

A Prospective Comparative Study of Continuous and Interrupted Suturing in Laparoscopic Pyeloplasty in 3D Era

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Abstract

Introduction: Laparoscopic pyeloplasty is becoming the gold standard procedure for pelviureteric junction obstruction. The outcome of pyeloplasty depends on precise pyeloureteral anastomosis. Though in open pyeloplasty interrupted or continuous suture are practiced, in most of the laparoscopic or laparoscopy-assisted robotic pyeloplasty continuous suturing is practiced. After acquiring a 3-dimensional (3D) camera, we prospectively analyzed the suturing time, complication rate, and success rate between interrupted and continuous suturing in laparoscopic pyeloplasty.

Objective: To prospectively review the outcome difference between interrupted suturing (group A) and continuous suturing (group B) while using a 3D camera.

Materials and Methods: Out of 93 patients who underwent laparoscopic pyeloplasty, 6 patients who underwent retro-peritoneoscopic approach, 7 patients who had nondismembered technique, 7 patients with secondary renal calculi, and 3 patients with grossly dilated pelvis were excluded from the study to reduce bias. Hence, the remaining 70 patients who underwent transperitoneal pyeloplasty from 2012 to 2017 were prospectively analyzed, comparing 35 cases of interrupted suturing with 35 cases of continuous suturing using 3D camera in an alternating manner. The primary aim was to know the difference in suturing time. The secondary outcomes were success of pyeloplasty, complications, and drain volume. The statistical analysis was done using SPSS 2.0 software.

Results: Of the 70 cases, with 35 in each arm studied, the mean suturing time, success rate, and complications were not significantly different. The total drain quantity during the hospital stay was observed to be more in the interrupted suturing group.

Conclusion: The usage of a 3D camera and experience of the surgeon reduced the time difference between continuous and interrupted suturing in laparoscopic pyeloplasty. The outcome between interrupted and continuous suturing groups were the same. Though the drainage volume was more with interrupted suturing group the outcome was not altered.

Keywords: laparoscopy, comparative study, pyeloplasty, suturing technique, 3D camera

Introduction

LAPAROSCOPIC PYELOPLASTY IS becoming the gold standard procedure for uretero pelvic junction (UPJ) obstruction.^{1,2} Pyeloureteral anastomosis is critical for the good outcome of the surgery. Interrupted suturing is done by most of the surgeons doing open pyeloplasty. However, continuous suturing is used more commonly in laparoscopy.³ Continuous suturing may be watertight but there is always a concern about purse-string effect.⁴

We have prospectively compared interrupted suturing with continuous suturing in pyeloureteral anastomosis to find an answer to whether continuous suturing or interrupted suturing is

better. In author's previous reported retrospective study of 107 cases, the same comparison was reported using a 2-dimensional (2D) high definition (HD) camera.⁵ However, in this prospective study of the subsequent 93 cases, 3D camera was used.

Materials and Methods

We reviewed all the 200 laparoscopic pyeloplasty patients done at our center from January 1998 to June 2017. A total of 107 patients were excluded from the study as they were retrospectively analyzed and reported earlier. The subsequent 93 patients were prospectively analyzed between 2012 and 2017. Six patients who underwent retro-peritoneoscopic