

Concordance/Discordance Between Radiologist and Surgeon for Cholecystitis and Impact on Clinical Outcomes

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Background: The post-operative management of cholecystitis is determined in part by the degree of inflammation at cholecystectomy (CCY), although assessments between radiologists (rad), surgeons (surg), and pathologists (path) may differ. The purpose of this study was to compare rates of concordance/discordance between these groups and determine their impact on clinical outcomes.

Methods: All non-elective CCYs (n=457) from 1/18-11/19 were retrospectively reviewed. A confusion matrix was constructed for pairs among rad, surg, and path. Concordance was achieved when pairs agreed on the diagnosis (non-acute, acute, or complicated). In cases where the pairs disagreed (discordance), accuracy was determined using the chronologically latest diagnosis as the gold standard. A composite endpoint (30-day incidence of surgical site infection, abscess, wound complication, or secondary procedure) was compared between subjects who were concordant and discordant (C vs D) for each diagnosis. Bonferroni correction was used to define statistical significance ($p=0.05/9=0.005$).

Results: Rates of C/D between pairs are displayed in Figure 1. For surg/path, the incidence of the composite endpoint for C vs D was 7% vs 7% ($p=0.96$) for non-acute (NA), 8% vs 11% ($p=0.71$) for acute (A), and 4% vs 13% ($p=0.35$) for complicated (C). For rad/path, the incidence of the composite endpoint for C vs D was 12% vs 7% ($p=0.41$) for NA, 8% vs 13% ($p=0.69$) for A, and 0% vs 9% ($p=0.99$) for C. For rad/surg, the incidence of the composite endpoint was 7% vs 8% ($p=0.99$) for NA, 7% vs 20% ($p=0.07$) for A, and 0% vs 9% ($p=0.99$) for C.

Conclusion: In cholecystitis treated with CCY, surgeons are most accurate at diagnosing non-acute cholecystitis and least accurate at diagnosing acute cholecystitis. Radiologists were less accurate for all categories of cholecystitis. Failure to recognize complicated cholecystitis pre- or intra-operatively did not result in significantly worse clinical outcomes.

Character limit: 2000

Current Character Count: 1978 (includes headings)

Figure 1. Comparison of findings of non-acute, acute, and complicated cholecystitis among pathologists, surgeons, and radiologists.

Path \ Surg	Non-acute	Acute	Complicated	Total
Non-acute	94 (79.7%)	162 (53.6%)	3 (8.1%)	259
Acute	23 (19.5%)	111 (36.8%)	5 (13.5%)	139
Complicated	1 (0.8%)	29 (9.6%)	29 (78.4%)	59
Total	118	302	37	457

Path \ Rad	Non-acute	Acute	Complicated	Total
Non-acute	25 (71.4%)	232 (55.5%)	2 (50%)	259
Acute	7 (20.0%)	131 (31.3%)	1 (25%)	139
Complicated	3 (8.6%)	55 (13.2%)	1 (25%)	59
Total	35	418	4	457

Surg \ Rad	Non-acute	Acute	Complicated	Total
Non-acute	15 (42.9%)	102 (24.4%)	1 (25%)	118
Acute	19 (54.3%)	282 (67.5%)	1 (25%)	302
Complicated	1 (2.9%)	34 (8.1%)	2 (50%)	37
Total	35	418	4	457

Green=diagnostic concordance, Red=diagnostic discordance