

Introduction

Facial cellulitis is an acute, deep and diffuse inflammation of the subcutaneous tissue that results from extension of infection to the surrounding soft tissue planes such as the maxillary, mandibular, and secondary fascial planes.^{3,7} Rare systemic complications include life-threatening bacterial endocarditis, cavernous sinus infection, brain abscess, and mediastinal and pulmonary infections.³ Facial cellulitis of odontogenic origin refers to infections arising from the dentition and its adjacent supporting periodontal structure.^{4,5} In-patient care is typically reserved for infections that spread beyond the dentoalveolar complex to involve multiple orofacial spaces. To prevent life-threatening complications, severe infections should be aggressively treated with antibiotics, incision and drainage of any associated abscesses, and ultimately, elimination of the source of infection.⁶ Understanding the impact that treated and untreated caries lesions of teeth, which results in acute illness has on patients, their families, and the community, will potentially benefit the field of pediatric dentistry.

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Hypothesis

There is no difference in the number of teeth with or without previous restorations as primary source of facial cellulitis of odontogenic origin.

Purpose

The objective of this study is to analyze records of pediatric patients treated by the University of Toledo College of Medicine Department of Dentistry for facial cellulitis of odontogenic origin.

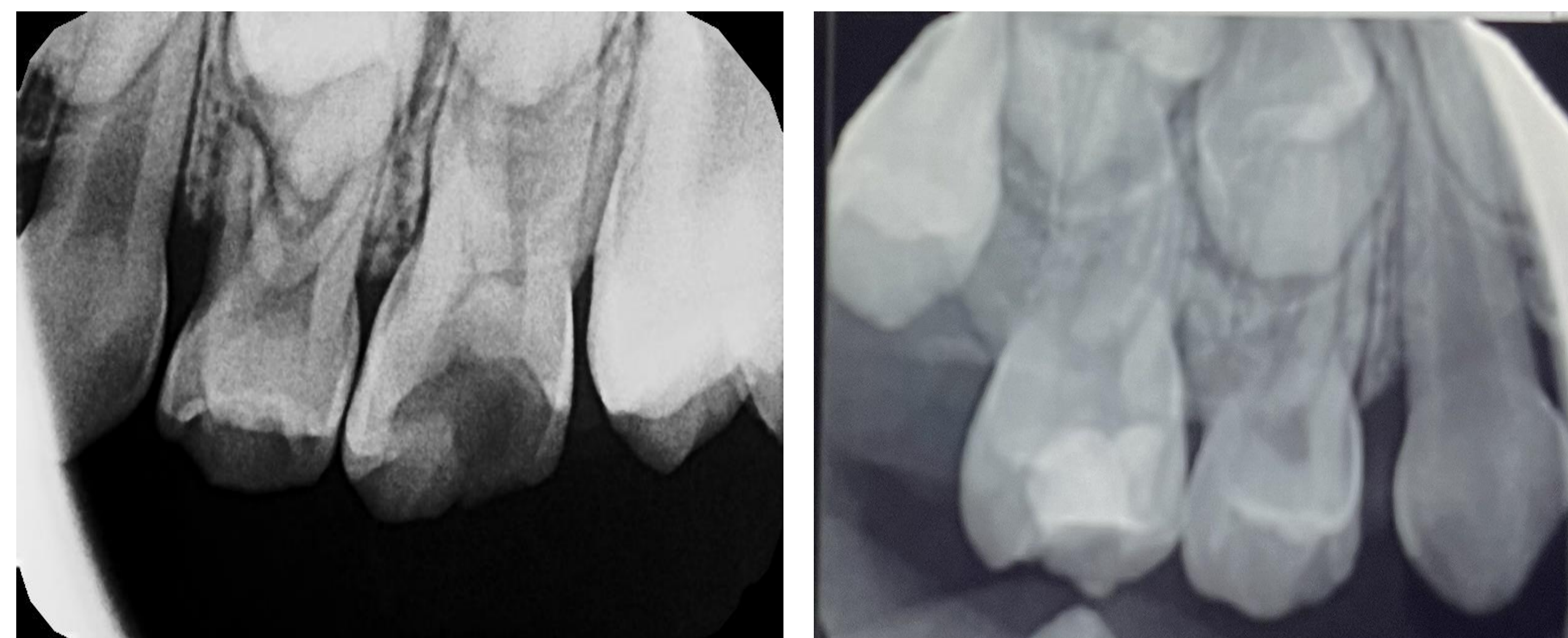
Acknowledgements

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Methods

Thirty-six operating room records, radiographic imaging, and medical records of children (21 males and 15 females) met the criteria and were selected for review. The dates of collection were January 2018 through June 2022 (4.5 years). All subjects were less than 16 years old with the oldest being 14.08 years and the youngest 2 years. The subjects were diagnosed with facial cellulitis of odontogenic origin, admitted to the hospital, and treated with extractions of the teeth of infection origin. Radiographic imaging, if available, was used to determine if the tooth or teeth which were the sources of infection had carious lesions which had not been treated by a dentist or if they were previously treated with a dental restoration. Descriptive statistics and a non-parametric chi-square were used to assess the differences between the study variables. All data was collected in an Excel spreadsheet and analyzed. Differences were found to be statistically significant if $P \leq .05$.

Imaging



Results

The average patient age was **7.73 years**. Males averaged 7.63 years and females 7.85 years. A sex distribution of 21 **males (58.3%, $P = .317$)** and 15 females (41.6%) was observed. The average inpatient hospital admission time was **2.91 days** with a maximum stay of 4 days. The **spring** season had 36.1% cases recorded. **Right lower face** cellulitis of odontogenic origin was diagnosed most often (41.6%). The **mandibular primary first molar** was determined to be the most common source of infection (21.1%). **Teeth with confirmed dental restorations in place at time of cellulitis diagnosis was 8/43 (18.6%).**

Discussion

Access to competent dental care continues to be an issue for some uninsured and low-income populations. In our sample population the vast majority were either insured through federal/state programs or uninsured. Due to difficulties with access to care, many patients are being treated by providers with limited experience and training. Our study revealed at least 1 in 5 patients presenting for facial cellulitis of odontogenic origin had previous treatment on the tooth determined to be the source of infection. It is understandable that the mandibular primary first molar is the most common odontogenic source of infection since the mesial root often very long. Other findings like sex predilection, laterality, involved arch, and seasonal variation are areas of interest that warrant further investigation.

Conclusion

- Males and mandibular right primary molars produced the highest number of cellulitis cases requiring hospitalization.
- The null hypothesis is not rejected: In our study there is a difference in the number of restored and unrestored teeth as cause of odontogenic infection ($P = <.001$), however that number does not assume dental restorations are more likely to cause cellulitis.
- The vast majority of patients admitted for cellulitis utilized federal/state insurance.