Computed tomography identification of latent pseudoaneurysm after blunt splenic injury: pathology or technology?

BACKGROUND: Serial computed tomography (CT) imaging of blunt splenic injury can identify the latent formation of splenic artery pseudoaneurysms (PSAs), potentially contributing to improved success in nonoperative management. However, it remains unclear whether the delayed appearance of such PSAs is truly pathophysiologic or attributable to imaging quality and timing. The objective of this study was to evaluate the influence of recent advancements in imaging technology on the incidence of the latent PSA.

METHODS: Consecutive patients with blunt splenic injury over 4.5 years were identified from our trauma registry. Follow-up CT was performed for all but low-grade injuries 24 hours to 48 hours after initial CT. Incidences of both early and latent PSA formation were reviewed and compared with respect to imaging technology (4-slice vs. >or=16-slice).

RESULTS: A total of 411 patients were selected for nonoperative management of blunt splenic injury. Of these, 335 had imaging performed with 4-slice CT, and 276 had imaging performed with CTs of >or=16-slice. Mean follow-up was 75 days (range, 1-1178 days) and 362 patients (88%) had
follow-up beyond 7 days. Comparing 4-slice CT with >or=16-slice CT, there were no significant differences in the incidence of early PSA (3.7% vs. 4.7%; p = 0.91) or latent PSA (2.2% vs. 2.9%; p = 0.90). In both groups, latent PSAs accounted for approximately 38% of all PSAs observed. Splenic injury grade on initial CT was not associated with latent PSA (p = 0.54). Overall, the failure rate of nonoperative management was 7.3%. Overall mortality was 4.6%. No mortalities were related to splenic or other intra-abdominal injury.

CONCLUSIONS: The incidences of both early and latent PSA have remained remarkably stable despite advances in CT technology. This suggests that latent PSA is not a result of imaging technique but perhaps a true pathophysiologic phenomenon. Injury grade is unhelpful concerning the prediction of latent PSA formation.

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