
Percutaneous Externally Assembled Laparoscopic (PEAL) Donor Nephrectomy: A Cohort Pain Comparison

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INTRODUCTION

Donor nephrectomies can be technically demanding. Donors also may not be fully psychologically prepared for their post-operative pain or cosmetic outcome. A novel Percutaneous Externally Assembled Laparoscopic (PEAL) paradigm was developed to decrease incisional pain and laparoscopic scars. The aim of this study is to compare the post-operative outcomes between donor nephrectomies performed with and without the PEAL instruments.

MATERIAL AND METHODS

Five healthy kidney donors consented to use of the PEAL instruments during their nephrectomy from July 2016 to February 2017. All nephrectomies were performed using the hand-assisted technique with a PEAL instrument replacing one of the traditional laparoscopic ports by a single surgeon. These donors were compared to fifteen kidney donors over the same period for whom no PEAL instruments were used (“control”). Three surgeons operated on the control group using hand-assisted and traditional laparoscopic techniques. The primary outcome was length of stay as post-operative length of stay is typically dependent on pain control. Secondary outcomes included operative times, pain scores and morphine equivalents. Descriptive statistics were reported as median and range. The Mann-Whitney U test was used for continuous and ordinal variables. A p value <0.05 was considered significant.

RESULTS

Both groups had no baseline comorbidities. Length of stay, post-operative pain scores, and morphine equivalents were not significantly different in the PEAL group compared to the control group. Operative times, however, were 89 minutes shorter in the PEAL group, which was statistically significant. There were no intraoperative or post-operative complications in either group.

CONCLUSION

The PEAL group had decreased operative times possibly due in part to the integration of the PEAL instruments. This novel surgical paradigm shows great promise as a method to reduce the morbidity of minimally invasive surgery, particularly in this high profile and technically demanding patient population.

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