Utility of Postop Imaging in Perforated Peptic Ulcer Disease

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OBJECTIVES

Many patients who present with perforated peptic ulcer (PPU) disease continue to have a highly morbid course with high rates of mortality. We hypothesized that the use of routine postoperative imaging, specifically an upper GI study, does not improve outcomes but rather prolongs time to enteric feeding and hospital length of stay.

METHODS

We performed an IRB approved retrospective study at a single tertiary academic teaching hospital, identifying adult patients admitted for PPU between 1/1/2010 and 1/1/2019. Variables collected included demographics (i.e. age, race, sex) as well as preoperative characteristics (i.e. heart rate, blood pressure, and temperature), comorbidities and perforation site (gastric or duodenal). Primary outcomes were time to enteric feeding and time to discharge. Additional secondary outcomes included rate of reoperation, death and readmission. ANOVA was used to compare time to enteric feeding and time to discharge between study groups, while chi-square test was used to compare the frequency of postoperative outcomes (i.e. reoperation, readmission, death).

RESULTS

145 patients met inclusion criteria for this study, of which 59 and 86 patients had gastric and duodenal perforations respectively. 131 patients underwent operative repair. The majority of patients underwent postoperative imaging (74.6 and 70.9% respectively). In patients with gastric perforation, those without postop imaging were older with higher ASA class. There were no significant differences between baseline demographics in those with and without postoperative imaging in patients with duodenal perforation.

In both gastric and duodenal perforations, there was no significant difference in time to discharge. There was a non-statistically significant trend towards earlier enteric feeding in patients who did not undergo postop imaging. Patients with gastric perforations who did not receive postoperative imaging had a higher mortality rate.

Gastric perforations (n=59)			
	No postoperative imaging	Postoperative imaging	Median difference (95% C.I.)
Time to enteric feeding, hours	85.3	121.1	28.1 (-47.7, 103.9)
Time to discharge, days	7.5	7.0	0.0 (-6.2, 6.2)
Unplanned reoperation, n (%)	2 (25)	4 (10.8)	-0.04[a] (-0.23, 0.14)
Mortality, n (%)	6 (40)	4 (9.5)	-0.31[a] (-0.31, -0.04)
Readmission [b], n (%)	1 (11.4)	4 (10.8)	-0.003[a] (-0.23, 0.22)
Duodenal perforations (n=86)			
Time to enteric feeding, hours	105.6	136.0	30.1 (-38.4, 98.7)
Time to discharge, days	6.0	9.0	3.0 (-0.90, 6.9)
Unplanned reoperation, n (%)	2 (13.3)	4 (7.7)	-0.078[a] (-0.23, 0.08)
Mortality, n (%)	7 (30.4)	6 (10.0)	-0.18[a] (-0.37, 0.01)
Readmission [b], n (%)	2 (13.3)	7 (13.5)	0.001[a] (-0.19, 0.19)
[a] absolute difference, [b] n = 49 after excluding deaths			

CONCLUSIONS & LIMITATIONS

Except for the higher mortality rate in patients with gastric perforation who underwent postop imaging, there were no significant differences in outcomes. Obtaining postoperative imaging may delay resumption of enteric feeding.

We were unable to sufficiently power this study to make statistically significant conclusions. In addition, the treatment paradigm of PPU has shifted towards nonoperative management in the stable patient. Future work should include larger patient populations and randomized controlled trials to elucidate the benefits of postoperative imaging.