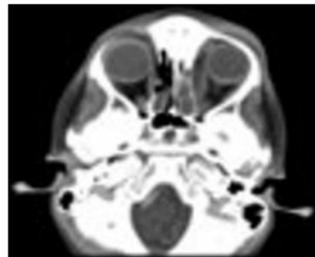


Introduction

Periorbital involvement is one of the most common complications of acute sinusitis in the pediatric population¹. Clinical examination of the eye is often difficult to complete in an ill pediatric patient. Thus, the evaluation of periorbital complications often relies on the use of contrast computed tomography (CT) scans, despite the risk of radiation in the pediatric population². The American Academy of Pediatrics (AAP) established guidelines for periorbital complications of sinusitis and recommends CT for patients with more serious findings of proptosis, impaired visual acuity, or impaired extraocular mobility. We evaluated if patients seen with complications of this infection in the emergency department (ED) had CT scans performed in accordance to AAP guidelines.



Methodology

Single-site retrospective study in a tertiary-care pediatric hospital to assess the rate of CT scans ordered to evaluate periorbital complications in acute sinusitis in the ED. Data was collected on clinical diagnosis, physical exam findings, CT scans ordered and outcomes of inpatient admission and surgery.

Results

- There were 263 patients with periorbital complications of acute sinusitis over a 4-year period
 - 222 were diagnosed as pre-septal infections.
 - 41 patients were diagnosed as post-septal, including 22 with subperiosteal infections and 4 with orbital abscesses. (Figure 1)
- 117 (97%) CT scans were performed in the ED
- CT scans were ordered for 83 of the 222 with presumed pre-septal infections (67%) and were ordered on all 41 patients with post-septal infections (Figure 2a, 2b)
- Physical exam findings of proptosis, extraocular motility, visual acuity) were either unobtainable or not documented in 60 (53%) of the patients who had a CT.
- Among the pre-septal diagnoses, 169 of 222 (76%) patients were discharged home on antibiotics. 53 of 222 (23%) were admitted to the hospital. (Figure 3)
 - Of those discharged home, only 18 (11%) of 169 presented to the ED for a second visit.
- Only 17 of 263 patients required surgery as part of their management. The remainder were successfully treated with medical management alone. (Figure 4)

Figure 1.

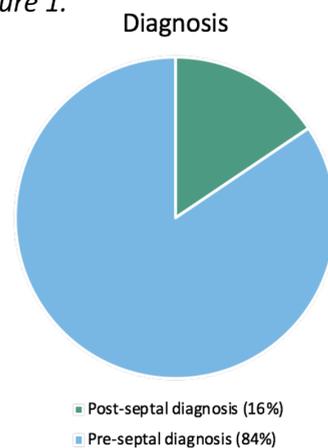


Figure 2a.

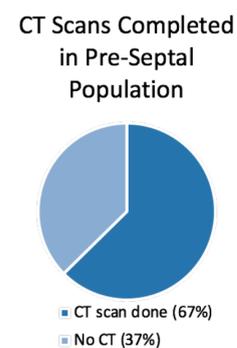
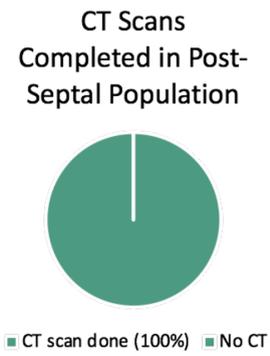


Figure 2b.



Figures (continued)

Figure 3.

Management of Pre-Septal Cellulitis

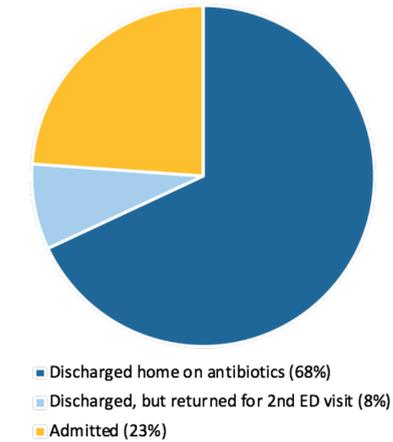
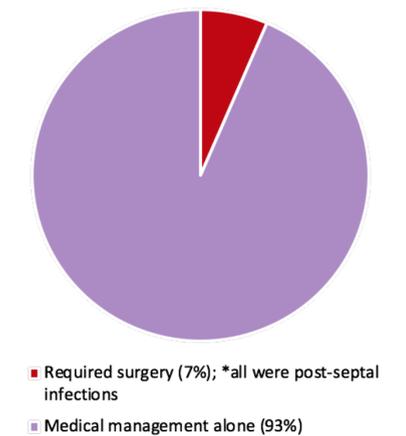


Figure 4.

Overall Management



Conclusion

The baseline rate of CT scan use in patients presenting to our ED was 124/263 (47.1%). Overall, CT scans were requested in accordance with AAP guidelines for patients with post-septal findings of proptosis, impaired visual acuity, or impaired extra-ocular mobility. However, 67% of the patients with pre-septal infections had CT scans performed outside of the AAP guidelines, possibly due to difficulty in obtaining a good clinical examination. Future investigation is warranted to identify clinical features that may reduce the need for CT scans.

References

1. Bedwell J., Bauman N.M. (2011). Management of pediatric orbital cellulitis and abscess. *Current Opinion in Otolaryngology & Head and Neck Surgery*, 19:467-473.
2. Jackson K., Baker S.R. (1987). Periorbital Cellulitis. *Head & Neck Surgery*, (4):227-34

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