

A 5-year Study of Re-laparotomies, Planned and Unplanned, in Al-Hillah Teaching General Hospital

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Abstract

Objective: The aim of this study was to evaluate the incidence of re laparotomies (RLs) among laparotomies performed within 5-year period, the indications, and the main factors affecting the mortality rate. **Materials and Methods:** This retrospective study was conducted by evaluating file records of patients undergoing RL following abdominal surgery (2012–2016). The patients including, age, sex, type of the first surgical procedure, the cause of the re-exploration, the time interval between the index operation and the RL and the performed procedures, and the outcome were recorded. **Results:** Fifty-nine patients were included in the study, 83% were male. The mean age was 34.66 years. The mean duration between first operation and RL was 11.55 days. About 83.05% patients underwent RLs in the early period. The incidence of RLs was 1.62%. The indication for RLs was abdominal sepsis 23.72%, followed by intestinal obstruction 20.33% and missed injury 16.94%. The rate of RL among patients sustaining trauma was 37.28%, males 90.9%. **Conclusion:** We concluded that the incidence of RL is consistent with the literatures. The most common indication was sepsis. Early intervention is the most important factor that can reduce the mortality when re-exploration is required.

Keywords: Missed bowel injury, redo-laparotomy, re-laparotomy

INTRODUCTION

The authors stated that at times abdominal laparotomies have to be redone. This may be due to complications in the antecedent surgery or because of severe intraabdominal sepsis already present. Abdominal operations that have to be redone in association with the initial surgery are called re-laparotomies (RLs). The term RL refers to operations performed within 60 days in association with the initial surgery.^[1]

RL operations are classified as urgent/elective, early/late palliative/radical, and planned/unplanned. The most common causes requiring early period RL are complications associated with a first operation such as peritonitis, evisceration, and bleeding; on the other hand, the most common cause of late RL is intestinal obstruction due to adhesion.^[2] RLs are called on demand if the laparotomy had to be redone because of patients condition and called planned if the second laparotomy is decided on during the course of the first surgery itself.^[3]

The incidence of RL has been indicated to be between 1% and 7% but is subject to change in type of disease, type of

surgical intervention, surgical technique, and complications in literature; the early RL has been indicated to be 1.0%–4.4%.^[4,5]

Agalar *et al.* considered the aim of RL in abdominal sepsis is to do a peritoneal lavage to drain abscesses and fluid collections, debride necrotic tissues, and reduce the amount of microorganisms.^[6] Unalp *et al.* reported that urgent RLs are associated with a high mortality whatever may be the indication.^[7] Mortality following RLs range from 15.5% to 53%.^[8–10] Surgery in intraabdominal sepsis improves survival. The studies suggest early intervention impacts mortality.^[11,12] Hutchins *et al.* thought that an early intervention reduce mortality by decreasing multi-organ failure rates.^[4]

The aim of the study was to know the leading causes of RLs and if the mortality among them can be reduced.

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MATERIALS AND METHODS

This descriptive study was conducted by retrospectively evaluating file records of 59 patients undergoing RL following abdominal surgery between January 2012 and December 2016 in the Al-Hillah Teaching General Hospital in Al-Hillah, the center of Babylon Governorate, Iraq.

Certain characteristics of patients, type of the first surgical procedure including laparoscopic ones, the cause of the RL, the time interval between the index operation and the RL (planned and unplanned), and the performed procedures were recorded.

The patients' characteristics included age, sex, and fate (mortality). The operations associated with the first operation within the first 60 days were considered to be RLs. The RLs performed within the first 21 days were classified as early, while the RLs performed after the 21st day were classified as late. All the gynecological and obstetrical laparotomies were excluded in addition to colostomy and colostomy closure operations.

RESULTS

The total number of laparotomies done during the study was 4000 operations; 59 patients included in the study and 110 RL (90 colostomy and 20 gynecological) were excluded from this study. The incidence of RLs was 1.62%. Eighty-three percent (48) of 59 were male. The mean age was 34.66 (1–72) years [Figure 1]. The mean duration between first operation and RL was 11.55 (1–60) days. About 83.05% (49) of 59 patients underwent RL in the early period, 16.94% (10) were in the late period [Figure 2]. Nearly 59.32% of patients were within the 1st week [Figure 3]. Six (10.16%) patients underwent 3rd RL, the average duration between the 2nd and the 3rd was 30.5 (17–50) days.

The most common indication for RLs in our study was abdominal sepsis 23.72% (14) of 59 patients, followed by intestinal obstruction 20.33% (12) and missed injury 16.94% (10) [Figure 4]. The rate of RL among patients sustaining trauma was 37.28%, males 90.90% (20) and females 9.09% (2). Damage control procedure through packing to control bleeding liver injury composed 13.55% (8 out of 59 patients). The mortality was 9% (5); the mortality among those undergoing single RL was 7.5% (4 out of 53), while 16.66% (1 out of 6) undergoing multiple RLs. Among the planned RL the mortality was 12.5% (1 out of 8), while it was 7.84% (4 out of 51) among the unplanned.

DISCUSSION

Measures which can be carried out to reduce the incidence of RL are proper preoperative workup, use of newer anesthetic techniques, newer antibiotics and proper antiseptics, better postoperative fluid and electrolyte balance, proper surgical techniques, secured hemostasis, complete exploration, and appropriate drainage.^[13]

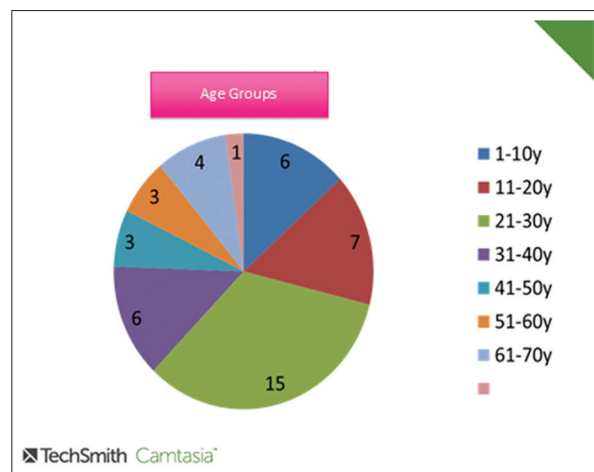


Figure 1: Age distribution

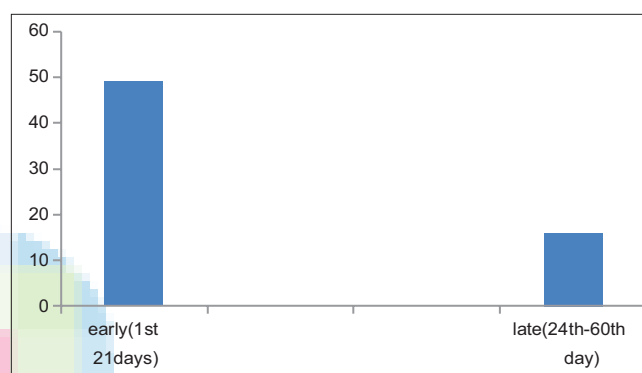


Figure 2: Timing of re-laparotomy

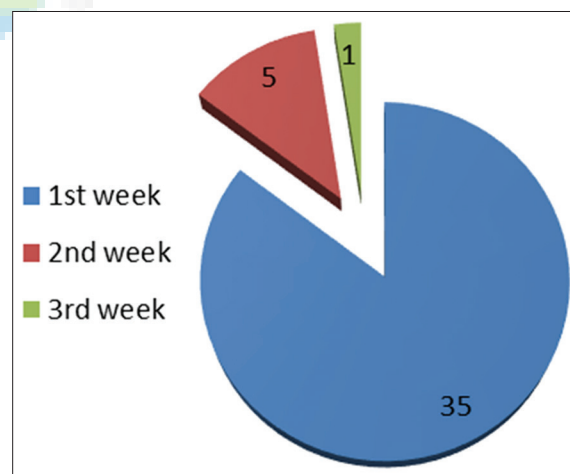


Figure 3: Timing of early re-laparotomy

Koirala *et al.* reported that incidence of RL ranges from 0.5% to 15% in various reported studies.^[14] Reviewing the literature, there has been a widespread consensus that the most common cause of early RLs is inflammatory complications.^[15-17] This is compatible with our study in which sepsis constituted 23.72%. The incidence of RLs was 1.62%; this is consistent with rates between 1% and 4.4% reported in the literature^[18] and 59.32%

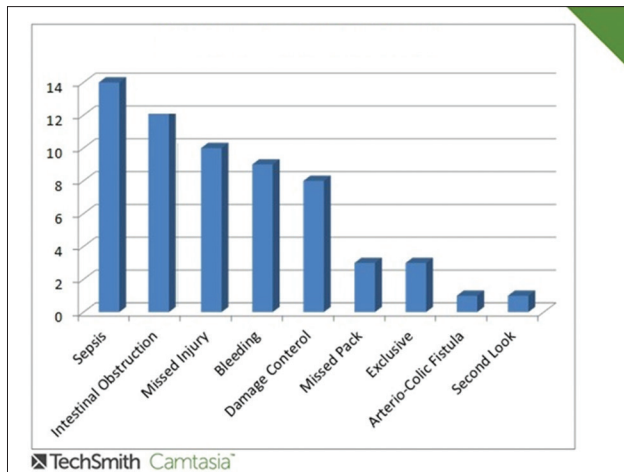


Figure 4: Indications of re-laparotomy

of them were done within the 1st week. The studies have indicated that out of total laparotomies performed, 1%–1.6% require early RL after the initial surgery,^[7] while in our study, it was 69.49% (41 out of 59 patients) which was very high and the surgeons used to operate early, and after discussing the opinion with them they explain their attitude of early exploration relying mostly on clinical findings because of lack of investigational facilities.

The most frequently used techniques have been RL on-demand (“wait and see” approach), continuous postoperative peritoneal lavage, open drainage (laparostomy), and planned RL. Surgical approach that leaves the abdomen open may both facilitate frequent re-exploration and prevent deleterious effects of increased intraabdominal pressure. Both options, laparostomy and continuous postoperative peritoneal lavage were not performed by the managing surgeons in this study. However, current surgical opinion does not favor liberal use of an “open abdomen” technique.^[19]

The concept of planned reoperation for trauma patients is not new. Aprahamian *et al.* recognized the wisdom of packing a diffusely bleeding liver, retroperitoneum, or pelvis and returning at a later date.^[20] In our study, damage control procedure through packing to control bleeding liver injury composed 13.55% (8 out of 59 patients).

The mortality in our study for a single RL (7.54%) and for multiple RL (16.66%) is very much reduced incomparable to other studies which found mortality of 30.6% and 66.5%, respectively.^[9] This can be attributed to the early intervention which constituted 69.49% (41 out of 59 patients) of RL were done within the first 3 weeks.

CONCLUSION

The incidence of RL in our study is consistent with the literatures. Males were mostly requiring RL compared to females because males are commonly affected by trauma that the rate in our study was 90.90% in comparison to

females. The most common indication was sepsis. Missed injuries composed 16.94%. The attitude of early intervention relying on clinical findings was the most important factor that reduced the mortality when abdominal re-exploration was required.

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Conflicts of interest

There are no conflicts of interest.

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