Management of High Grade Blunt Splenic Injuries: Is Angioembolization always warranted?

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# CLASSIFICATION OF SPLENIC INJURY

<table>
<thead>
<tr>
<th>Grade</th>
<th>Injury Description</th>
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<tbody>
<tr>
<td>I</td>
<td>Hematoma &lt;br&gt;Subcapsular, &lt;10% surface area&lt;br&gt;Laceration &lt;br&gt;Capsular tear, &lt;1cm parenchymal depth</td>
</tr>
<tr>
<td>II</td>
<td>Hematoma &lt;br&gt;Subcapsular, 10-50% surface area&lt;br&gt;Intraparenchymal, &lt;5cm diameter&lt;br&gt;Laceration &lt;br&gt;1-3cm parenchymal depth not involving a parenchymal vessel</td>
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<tr>
<td>III</td>
<td>Hematoma &lt;br&gt;Subcapsular, &gt;50% surface area or expanding&lt;br&gt;Ruptured subcapsular or parenchymal haematoma&lt;br&gt;Intraparenchymal haematoma &gt;5cm&lt;br&gt;Laceration &lt;br&gt;›3cm parenchymal depth or involving trabecular vessels</td>
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<tr>
<td>IV</td>
<td>Laceration &lt;br&gt;Laceration of segmental or hilar vessels producing major devascularization (&gt;25% of spleen)</td>
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<tr>
<td>V</td>
<td>Laceration &lt;br&gt;Completely shattered spleen&lt;br&gt;Vascular &lt;br&gt;Hilar vascular injury which devascularized spleen</td>
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BACKGROUND

- **EAST 2000 Multi-institutional Study of Blunt Splenic Trauma** (J of trauma 2000)

- Failure of Non-operative Management (FNOM) for small, moderate and large hemoperitoneum was 6%, 19%, and 22% respectively.

- FNOM for grade III, IV and V were 20%, 33%, and 75% respectively.
  - These failure rates prior to wide spread use of SAE

- Mean age for successful observation **34** versus **41** for failure group

- Mortality increased 4X in failure group
BACKGROUND

• *The Effects of SAE on Non-operative Management of BSI: A 16-Year Experience* (J of Trauma 2009)

  • Evaluated 3 time periods

  • Indications in this study for SAE was grade III with large hemoperitoneum, grade IV, or extravasation/pseudoaneurysm

  • Over time, increased use of SAE increased success of NOM (97%)
BACKGROUND

- Age should be considered in decision making of prophylactic SAE in NOM of BST (J of Trauma 2012)

- Retrospective review of blunt splenic trauma over a 5 year period to evaluate if prophylactic SAE in high “observation failure risk” is warranted

- Using this criteria, 82% of pt’s would have received AE with no benefit. However, if applied to >50 yrs of age, then 8% would have AE w/o benefit

- Positive predictive value 18%, Negative predictive value is 96%

- Patients >50 years of age with high “observation failure risk” had ORs of 34 for observation failure in multivariate analysis
BACKGROUND

- Management of high grade splenic injuries without evidence of extravasation is not consistent at our rural level I trauma center
  - Observation versus angioembolization
    - Time of accident and arrival at rural trauma center
    - Stability
    - Lab values
    - Demographics