EDITORIAL

Laparoscopic surgery using robots

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ABSTRACT

Mini-invasive adrenalectomy has become popular in recent decades as an alternative to the traditional open procedure. Gagner was the first to implement laparoscopic adrenalectomy into clinical practise in 1992. When compared to open surgery, several studies have shown that laparoscopic surgery is safer and more feasible, with shorter hospital stays, faster recovery, less pain and narcotic use, and fewer peri- and post-operative problem The conventional therapy for benign minor adrenal masses (less than 8 cm) is currently minimally invasive adrenalectomy. Laparoscopic Adrenalectomy (LA) has also been used in the treatment of small (5 cm) malignant adrenal carcinomas in some situations. Alternative techniques, such as lateral retroperitoneal or Posterior Retroperitoneal Adrenalectomy (PRA), have been developed to avoid the requirement for neighbouring tissues to be mobilised and to lessen the risk of complications. Despite drawbacks such as a confined working area and cardiovascular impairment owing to increased insufflation pressures in PRA, laparoscopic PRA (LPRA) has recently proven improved surgical results when compared to Laparotomic Adrenalectomy (LTA). However, there are certain disadvantages of laparoscopic adrenalectomy, including the loss of three-dimensional vision, the unsteady camera platform, and the inflexible apparatus. Recently, mini-invasive robotic adrenalectomy has been introduced as an alternative technique to conventional laparoscopic surgery to overcome the drawbacks of laparoscopic surgery. Robotic equipment offers seven degrees of freedom allowing for delicate movements in limited working spaces. In addition, its 3D optics provides better resolution and depth perception to the surgeon. Finally, its design maximizes the surgeon's comfort during the operation. In addition, robotic adrenalectomy has showed advantages in certain circumstances, especially in the posterior retro-peritoneal approach when dealing with anatomic variations, space is restricted, as is the case with cortical sparing adrenalectomy, which can accomplish a safe resection while lowering post-operative steroid reliance. However, in terms of predicted blood loss, conversion rate, perioperative complications, or total cost, robotic adrenalectomy has yet to show substantial advances, and operating times remain longer than laparoscopic surgery. There is no widespread consensus on the optimum surgical method for adrenalectomy at this time. The goal of this study was to examine the existing data on both procedures in order to determine which was best.

Key Words: *Adrenalectomy; Laparotomic; Laparoscopic*

INTRODUCTION

Recently, mini-invasive robotic adrenalectomy has been introduced as an alternative technique to conventional laparoscopic surgery to overcome the drawbacks of laparoscopic surgery. Robotic equipment offers seven degrees of freedom allowing for delicate movements in limited working spaces. In addition, its 3D optics provides better resolution and depth perception to the surgeon. Finally, its design maximizes the surgeon's comfort during the operation. In addition, robotic adrenalectomy has showed advantages in certain circumstances, especially in the posterior retro-peritoneal approach where the laperoscopic revolution of the early 1990s was made possible by new technology (laparoscopes, clip appliers, and energy sources). However, the technology that sparked the laparoscopic revolution is now outdated, making it difficult to make additional advancements in the sector. further advancements in the field The following are some of the current issues with laparoscopic surgery: the need for highly trained personnel to maintain the instruments and assist during surgery; expensive instrumentation; poor ergonomic design of laparoscopic instruments; two-dimensional representation of the three-dimensional (3D) operative field; lack of haptic (touch) sense; and reliance on a camera operator for viewing the operative field[1-6]. These issues represent stumbling blocks to the widespread adoption of minimally invasive surgery, but they are not insurmountable obstacles; rather, they are difficulties. They are not ems, but rather challenges. There is no doubt that a fresh approach to these issues is required in the future. It is realistic to assume that we will have to rely on the use of information technology to overcome the existing issues of minimally invasive surgery [1-3].

Searching the literature and choosing a study

The study was carried out in the Pediatric Hematology and Oncology Outpatient Clinic of our Training and Research Hospital. Our study was planned prospectively as a case-control study. Forty-five (Female: 15, Male: 30) patients who had Vitamin B12 deficiency between May

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2019 and August 2019, and 40 healthy (Female: 25, Male: 15) who had normal vitamin B12 levels for control purposes were included in the study (p: 0.019), with the permission of the volunteer, native thiol, total thiol, disulfide ((total thiol-native thiol)/2), implication (Ischemia Modified Albumin), which were increased from serum, were studied. Blood samples were centrifuged at 3600 cycles for 10 minutes in the biochemistry laboratory, and 1 cc serum was obtained and stored at -80 degrees.

After collecting all samples, all of them are dissolved at the same time and serum thiol-disulfide parameters are developed by Erel & Neselioglu with the new automatic measurement method worked on the Roche Hitachi Cobas c501 automatic analyzer at Ankara City Hospital Biochemistry Laboratory [3-6]. The terms for Index 1= disulfide/native thiol*100, Index 2: disulfide/total thiol*100, Index 3: native thiol/total thiol*100, ((total thiol-native thiol)/2) ratios were calculated.

INTERESTED OUTCOMES

Two reviewers, who were blind to each other, worked separately to assess the eligible studies and extract and analyse the data. Consensus was established on a general accord. First author, year of publication, country of enrolment, study interval, research design, number of patients who got LA or Robotic Adrenalectomy (RA), patient demographics (age, preoperative Body Mass Index (BMI), tumour size) were all collected. Operative time, projected blood loss, conversion rate to laparoscopy/laparotomy, intraoperative and postoperative complications, mortality, and duration of hospital stay are among the outcomes of interest that have been studied and compared in this study [7,8].

QUALITY CONTROL AND STATISTICAL ANALYSIS

The clinical results of robotic adrenalectomy were compared to standard laparoscopic adrenalectomy using data analysis. In the case of categorical outcomes, the retrieved data was divided into two tables (the number of patients who presented with the result and those who did not, separately for the laparoscopic and robotic groups). For dichotomous outcomes, the odds ratio was determined; OR>1 implies that the outcome is more commonly present in the robotic group. The mean, standard deviation, and number of patients for both groups were derived for continuous outcomes. All of the results were given a 95% confidence interval (95 percent CI). Some studies, on the other hand, published continuous data as medians and ranges; in this case, we used the Hozo et al. approach to estimate the corresponding means and standard deviation. The pooled result estimates were calculated victimization randomeffects (DerSimonian-Laird) models. The heterogeneousness among trials was assessed victimization the Cochrane chi-square check (Q) and inconsistency. The Newcastle-Ottawa Quality Scale was wont to assess the standard of the studies we have a tendency to enclosed. Studies with a score of seven or on top of were thought of to be of higher quality.

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