

Complications of Unmonitored Distal Shoes: A Case Report

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Introduction

Distal shoe appliances are commonly used in pediatric dentistry to preserve space for permanent molars that have yet to fully erupt. These appliances are effective in maintaining space for permanent teeth, preventing impaction, and reducing the need for orthodontic treatment later in life. However, like any dental appliance, distal shoes have their complications, especially when not monitored properly.

Early loss of primary second molars before the eruption of first permanent molars can lead to significant space loss in pediatric patients. To prevent such issues, space maintenance devices like Distal Shoe Space Maintainers are widely used in pediatric dentistry. However, improper placement or a lack of routine follow-up can lead to problems with the eruption of permanent teeth. The present case study highlights the potential complications of using a distal shoe in early mixed dentition and provides insights for practitioners to make informed decisions when encountering early loss of primary second molars.

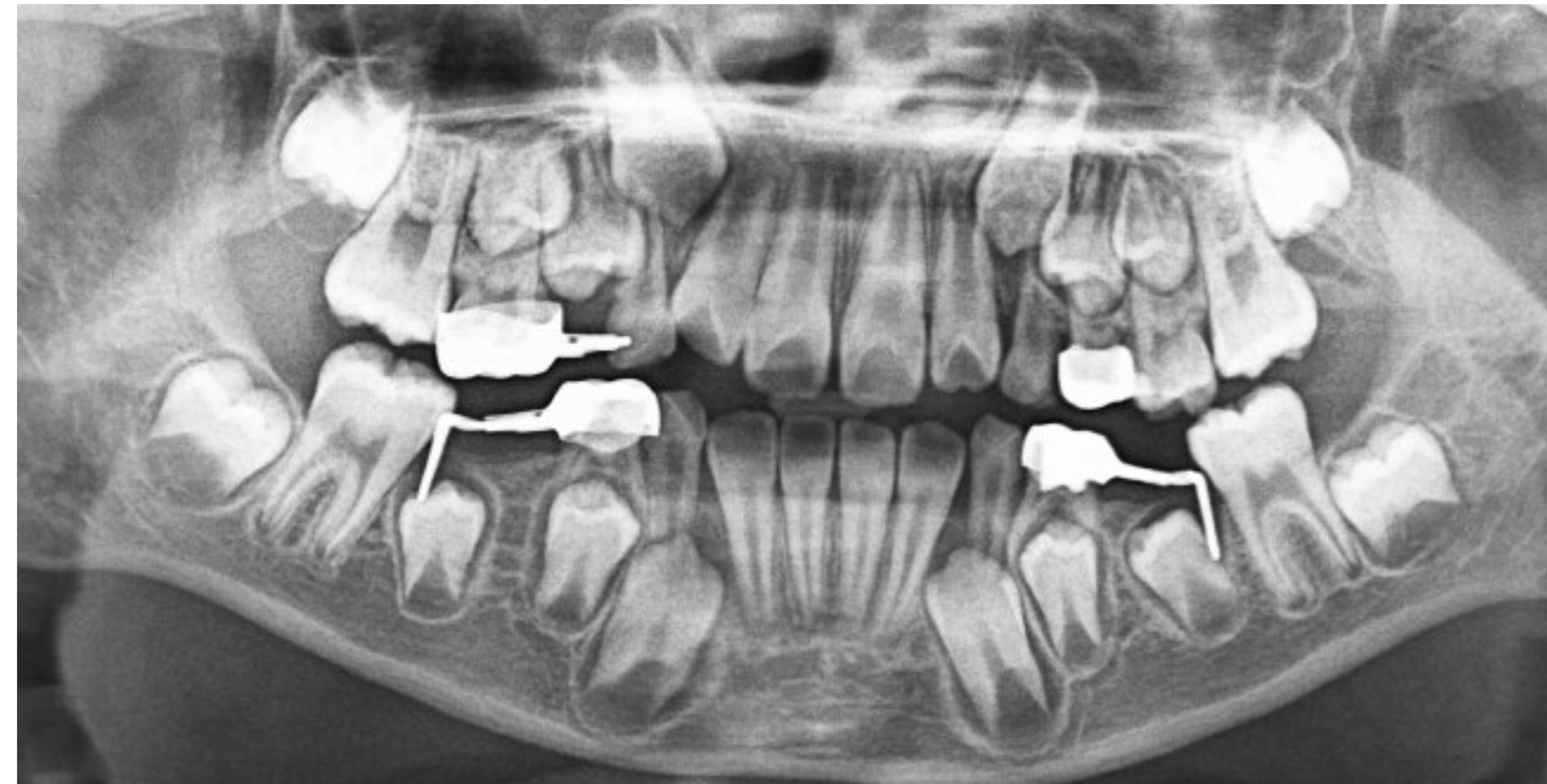
Literature Review

The decision to extract or save the primary second molar should be made on a case-by-case basis, taking into consideration the patient's age, the severity of the decay, and the potential impact on future dental development.

Several recent studies have explored the effectiveness of distal shoes versus other space maintenance devices and the impact of primary second molar extraction on future dental development. However, there is limited evidence to support one approach over the other.

A systematic review and meta-analysis by Yao et al. (2020) found that both distal shoes and band-and-loop space maintainers were effective in maintaining space after the early loss of primary second molars. However, the authors noted that the quality of evidence was low to moderate, and more high-quality studies are needed to compare the effectiveness of different space maintenance devices.

Overall, the decision to use a distal shoe or save a severely decayed primary second molar long-term should be based on individual patient factors and preferences. Dental practitioners should carefully evaluate each case and discuss the potential risks and benefits of different treatment options with their patients and their parents.



Case Report

A Nine-year-ten-month-old male presented to the UNLV dental clinic with reported pain from a metal appliance placed by a previous dentist. The Guardian reported that the appliances were placed in 2019 before the Covid-19 Pandemic. The pain was isolated from the subgingival portion of the appliance. The gingiva mesial to mandibular permanent first molars was erythematous and swollen upon clinical exam.

The guardian consented to the treatment of replacing the appliance with a Lower Lingual Holding Arch. Recall appointments will demonstrate if the second premolars will erupt into their proper place

Discussion

The findings of this case study highlight the potential complications of unmonitored distal shoe appliances in pediatric dental patients. While distal shoes offer several advantages in preserving space for permanent teeth and preventing impaction, their use must be closely monitored to prevent displacement, breakage, and root resorption.

The importance of patient compliance in recall exams after the appliance is placed cannot be overstated. Radiographs after placement and at recall appointments would have prevented the impaction of the second premolars. In addition, parents and caregivers must be educated on the proper care and maintenance of the appliance, including regular check-ups and monitoring for any signs of displacement or breakage.

The growth and development seen during mixed dentition is more rapid than at any other time of life. Any appliance placed during this time period requires periodic follow-up and adjustments. Furthermore, the results of this case study suggest that early intervention, proper placement, and timely monitoring can help prevent or mitigate the potential complications of distal shoe appliances. Therefore, it is crucial for dentists and or orthodontists to identify the appropriate candidates for distal shoe appliances and to provide close monitoring and follow-up care to ensure the best possible outcomes for pediatric patients.

Conclusion

The present case report provides evidence of the potential complications of using a distal shoe space maintainer in early mixed dentition without proper placement or routine follow-up. Dental practitioners must be cautious and carefully evaluate patients before using such space maintainers to avoid issues with the eruption of permanent teeth. Proper placement, routine follow-up, and patient education are crucial in ensuring optimal outcomes in pediatric dental patients.

References

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