Basilar Atelectasis as the True Indicator of Acute Abdominopelvic Pathology. A Two Year Retrospective Study of Patients Under the Age of 55 Evaluated with Multidetector CT.
Michael Hwang, D.O. Patricio Rossi, M.D
Department of Radiology, Larkin Community Hospital, South Miami FL

Introduction

While atelectasis may be common among the elderly, it is uncommon to see in healthy young and middle aged adults. Atelectasis literally means “incomplete expansion” and is used to describe any loss of lung volume that is appreciated as an opacity of increased density on CT or plain film. Studies have shown increased incidence of atelectasis following cardiothoracic and abdominal surgery. However, missing are studies evaluating atelectasis at the time of presentation to the ER, at a time that precludes surgical procedures. There is a single case report of recurrent atelectasis caused by colon cancer in Chile, as seen on ER CXR. However, this was a 83 year old with a known history of surgically treated colon cancer prior to presentation. As far as we are aware, there is no study to date that links basilar atelectasis to new-onset pathology on the other side of the diaphragm. In our experience, the presence of basilar atelectasis in otherwise healthy young individuals in the ER setting is a positive predictor of acute findings in the abdominopelvis.

Method

After obtaining approval from the Nova Southeastern University Institutional Review Board, reports and images were obtained from our Emergency Department and PACS databases for all patients under 55 years of age from September 1, 2011 to August 31, 2013 who had a CT abdomen/pelvis ordered by the Emergency Department. Patients with history of any type of cancer, surgery within the last 6 months, chronic lung disease, and tobacco use of >1 pack-year within the last 12 months were excluded. The presence of basilar atelectasis as determined by final report, pain rating scale value as documented by the Emergency Department health provider, and the presence of acute abdominopelvic pathology were documented.

Results

In total, 289 CT examinations met inclusion criteria for this study. Relative risk for basilar atelectasis from abdominopelvic pathology was 2.0. The relative risk for a positive pain rating scale ≥ 7 was 1.1.

<table>
<thead>
<tr>
<th>Atelectasis</th>
<th>+</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominopelvic Pathology</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Clinical Pain Rating</td>
<td>71</td>
<td>31</td>
</tr>
<tr>
<td>Abdominopelvic Pathology</td>
<td>112</td>
<td>67</td>
</tr>
</tbody>
</table>

*8 patients were not asked for pain rating by E.R. They were omitted from calculation for Fig 2.

Discussion

A relative risk of 2.0 is equivalent to a 100% increase in risk of having basilar atelectasis in the presence of abdominopelvic pathology. On the other hand, the relative risk associated with pain rating scale was lower 1.1. These data suggest that basilar atelectasis may be a better gauge of abdominopelvic pathology than a pain rating scale. Future studies may shed more light on the faults in a subjective grading system. This study concludes that as a radiologist reviews an abdominopelvic CT, the presence or absence of basilar atelectasis may be an effective approach to increase or decrease clinical suspicion for acute abdominopelvic pathology, respectively.

References