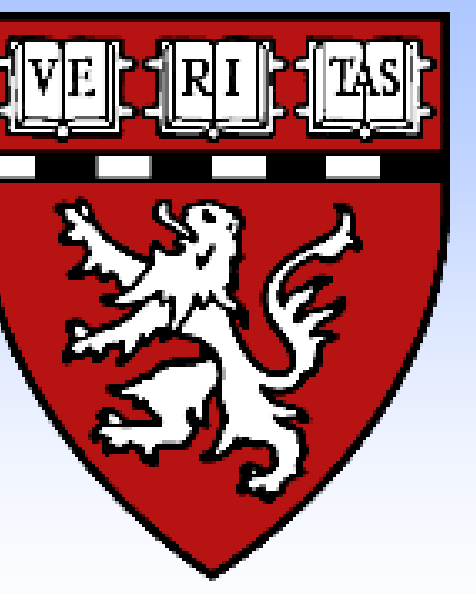




Clinical Outcomes Following Robotic Appendectomy in Perforated Appendicitis: A Nationwide Analysis

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INTRODUCTION

The use of robotic technology in emergency general surgery continues to increase, though its utility remains under-studied. We aimed to compare outcomes in robotic versus non-robotic appendectomy in patients with perforated appendicitis.

METHODS

The 2019 Nationwide Readmissions Database was used to identify patients ≥ 18 years with perforated appendicitis undergoing appendectomy during index admission. Multivariable logistic regression was used to compare postoperative complications and total charges between robotic and non-robotic appendectomy. Non-surgical complication was defined as any of the following: infectious (sepsis, pneumonia), cardio-respiratory (myocardial infarction, heart failure, respiratory failure), acute kidney injury (AKI), and venous thromboembolism. Composite complications included non-surgical complications as well as surgical site infection, wound dehiscence, and bleeding.

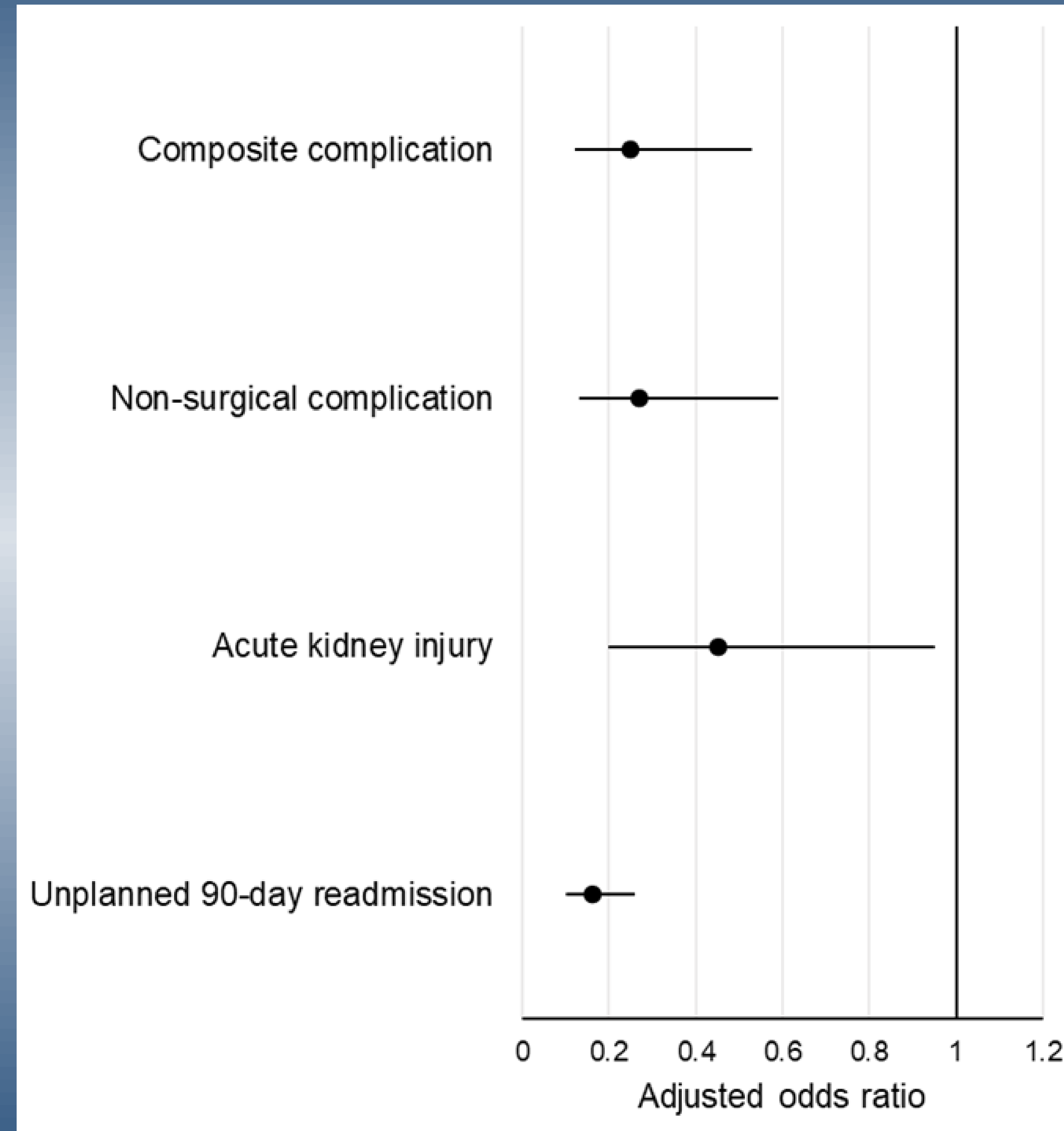


Figure 1. Adjusted odds ratios of the risk of postoperative complications in robotic compared to non-robotic appendectomy in patients with perforated appendicitis.

RESULTS

3,958 patients were included, of which **93 (2.3%) underwent robotic appendectomy**. Patients undergoing **robotic appendectomy were less likely to develop composite complications** (20.4% vs. 40.8%, $P < 0.001$), including **infectious, cardio-respiratory, and renal complications**. On multivariable analyses, **robotic appendectomy** was independently associated with **lower risk of composite complications** (aOR 0.25, CI 0.12-0.53), **non-surgical complications** (aOR 0.27, CI 0.13-0.59), **AKI** (aOR 0.45, CI 0.20-0.98), and **unplanned 90-day readmission** (aOR 0.16, CI 0.10-0.26) compared to non-robotic appendectomy. Total charges were similar between the two groups.

CONCLUSIONS

In perforated appendicitis, robotic appendectomy was associated with lower risk of postoperative complications and readmissions. These findings highlight the potential benefits of robotic appendectomy in the management of perforated appendicitis.

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