Ultrasound Evaluation Of A Pediatric Patient With Eyelid Swelling

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Introduction:
- Atraumatic eyelid swelling is a common presentation in the pediatric ED population
- Differentials include blepharitis, pre-septal cellulitis, and orbital cellulitis
- Appropriate treatment requires accurate diagnosis
- Ultrasound can aid in the diagnosis

Case History:
Pt: 2.5 yo male

HPI: New onset R eye swelling.
  - No antecedent illness, insect bite, trauma, fever, eye discharge, visual changes, or pain

PMH: healthy, fully immunized

Physical:
- Intact extraocular movements
- No afferent pupillary defect
- Normal conjunctiva
- No proptosis

Patient Photos Before and After Treatment:

Image 1: R circumferential periorbital edema of patient day 1

Image 2: Interval healing of periorbital swelling day 3 status post treatment with warm compresses and antihistamines only

Ultrasound Findings of Orbital Edema

<table>
<thead>
<tr>
<th>Infection</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blepharitis</td>
<td>Linear, hypoechoic pre-septal bands</td>
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<tr>
<td>Pre-septal Cellulitis</td>
<td>Pre-Septal Cobblestoning: hypoechoic fluid around fat globules</td>
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<tr>
<td>Orbital Cellulitis</td>
<td>Post Septal: thickenings of orbital wall, heterogenous hypo and hyperechoic material, echogenic collections consistent with abscesses</td>
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Discussion:

Blepharitis:
- Angioedema from allergic reaction, insect bite, etc.
- Tx: lid hygiene, warm compresses, antihistamines

Pre-septal cellullitis:
- Bacterial infection in front of orbital septum
- Tx: Oral antibiotics

Orbital cellulitis:
- Bacterial infection behind orbital septum
- Tx: admission, IV antibiotics

Case Outcome:
- Mother wanted to avoid antibiotics
- Ultrasound suggested non-infectious etiology
- Pursued supportive treatment
- Near complete resolution in 3 days

Take Home Points:
- Point of Care R Eye Ocular Ultrasound:
POCUS of the eye lid can help:
  - Differentiate inflammatory vs infectious etiology
  - Maintain antibiotic stewardship
  - Avoid unnecessary treatment, especially in pediatric populations

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