



Initial experience in minimally invasive surgery for diagnosis and treatment of penetrating abdominal trauma

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Introduction

Over the last decades, minimally invasive (MI) approach has become the standard of care for many abdominal and thoracic procedures. However, its use in penetrating trauma is still controversial due to a perceived increased risk of missed injuries. In experienced hands, MI procedures in trauma can reduce surgical morbidity.

Objective

This study analyzes our initial results using a MI approach for penetrating abdominal trauma (PAT).

Methods and Procedures

Prospective study that included patients presenting with PAT between January 2017 and July 2019 to the Emergency Department of either one of our academic centers (Hospital Dr. Sótero del Río or Hospital Clínico Universidad Católica).

Inclusion criteria

- Penetrating abdominal trauma
- Hemodynamic stability
- Availability of a trained MI surgeon at admission

Exclusion criteria

- Patient candidate for non- operative care
- Positive pericardial window on FAST association

Statistics were analyzed using SPSS V26.

Results

A total of 69 patients with PAT were treated using a MI approach during the study period. Ninety-two percent were male. Overall morbidity was 6% and we recorded no mortality for this series. Average hospital length of stay was 3.8 days (range 1-9 days). No missed injuries were identified.

In our series, 70.7% of patients presented with a stab wound (SW), while the remaining 29.3% had gunshot wounds (GSW). Ninety percent of patients had CT Scan findings that prompted urgent surgical management. The remaining 10% evolved with peritonitis.

Therapeutic procedures included: hemostasis, organ repair (diaphragm, stomach, bladder, small and large bowel), and bowel anastomosis.

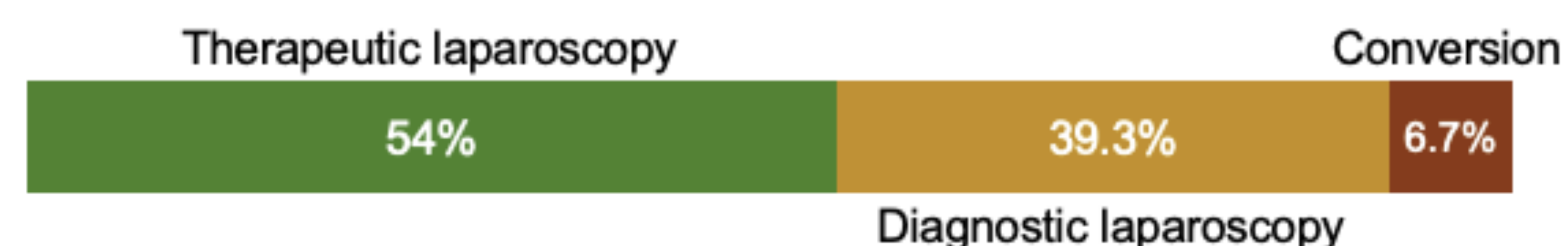


Table 1. Distribution of injuries found on MI exploration of patients presenting with PAT

Site of Injury	# of cases
Diaphragm	4
Colon	4
Liver	3
Small Bowel	3
Mesentery/Omentum	3
Stomach	2
Bladder	1
Spleen	1

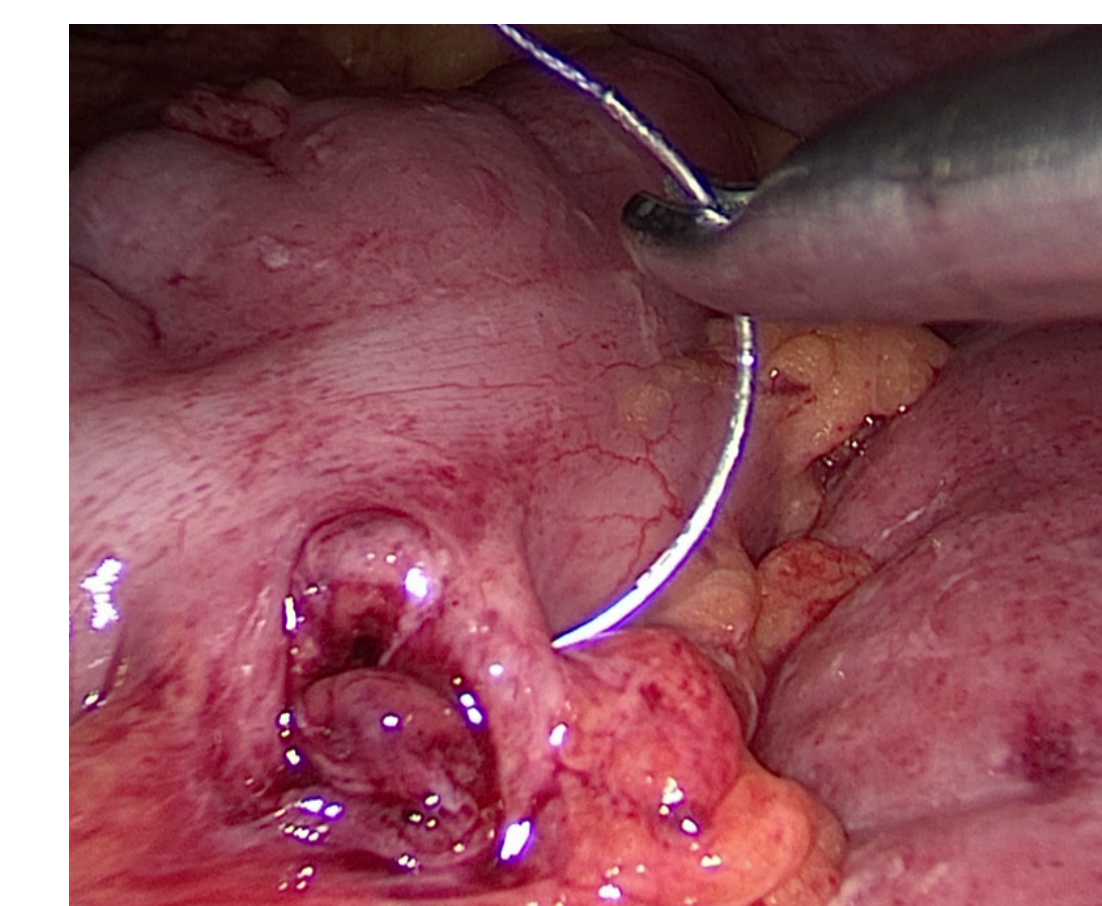


Figure 1. SW Large bowel injury, intracorporeal suturing.

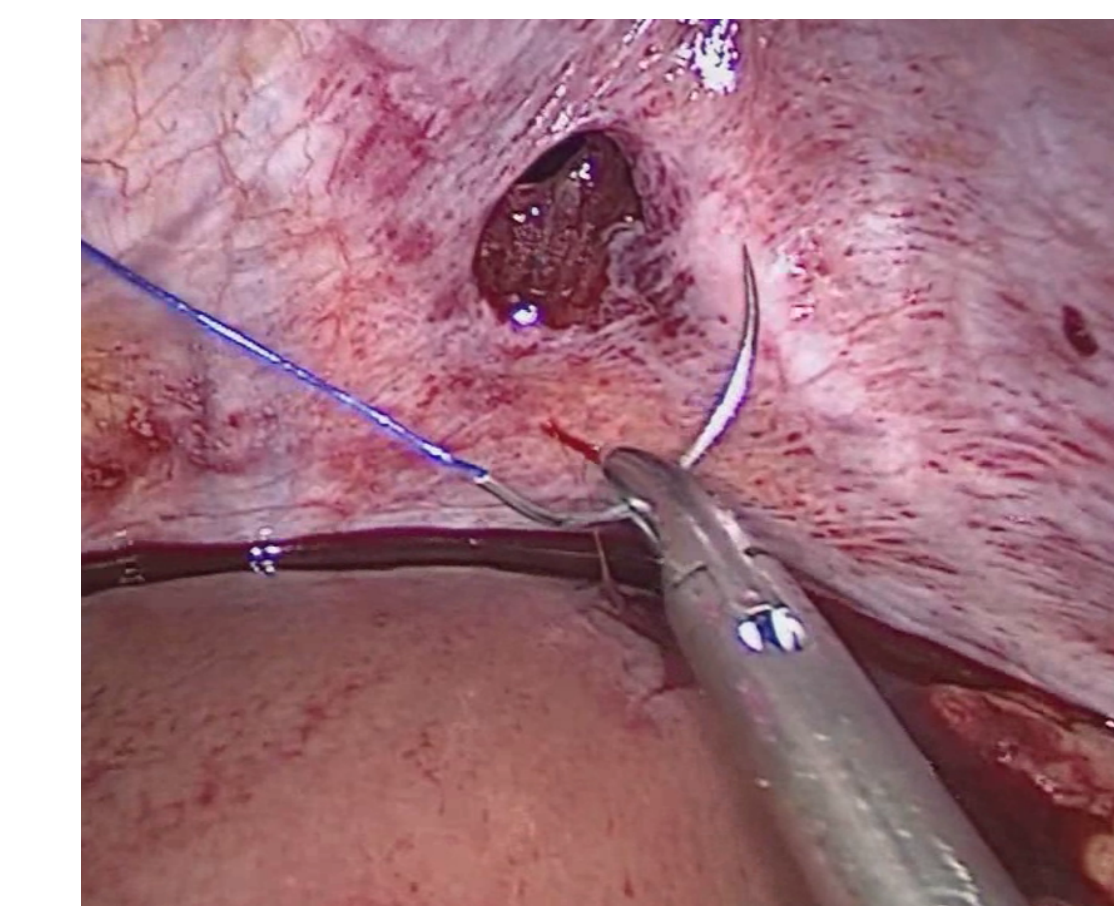


Figure 2. SW left diaphragm injury. Inverted intracorporeal suturing



Figure 3a. GSW small bowel injury



Figure 3b : Resection and anastomosis

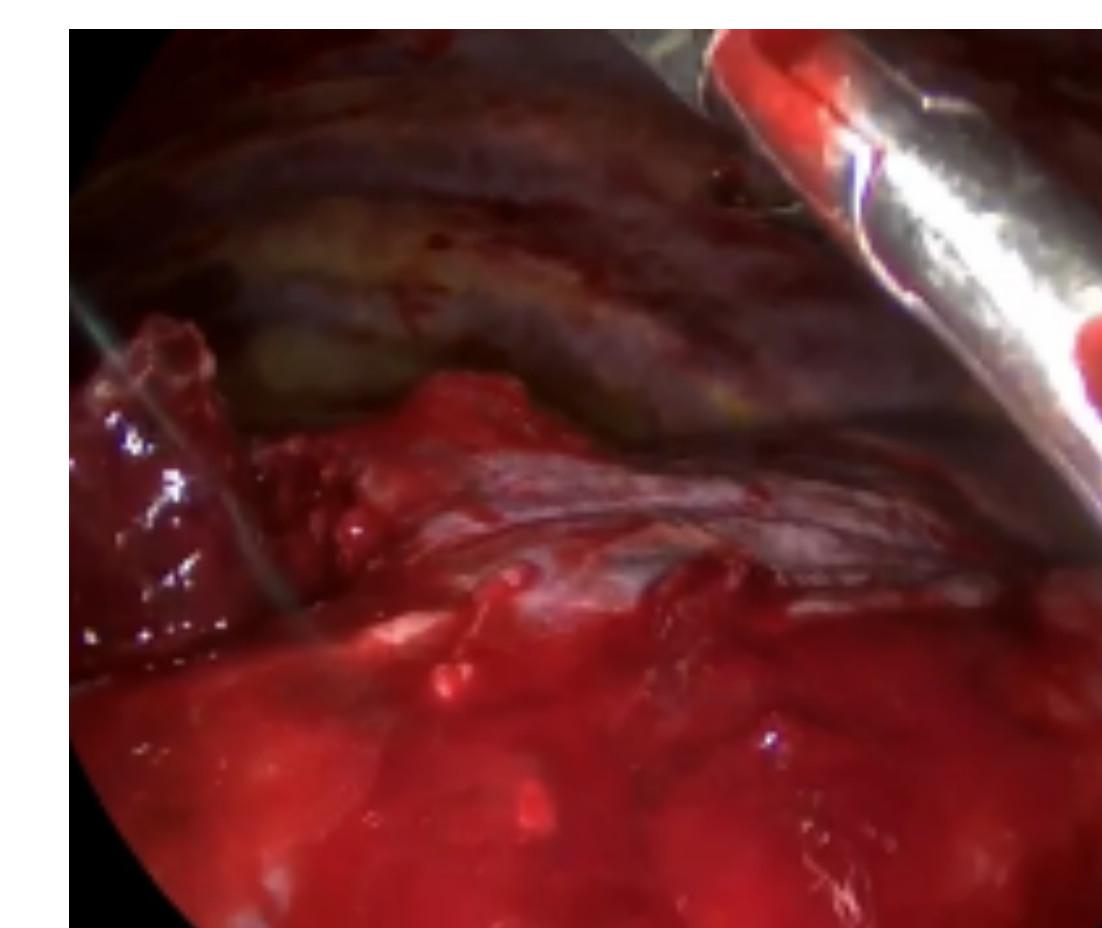


Figure 4. GSW Lung injury

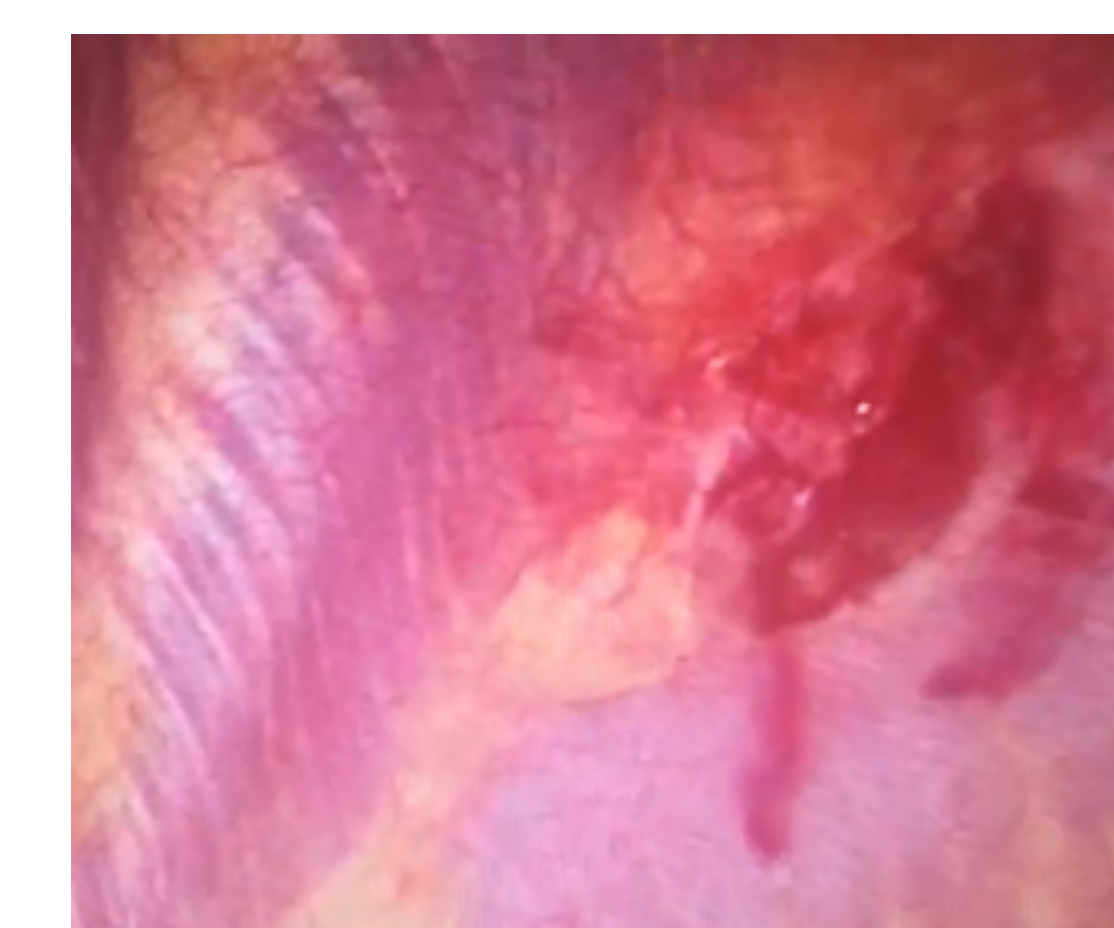


Figure 5. Intercostal vessel injury

Conclusion

A minimally invasive approach may be utilized for hemodynamically stable patients presenting with PAT. Adequate patient selection and availability of a trained MI surgeon appear to be key factors to achieving positive results.