# Selection criteria and safety of laparoscopic repair for perforated peptic ulcer

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## Introduction

Perforated peptic ulcer (PPU) is the most common cause of emergency surgery among gastroduodenal ulcer complications and carries a high risk of morbidity and mortality. The role of laparoscopic surgery in the repair for PPU is still unclear. The main objective of this analysis is to evaluate the safety of laparoscopy for PPU and also to identify selection criteria for laparoscopic approach.

## Methods

Retrospective analysis of all operated patients with PPUs in Beatriz Ângelo Hospital, since May of 2012 until August of 2020. The statistic analyses were made by Statistical Package for the Social Sciences (SPSS) system.

## Results

**Total of patients: 116**

**Laparoscopic repair (LR):**

- **40 (34.5%)**

Open repair (OR):

- 76 (65.5%)


| | LR | OR | P value |
|---|---|---|---|
| Age (years) | 52 | 62 | **0.009** |
| BMI (kg/m$^2$) | 23 | 24.5 | 0.594 |
| ASA>2 | 10 (25%) | 36 (47%) | 0.019 |

**Table 1: Patient demographics**

| | LR | OR | P value |
|---|---|---|---|
| Shock | 1 (2,5%) | 21 (28%) | **0.001** |
| Boey Score >2 | 4 (0,1%) | 32 (42%) | **0.001** |
| Symptom to surgery >24h | 16 (40%) | 49 (64%) | **0.012** |
| Admission to surgery >24h | 5 (12,5%) | 10 (13%) | 0.900 |

**Table 2: Symptom duration and severity**

| | LR | OR | P value |
|---|---|---|---|
| Ulcer size > 1cm | 3 (7,5%) | 24 (32%) | **0.008** |
| Operative time (min) | 75 | 71 | 0.460 |
| Blood loss (mL) | 43 | 82 | 0.087 |

**Table 3: Intraoperative variables**

| | LR | OR | P value |
|---|---|---|---|
| Nasogastric tube (days) | 2,6 | 3,4 | 0.027 |
| Diet progression (days) | 2,8 | 4,0 | 0.460 |
| ICU admission | 7 (17,5%) | 34 (45%) | **0.040** |
| Hospital stay (days) | 9 | 11 | 0.295 |
| Re-admission | 0 (0%) | 34 (45%) | 0.187 |
| Re-operation | 3 (7,5%) | 10 13%) | 0.359 |
| Morbidity rate | 3 (7,5%) | 37 (49%) | **0.001** |
| Mortality | 2 (5%) | 18 (24%) | **0.011** |

**Table 4: Hospital stay and complications**

## Conclusions

Laparoscopic surgery was safe in setting of PPU repair in selected patients. Pre-operative shock, time of presentation, ASA and Boey score were the most used factors to select patients for LR. However, higher quality studies should be undertaken to further assess the safety and selection criteria for laparoscopic peptic ulcer repair.

**References:**

[1] – Thorsen et al, Scoring systems for outcome prediction in patients with perforted peptic ulcer; Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 2013

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[3] –Tan, S. et al; Laparoscopic versus open repair for perforated peptic ulcer: A meta analysis of randomized controlled trials; International Journal of Surgery 33 (2016)