

# Taurodontism: Management and its Complications

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## DESCRIPTION

Taurodontism is a dental anomaly characterized by the elongation of the pulp chamber in a tooth, resulting in a vertically enlarged crown and shortened roots. This condition primarily affects molars, but can also occur in premolars or even single-rooted teeth. Taurodontism is a relatively rare occurrence, affecting around 1% of general population. This study Discusses about into the causes, clinical features,diagnosis,and management of taurodontism.

## Etiology and genetics

The exact etiology of taurodontism remains unclear, but it is believed to be influenced by genetic and environmental factors. Studies have suggested a possible multifactorial inheritance pattern, with both autosomal dominant and recessive modes of transmission reported. Taurodontism has also been associated with several genetic syndromes, such as Klinefelter syndrome, amelogenesis imperfecta, down syndrome, and X-linked hypohidrotic ectodermal dysplasia. Environmental factors like trauma, infection, and metabolic disturbances during tooth development have also been proposed as potential triggers for taurodontism.

## Clinical features

The clinical features of taurodontism can vary depending on the severity of the condition. In mild cases, the affected teeth may appear normal upon visual examination. However, in more pronounced cases, the characteristic features become evident. These include an elongated crown, a shortened root structure, and a shift in the position of the furcation area, leading to a rectangular or square-shaped pulp chamber. The apical displacement of the pulpal floor often results in the loss of the constriction between the pulp chamber and the root canals.

## Diagnosis

Diagnosing taurodontism requires a comprehensive dental examination, including a thorough clinical and radiographic evaluation. Dental X-rays, such as periapical or panoramic radiographs, play a crucial role in confirming the diagnosis.

These radiographic images help identify the characteristic features of taurodontism, including the vertically enlarged pulp chamber and shortened roots. Additionally, Cone-Beam Computed Tomography (CBCT) may be utilized for a more detailed assessment of tooth morphology and root canal anatomy.

## Management

The management of taurodontism depends on the severity of the condition and the associated clinical implications. In cases where taurodontism is an isolated finding and does not cause functional or aesthetic concerns, no specific treatment may be necessary. However, in severe cases, endodontic treatment, orthodontic interventions, or prosthetic rehabilitation may be required. Endodontic therapy in taurodontic teeth can be challenging due to the complex root canal anatomy, and the clinician should be aware of the potential difficulties and techniques to overcome them.

Orthodontic treatment may be necessary to correct malocclusions or to align the affected teeth properly. Prosthetic rehabilitation, such as crowns or bridges, can be considered to restore the affected teeth and improve their functionality and esthetics.

## Complications and considerations

Taurodontism can pose several challenges and complications in dental practice. The altered root canal anatomy makes endodontic treatment more complex, increasing the risk of missed canals, difficulties in instrumentation, and inadequate obturation. Therefore, careful examination, proper access cavity preparation, and the use of advanced techniques, such as dental operating microscopes, can enhance the success rate of endodontic therapy in taurodontic teeth. Additionally, clinicians should consider the possible association of taurodontism with other dental anomalies, genetic syndromes, or systemic conditions when formulating the treatment plan.

Taurodontism is a rare dental anomaly characterized by the elongation of the pulp chamber, resulting in vertically enlarged crowns and shortened roots. Although the exact causes are not fully understood, genetic and environmental factors are believed to play a role. Diagnosing taurodontism requires a comprehensive

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dental examination, including radiographic evaluation. The management of taurodontism varies depending on the severity and associated clinical implications, ranging from conservative approaches to endodontic treatment, orthodontic interventions, or prosthetic rehabilitation. Understanding the challenges and

complications associated with taurodontism is essential for providing effective dental care to individuals affected by this condition. Further analysis is needed to unravel the genetic and environmental factors contributing to taurodontism and to develop more precise treatment strategies.