

Open versus Laparoscopic Right Hemicolectomies in Pediatric Patients with Crohn's Disease

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Abstract

Background/Purpose: Surgical intervention remains an important treatment modality for the management of Crohn's disease in the pediatric population. The objective of this study was to perform a comparative analysis of open right hemicolectomy and laparoscopic right hemicolectomy for management of Crohn's disease in pediatric patients.

Methods: The Kids' Inpatient Database (KID) was analyzed for the years 2009 through 2012 utilizing ICD-9 procedure codes for open right hemicolectomy (45.73) and laparoscopic right hemicolectomy (17.33) in patients with Crohn's disease (ICD-9 codes: 555.0, 555.1, 555.2, 555.9). Open and laparoscopic procedures were compared using propensity score-matched analysis (PSMA) of 41 variables, including risk adjustment with Elixheuser comorbidities.

Results: A total of 889 patients were identified and 448 open right hemicolectomy and 441 laparoscopic right hemicolectomy patients were propensity score matched for our analysis. 821 cases were included in the cohort (median age=17 years, male=58%, Caucasian=73%). There were zero in-hospital deaths for all patients (0/821) included in the study. Following propensity score matching, open right hemicolectomy (n=380) patients were more likely to have septicemia, respiratory compromise, pneumonia, perforation and/or laceration, complications and require blood transfusions (all, $p<0.05$). Although laparoscopic right hemicolectomy patients (n=441) were more likely to develop post-operative nausea/vomiting/diarrhea ($p<0.0001$), they had a shorter hospital length-of-stay ($p<0.0001$) and lower overall hospital charges and cost ($p<0.001$).

Conclusion: Open and laparoscopic right hemicolectomies in KID have similar low in-hospital mortality for pediatric patients with Crohn's disease. However, open procedures are associated with higher morbidity including an increased risk for respiratory complications, surgical complications, need for blood transfusions, and increased resource utilization compared to patients who had laparoscopic procedures.

Learning Objectives

- 1- Overall comparison between open vs laparoscopic right hemicolectomies in pediatric patients
- 2- Mortality and morbidity difference between both procedures in pediatric patients with Crohn's disease
- 3- Socioeconomic impact of the two procedures for patients and family