

H-shaped Talon Cusp in the Anterior Maxilla: A Diagnostic Dilemma

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ABSTRACT

Dental anomalies are clinically evident abnormalities that cause a variety of dental problems. Depending on the tooth location, dens evaginatus indicates a posterior tooth abnormality, while talon cusp explains an anterior tooth anomaly. Identifying the problem and initiating treatment requires careful observation and proper investigations. Here, the authors present the case of a nine-year-old female child who had an H-shaped talon cusp or barrel-shaped bilateral maxillary lateral incisors in the form of premolars. The report includes clinical and radiographic interpretation. Associated problems and various treatment options are also explained. Although dental anomalies affecting the teeth are relatively common, the presentation of barrel-shaped or premolar-shaped bilateral maxillary lateral incisors is uncommon. Knowledge about the prevalence and distribution of such anomalies would aid various dental experts in early identification and recognition of dental malformations, as well as in complete treatment planning.

Keywords: Bicuspid, Incisors, Palatal invaginations

CASE REPORT

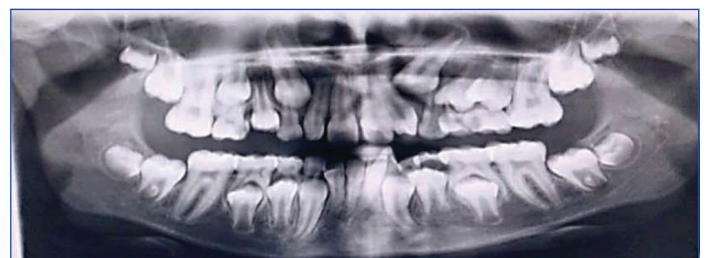
A nine-year-old female patient presented for her first regular dental check-up. Her medical and family histories were unremarkable, and no findings indicated any syndrome. Upon intraoral examination, the patient exhibited an unusual form of maxillary permanent lateral incisors bilaterally, resembling the shape of premolars [Table/Fig-1]. The left maxillary lateral incisor was rotated, with a prominent H-shaped talon cusp. There was mild occlusal disharmony that was planned to be corrected after the eruption of permanent teeth. Both prominent labial and palatal cusps were observed in relation to the maxillary left lateral incisor, while the talon cusp in relation to the maxillary right lateral incisor was not as prominent. The left lateral incisor was rotated labio-palatally. A lateral photograph revealed that the left lateral incisor was barrel-shaped or morphologically similar to a premolar [Table/Fig-2]. Examination of the remaining dentition showed no obvious abnormalities, although multiple primary and permanent teeth were affected by dental caries.



[Table/Fig-2]: Left lateral view of the photograph showing barrel-shaped or premolar-shaped lateral incisor with prominent cusps.



[Table/Fig-1]: Photograph of maxillary arch showing premolar-shaped lateral incisors.



[Table/Fig-3]: Panoramic radiograph showing developmental anomalies in maxillary anterior region.

of the most important methods for aesthetics. Since the right lateral incisor has a small talon cusp, which is asymptomatic, reshaping of the tooth would be sufficient.

DISCUSSION

The prevalence of talon cusp in permanent teeth ranges from less than 1% to 8%, with a higher frequency in males than females [1]. Although no literature was found on the prevalence of H-shaped talon cusp, the prevalence of talon cusp in the primary dentition was reported to be 2.1% in Saudi Arabian children [2].

Dens evaginatus on the anterior teeth is described as a talon cusp. Windle and Humphreys were the first to record this unusual occurrence, citing two instances of supernumerary cusps on the palatal surface of permanent maxillary incisors and canines [3]. Mitchell later described this morphological anomaly in modern dental literature as a curving horn-like feature extending from the

A panoramic radiograph [Table/Fig-3] revealed that the development of the dentition was normal for the child's chronological age. Furthermore, periapical radiographs [Table/Fig-4,5] depicted that both lateral incisors had barrel-shaped or premolar-shaped crowns, with the cusps being more prominent for the left lateral incisor. Lower anterior crowding was also noted. Consequently, the management of the present case was planned to include restoring the decayed teeth, extracting the grossly decayed primary teeth, followed by orthodontic treatment to correct the rotation of the premolar-shaped lateral incisors. Finally, reshaping of the lateral incisors was considered one



[Table/Fig-4]: Periapical radiograph showing barrel shaped or premolar-shaped maxillary right lateral incisor.



[Table/Fig-5]: Periapical radiograph showing barrel shaped or premolar-shaped maxillary left lateral incisor.

palatal surface to the incisal edge of a permanent maxillary central incisor, which is an outcome of an aggravation during the morpho-differentiation stage of tooth development [3].

Talon cusp can present as an exaggerated cingula, cusp-like hyperplasia, accessory cusps, supernumerary cusps, interstitial cusps, and palatal accessory cusps. It is histologically and radiologically depicted as overlaid enamel, dentine, and possibly pulpal extension over the tooth on which it occurs. It is also seen in syndromes such as Berardinelli-seip, Mohr, Rubinstein-taybi, Ellis-van creveld, Sturge-weber, and pigmenti achromians [3].

Talon cusps can cause concerns such as impaired aesthetics and occlusal interference, which can lead to cusp fracture, tooth displacement, caries developing in grooves, speech difficulty, tongue and lip discomfort, temporomandibular joint pain, and periodontal disorders due to traumatic occlusion [4].

Sarpangala M and Devasya A mentioned the H-shaped talon cusp in addition to different variants based on the literature. Maxillary permanent lateral incisors in a 12-year-old female showed bilateral talon cusp with H-shaped projection, which was interpreted radiographically. No treatment was performed, and regular follow-up was maintained [5].

According to the literature, auto-transplantation is the appropriate method for missing maxillary anterior teeth. The same was suspected in the current case upon clinical examination. However, considering the child's age, no history of a previous dental visit, and the presence of premolar tooth buds radiographically, it was revealed that there was a developmental anomaly in relation to both maxillary lateral incisors. Hence, the final diagnosis of the present case report was non syndromic H-shaped talon cusp or premolar-shaped maxillary lateral incisors. The diagnosis was made based on the history, thorough clinical, and radiographic examinations.

The following treatment guidelines should be followed for talon teeth: 1) conserving pulpal vitality; 2) meeting aesthetic and occlusal criteria; 3) establishing caries prevention or eradication developmental grooves; and 4) removing tongue discomfort [6]. The treatment plan for the lateral incisor includes conservative or endodontic treatment, surgical intervention, orthodontic correction, and prosthodontic treatment depending on the morphological changes and types of the talon cusp or dens evaginatus.

In the present case, the cusps of the lateral incisors were prominent, and the left lateral incisor was rotated. The H-shaped talon cusp in the present case report is similar to a previously mentioned case report published by Radhika MB et al., [7]. Among seven cases, a 22-year-old female had deep furrows and grooves with H-shaped talon cusp on permanent maxillary right and left lateral incisors [7].

As the shape of the teeth affects aesthetics in a female child, reshaping or grinding of the cusps would result in pulpal exposure. Therefore, grinding of cusps with or without endodontic therapy was chosen as the treatment option to avoid occlusal difficulties and attain normal tooth structure, which would aid in maintaining adequate oral hygiene. Endodontic therapy followed by a prosthetic crown in relation to the maxillary left lateral incisor would be another option to manage poor aesthetics and caries-prone grooves.

Generally, the anomalies of the lateral incisor are unnoticed or ignored in routine clinical examination and are infrequent complaints of patients. The prevalence and distribution of such anomalies would assist various dental specialists in identifying and recognising prevalent dental malformations early, as well as in planning comprehensive treatment.

CONCLUSION(S)

Dental abnormalities can have a negative impact on the appearance of children's teeth and overall aesthetics. The maxillary lateral incisor is a morphologically diverse tooth. Dental anomalies such as talon cusp, peg-shaped, cone-shaped, and canine-shaped lateral incisors are common, but a premolar-shaped maxillary lateral incisor is an unusual presentation. Evaluating the case, making an early and confirmatory diagnosis of developmental anomalies, and devising an appropriate treatment plan are extremely important to avoid various clinical complications in the future.

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PLAGIARISM CHECKING METHODS: [\[Jan H et al.\]](#)

- Plagiarism X-checker: Nov 20, 2023
- Manual Googling: Dec 12, 2023
- iThenticate Software: Dec 14, 2023 (17%)

ETYMOLOGY: Author Origin**EMENDATIONS:** 5**AUTHOR DECLARATION:**

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Nov 14, 2023**Date of Peer Review: **Nov 23, 2023**Date of Acceptance: **Dec 16, 2023**Date of Publishing: **Feb 01, 2024**