon tubercle of the palatal surface of the maxillary lateral incisors is presented. In this case report, we present the conservative treatment approach of the talon tubercle observed in the cingulum region of the palatal surface of the permanent maxillary central tooth.

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Keywords: Talon tuberculosis, dental anomaly, maxillary lateral tooth, conservative treatment.

Introduction

Dental anomalies; it can be seen with systemic diseases or as genetic syndromes or hereditary disorders. The majority of the structure, number, shape and volume anomalies of the teeth are of hereditary origin (1). Although defects in some genes are effective in dental anomalies, etiological events in the prenatal and postnatal periods have also been held responsible for anomalies in the size, morphology, position, number and structure of the tooth (2). Talon tubercle was first described by Mitchell in 1892 as an accessory tubercle in the form of a horn-shaped projection extending from the gingival margin to the incisal edge on the palatal side of the maxillary anterior teeth (4). Talon's tubercle is a rare

dental anomaly in the permanent and primary dentition, extending at least half the distance from the enamel-cementum junction of the maxilla and mandible anterior teeth to the incisal edge, or is a rare dental anomaly in the cingulum (3). Although it can be seen in both sexes in the upper jaw compared to the lower jaw, it is more common in males (5,6).

The incidence of talon tubercle among dental anomalies is less than 1% (7). It is observed in the upper jaw with a rate of 92%. 75% of these cases occur in the permanent dentition and 25% in the primary dentition. It mostly occurs in maxillary permanent lateral teeth (8). In primary dentition, the most affected tooth is the maxillary central tooth, while in permanent dentition, it is the maxillary lateral tooth that is most affected (9). Although

the talon tubercle, which is called tubercle anomaly, is mostly seen in permanent maxillary laterals and primary central teeth, it is also seen in permanent centrals, canines and premolars. This anomaly can also be found in mandible incisors, even rarely (10,11,12). Radiographically, the talon tubercle can be observed as a radiopaque structure that includes enamel, dentin and sometimes pulp. Typically, it is the V-shaped structure that falls on the normal crown image (13).

Although the etiology is not known exactly, it is thought that hereditary and environmental factors are effective (14,15). Dental problems and tongue injuries can also be seen in patients with talon tubercle (3,5). It has been reported that it can be seen together with syndromes such as Mahr, Rubinstein-Taybi, Orofacial digital II, Sturge-Weber and other odontogenic anomalies that may be associated with dental anomalies in some cases. (16,17). The prognosis of teeth with talon cusps depends on the timing of diagnosis (6). Hattab et al. (5) classified the talon tubercle according to its shape and projection in 1996 (Table1, Figure1) (5,11).

Table 1. Classification of talon tuberculosis (5,11)

Type 1: Reel Talon	It is a morphological formation that starts from the enamel cement composition on the posterior (palatal-lingual) surface of permanent and deciduous anterior teeth and expands significantly up to the half of the tooth.
Type 2: Semi Talon	It starts from the enamel cement composition on the posterior (palatal-lingual) surface of permanent and primary anterior teeth and is less than half of the tooth, but more than 1 mm.
Type 3: Trace Talon	This small tubercle is located in the gingival third of the tooth on the posterior (palatal-lingual) surface of primary and permanent anterior teeth. It can be T, Y or V shaped.

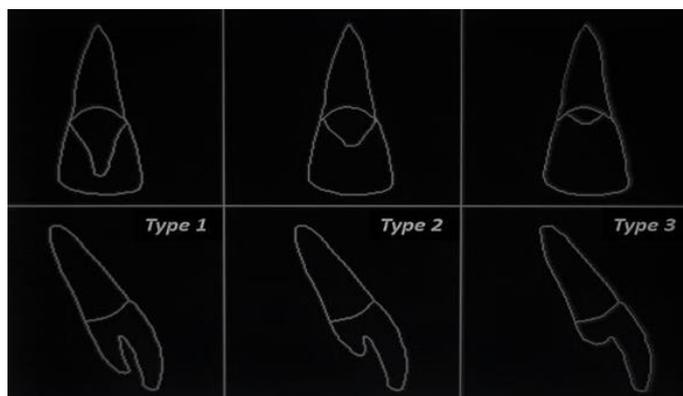


Figure 1. Figure showing types of talon tubercles (11).

In this case report, incisors with talon cusps were evaluated clinically and radiographically and appropriate treatment procedures were explained, and it was aimed to emphasize the importance of early diagnosis and

treatment in teeth with talon cusps in the light of literature.

CASE 1

27 years old healthy female patient applied to our clinic with the complaints of short-term ache in her upper lateral teeth and aesthetic complaints. Extraoral findings, gingiva and alveolar mucosa were normal. It was determined that there was no systemic disorder in the medical anamnesis received. Talon tubercle, which we think is type III, was detected in the palatal region of the patient's right-left upper lateral incisor. It was determined that the tubercle did not cause any discomfort during speaking and chewing and did not irritate the tongue, but caries developed between the talon tubercle and the tooth due to food retention. In the radiographic examination, it was determined that the talon tubercle in the upper left-right lateral tooth was "V" shaped. The caries was cleaned and restored with resin composite (3M ESPE Filtek Z250 Hybrid) to prevent food retention.



Figure 2a. Appearance of talon tubercles in upper lateral teeth.



Figure 2b. Restoration of upper lateral teeth bilaterally.

CASE 2

A 20-year-old healthy female patient applied to our clinic due to short-term ache in her bilateral upper lateral

teeth and aesthetic complaints. In her anamnesis, it was stated that she did not have any systemic disease. The examination showed that there was no other dental anomaly and that his occlusion was normal. There was no pathological findings in the extraoral examination. The caries formed in the pit between the tubercle and the lingual surface of the tooth was cleaned and restored as in Case 1. The patient was called for periodic controls.



Figure 3a. Image of bilateral upper lateral tooth.



Figure 3b. Restoration of bilateral upper lateral tooth.

DISCUSSION

Although the exact cause of the formation of the talon tubercle is not known, researchers state that it may occur as a result of hyperactivity of the dental lamina, or it may be the initial form of dens invaginatus (16,18). Another view is that tooth development is an odontogenic anomaly that occurs as a result of outward development of inner enamel epithelial cells during the morphodifferentiation period and hyperplasia of peripheral cells of the mesenchymal dental papilla, and there are differences in the incidence in different populations (19,20). It has been reported that disorders in the morphodifferentiation stage such as endocrinological dysfunction can affect the size and shape of the tooth without affecting the function of ameloblasts and odontoblasts (9). Small talon tubercles are often asymptomatic and do not require any treatment (5). However, in some cases, the presence of this tubercle may cause dental caries or be associated with dental

anomalies. (19). In this case, early diagnosis and treatment is important as it will create problems for the patient and the physician (4). Since it can be seen among family members, it is also suggested that there is a genetic effect in its formation (21). It has been reported that it can be seen together with various dental anomalies such as talon tubercle, supernumerary tooth, odontoma, mesiodens, impacted teeth, cleft lip, dens invaginatus and crooked nostrils, bilateral gemination, fusion, and supernumerary teeth (9,23,24). Although Talon's tubercle has not been described as part of any specific syndrome, it has often been reported to be associated with Mohr syndrome, Sturge-Weber syndrome, Rubinstein-Taybi syndrome or Pigmenti Achromians syndrome, Incontinentia. For these reasons, clinicians should be careful in the diagnosis and treatment of this anomaly (22).

The cases in the study were not accompanied by any systemic disease or genetic disorder. However, it was determined that dental caries occurred due to the talon tubercle.

In a study conducted in 1039 children aged 7-13; Talon tubercle was detected in 2.02% of them. Talon tubercle and microdontia have been reported to be frequently observed in the upper lateral teeth (25).

Talon's tubercle may progress to the pulp in some cases. It is very difficult to make a decision by looking only at the periapical and panoramic radiographic film to detect these conditions from the beginning (14). On radiographic examination, the presence of pulp under the talon tubercle may not be clearly evident due to superposed images (21). It has been reported that the interaction between the three-dimensional tomographic images and the tubercle pulp tissue can be easily detected (26). Since the presence of the pulp cannot be clearly diagnosed clinically, the pulp horn may be perforated by removing the talon tubercle in one go (7). Therefore, in cases where occlusion is prevented, that is, it is appropriate to gradually abrade or moult the talon tubercle, which causes tongue irritation during speech and chewing, occlusal trauma to the antagonist tooth, and periodontal problems due to occlusal forces, to allow the formation of secondary dentin, and to apply agents such as desensitizing fluoride polishing could be a therapeutic approach (5,27,28).

In our cases, traditional x-ray imaging methods were used because patients accepted the risk of endodontic treatment. Since the occlusion of the patient was not prevented and there were no tongue injury, aesthetic and speech problems due to the talon tubercle, no intervention was performed on the talon tubercle.

CONCLUSION

As a result; radiographic and clinical diagnosis are important in order to provide the appropriate treatment option in the talon tubercle. Treatment and diagnosis of talon tubercle should be followed to prevent further complications. The clinical and radiographic detection of the talon tubercle can improve the prognosis by minimizing the complications that may occur in the future. Early diagnosis of talon tubercle radiographically and clinically is important in order to provide the appropriate treatment method. The success of their treatment depends on the size of the tubercle, whether it causes complications and patient cooperation. The clinical and radiographic detection of the Talon tubercle is an important issue. A careful examination should be made to evaluate whether it causes any complications. Thanks to early diagnosis, the prognosis can be improved by applying alternative treatment options. When cases are detected late, rapidly progressing caries can bring periodontal and endodontic problems. Early diagnosis and treatment will enable the prevention of periodontal, pulpal and aesthetic problems that will occur in the future.

Descriptions

Author Contribution

Study conception and design: ZA, SK

Analysis and interpretation of the data: ZA, SK

Draft manuscript preparation: ZA, SK

Critical revision of the work: SK

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