Diagnostic Value of Urine Studies in Children Presenting with Acute Scrotum

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• I have no financial disclosures.
Background

- **Acute scrotal pain**
  - ✓ common complaint
  - ✓ Possible surgical emergency

- Need for immediate accurate diagnosis versus need to minimize costly or unnecessary investigations and negative surgical explorations

- Very few studies have shown the value of urine studies which were often negative, low diagnostic value, non-evidence based practice

- Ongoing, non-evidence based use of antibiotics for “chemical” epididymitis
Purpose & Methods

Purpose:
• To find the diagnostic utility of urine studies in children with acute scrotum presenting to the Emergency Department.

Methods:
• Retrospective Chart review of pediatric patients presented to ED at a single institution.
• January 1, 2012 till March 31, 2018

AUA Definition of Positive Urine Studies:
• Pyuria ≥ 4-6 WBC/hpf
• Leukocyte esterase ≥ 75
• Positive nitrite
• Growth ≥ 100,000 CFU in 48 hrs.

Data Collection:
• clinical presentation
• physical examination
• laboratory and imaging studies
• management and discharge diagnoses

Statistical Analysis:
• Chi squared
• Diagnostic accuracy
• Logistic Regression Analysis.
## Results

<table>
<thead>
<tr>
<th>Patients</th>
<th>Description</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>260</td>
<td>patients with acute scrotum</td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>had urine analysis</td>
<td>8 (4.4%) Positive</td>
</tr>
<tr>
<td>108</td>
<td>had urine culture (+/- UA)</td>
<td>3 (2.8%) Positive</td>
</tr>
</tbody>
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Compared with Doppler US (gold standard diagnostic for acute scrotum), urine analysis had:
- **Sensitivity**: 9.1%
- **Positive Predictive value**: 16.7%
Results

Etiologies of all patients with acute scrotum

- Acute epididymitis: 31.9%
- Trauma: 10.4%
- Idiopathic: 10.4%
- Testicular torsion: 10.4%
- Torsion of appendix testis: 3.1%
- Other: 24.6%

Etiologies were not significantly associated with positive urine studies, (P-value <0.05)
Results

Management of all patients with acute scrotum

n=260

CONSERVATIVE
230 (88%)

SURGICAL
30 (12%)

2 orchiectomies

8%
74%
18%
12%

Rest/Scrotal elevation
Analgesics/NSAIDs
Antibiotics
Surgical exploration
Limitations

- Retrospective design
- Missing data: prior to Epic launch in institution
- Urine collection method
Conclusions

- Most common diagnosis is acute epididymitis (31.9%)

- Majority of urine studies were negative

- Probably unnecessary use of antibiotics (18%)

- Urine studies in acute scrotum
  - Marginal diagnostic value
  - Additional cost
  - Possible delay in diagnosis
Thank you