Age Differences in Pediatric Cervical Infections

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Abstract

Objective. To identify differences in cervical infection management in infants versus older children.

Methods. Charts of patients between 0–18 years diagnosed with cervical infections at our institution between 2004 and 2015 were included. Age, gender, presenting symptoms, CT scan findings were reviewed. Admission, procedures, antibiotics, cultures, length of stay, re-admission rates, and complications were evaluated.

Results. A total of 239 patients (133 M, 106 F) included: 54 (22.6%) were <1 year old, 95 (39.7%) were 1–3 years, 48 (20.1%) were 4–7 years, and 42 (17.6%) were 8–18 years old. The most common presenting symptoms were fever (74.3%), swelling (71.4%), and neck pain (48.2%). Infants had fewer symptoms documented than older children. Sore throat, neck stiffness and vomiting were more common in children >3 years (P<0.05).

Conclusion. This study emphasizes the importance of considering early operative treatment of cervical abscesses in infants despite fewer symptoms and smaller radiolucencies on CT studies.

Introduction

The diagnosis and management of neck infections is an ongoing challenge for clinicians. It is often difficult to make a diagnosis of abscess versus cellulitis and difficult to know when surgical intervention is appropriate. Current treatment is generally based on CT findings and extent of airway obstruction. Children with cervical abscesses vary – age, comorbidities, location of abscess, how the disease progresses, bacterial etiology, response to antibiotics or drainage. Our hypothesis was that there were age related differences in presentation and in management of cervical abscesses within the pediatric population.

Methods and Materials

- A retrospective review on all patients between ages of 0 and 18 years admitted and diagnosed with neck abscess at PSHMC between January 1st, 2004 and May 12th, 2015.
- Recruitment occurred via CPT codes for incision & drainage of neck abscess, 21501 and 42720, and ICD-9 codes for cellulitis and abscess of neck (862.1) and retropharyngeal abscess (478.24).
- Data was filtered for exclusion criteria, and relevant data was extracted from each patient chart. Age, gender, presenting symptoms, comorbidities, and CT and other imaging findings were reviewed. Management including level of admission, procedures, antibiotics, bacterial cultures, re-admission rates, length of stay, and complications were included.
- Data analysis was done using SPSS 22 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp).

<table>
<thead>
<tr>
<th>Category</th>
<th>Child &lt; 1 year old (infant) undergoing surgery</th>
<th>Child with lateral neck site undergoing surgery</th>
<th>Child having at least 1 cm radiolucency on CT undergoing surgery</th>
<th>Infant having at least a 1 cm radiolucency on CT</th>
<th>Infant having at least a 1 cm radiolucency on CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odds Ratio</td>
<td>2.38</td>
<td>4.12</td>
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<tr>
<td>95% CI Lower Limit</td>
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<td>95% CI Upper Limit</td>
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<td>P-value</td>
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<td>0.008</td>
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</table>

Contact

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Results

- N = 239 patients (133 M, 106 F) were included: 54 (22.6%) were <1 year old, 95 (39.7%) were 1–3 years, 48 (20.1%) were 4–7 years, and 42 (17.6%) were 8–18 years old.
- The most common presenting symptoms were fever (74.3%), swelling (71.4%), and neck pain (48.2%). Infants had fewer symptoms documented than older children. Sore throat, neck stiffness and vomiting were more common in children >3 years old.
- Linear regression revealed that significant contributors to whether children underwent surgery, with an odds ratio of 2.383 for children under 1 year (P=0.029).
- 90.9% of patients aged 1 or less required operative intervention with radiolucencies of 1cm diameter or more in contrast to 50% of children >8 years old.

Conclusion

- In our group, infants had the fewest presenting symptoms, with neck swelling the most common (95.9% among those patients for whom this symptom appeared in the medical record). Symptoms may not be as useful in this age group, so presence of neck swelling should instigate further investigation to rule out a neck abscess.
- Seventy percent of our patients were treated in the operating room. Patients younger than 3 years old were more likely to undergo operative intervention than older patients. Infants undergoing surgery also had smaller CT radiolucencies than older patients. Combined with the fact that they have fewer presenting symptoms, infants likely require earlier intervention than other age groups.
- Knowing that infants present more subtly and end up having surgery with smaller CT radiolucencies is vital in expediting their management.
- Our findings suggest that infants are more likely to undergo surgery because they typically have easily accessible abscesses (versus a retropharyngeal location) and are more likely to have MRSA and thus not respond to antibiotics.

Discussion

Conclusions

Infants have fewer classic neck abscess symptoms, but are more likely to have MRSA infections and require operative intervention. CT findings are less remarkable in this group, so this alone cannot be used as a guideline to decide whether a child should be treated operatively. Otolaryngologists today are more likely to see infants in this clinical context, and should know that infants are more likely to require surgical drainage than older children despite their more subtle presentation.

References