Surgical Outcomes Between Laparoscopic and Open Resection of Gastrointestinal Stromal Tumors (GISTS) at a Single Community Hospital

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INTRODUCTION:

- GISTs are rare mesenchymal tumors of the GI tract arising from interstitial cells of Cajal.
- Surgical resection with negative margins (R0) is the standard treatment.
- This study compares outcomes of laparoscopic vs open GIST resections in a community hospital.

METHODS:

- Retrospective chart review of adult patients with GIST undergoing surgical resection between Aug 2012–Aug 2025.
- Data included demographics, tumor characteristics, surgical approach, LOS, ICU admission, readmission and recurrence
- Chi square analysis was used for categorical variables and Mann- Whitney U analysis for continuous variables.

RESULTS:

- 28 patients underwent resection; >90% gastric tumors
- Laparoscopic (n=13) vs Open (n=15)
- Demographics similar (mean age 60.2 vs 59.0, p=0.872)
- Smaller tumors and G1 lesions more common with laparoscopy
- LOS shorter with laparoscopy (7.46 vs 14.5 days, p=0.037)
- ICU (25%), readmission (14.3%), recurrence similar in approaches

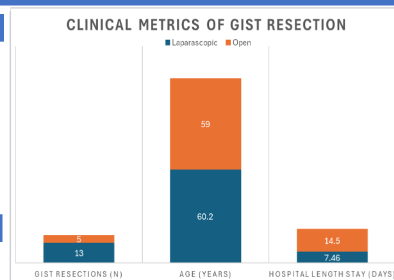

Figure 1: Clinical metrics of GIST resection between Laparoscopic and Open approach

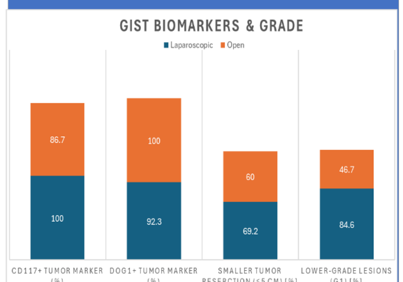

Figure 2: GIST Biomarkers and Grade between Laparoscopic and Open resections

DISCUSSION:

- Although **GISTs are rare**, they represent the **most common non-epithelial mesenchymal tumors of the gastrointestinal tract**, most frequently arising in the **stomach (50–70%)** and **small intestine (20–35%)**.[12]
- Diagnosis is typically confirmed through **immunohistochemical expression of CD117 (c-KIT), CD34, and DOG1**, which help distinguish GIST from other mesenchymal tumors.[3]
- **Surgical resection remains the standard treatment** for localized, resectable GIST, with long-term recurrence-free survival reported at approximately **60% following complete resection**.[4]
- Prior studies have demonstrated that **laparoscopic resection is associated with shorter hospital length of stay**, while maintaining **similar oncologic outcomes compared with open surgery** in appropriately selected patients.[5]
- However, some guidelines caution against laparoscopic resection for **larger tumors due to potential risk of tumor rupture**, emphasizing careful patient selection.
- Emerging minimally invasive techniques, such as **single-incision surgical gastroscopy (SISG)**, have also shown promising outcomes for **GISTs in technically challenging locations**, including the esophagogastric junction.[8]

CONCLUSION:

This single-institution series in a community teaching hospital demonstrates that patient and tumor characteristics were similar between laparoscopic and open resections, with laparoscopic surgery preferentially utilized for smaller, low-grade tumors. Laparoscopic resection was associated with shorter hospitalization. These findings support the safety and efficacy of minimally invasive approaches for appropriately selected GIST patients.

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