

Evaluation of Ultrasonography Findings of Adipose Tissue Thickening Around the Gall Bladder in Acute Cholecystitis and Its Correlation with Adhesion

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Abstract

Purpose: In performing of cholecystectomy for acute cholecystitis, the degree of adhesion of theomentum around the gall bladder and the surrounding organs, is an important factor. Therefore,being able to estimate the degree of adhesion prior to surgery is desirable. We evaluated the effectiveness of preoperative ultrasonography (US) examination to see whether US findings ofthickened adipose tissue around the gall bladder can be a possible reference in predicting actualadhesion.

Subjects and Methods: We analyzed 91 cholecystectomy cases and its preoperative US examinations. Adipose tissue thickening was determined positive if there were findings of high-echo regions between the gall bladder and the abdominal wall or between the gall bladder and the intestinal tract. Adipose tissue thickening was determined negative if there were no above mentioned findings. The evaluation of adhesion was made by a operating surgeon during surgery,and then graded into groups;one was no or mild adhesion was found, and the other was moderate to strong adhesion.

We calculated the sensitivity, specificity, accuracy and positive predictive value (PPV), negativepredictive value (NPV) to evaluate if the US findings correlate with the actual findings. Then, we considered whether a elapsed time form the onset of cholecystitis to a day of surgery has an effect to the US evaluation of adhesion.

Results and Discussion: The overall sensitivity was 87.9%, the overall specificity was 79.3%,the overall accuracy was 82.4%, the overall PPV was 70.7%, and the overall NPV was 92.0%.To address the impact of timing for an operation, the specificity and accuracy tended to be higher as the operation late. The PPV was high in the standby operation.The sensitivity and the NPV, not related with a day of surgery, were high.Therefore, positive US findings in cases with longer elapsed time indicates moderate to strong adhesion, negative US findings correlate with no or mild adhesion in regardless of elapsed time.

Conclusion: Preoperative US findings of adipose tissue thickening indicate adhesion in acute cholecystitis, and therefore may be used as reference in selecting the operative procedure

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Keywords

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