

Postoperative Pain Control in Donor Nephrectomy: A Comparison of Erector Spinae Plane Catheters and Single-Injection Analgesia

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BACKGROUND

Laparoscopic hand-assisted donor nephrectomy is associated with significant postoperative pain and places healthy donors at increased risk of chronic postsurgical pain. Compared with other minimally invasive approaches, this technique may result in greater pain burden and opioid requirements. To improve donor comfort, our institution modified its analgesic practice to include erector spinae plane catheters. Our hypothesis is that erector spinae plane catheters will decrease postoperative pain scores and opioid consumption compared with single shot techniques.

MATERIALS & METHODS

- As the retrospective study is devoid of patient-identifiable information, it is exempt from IRB review requirements as per The University of Kansas Health System (TUKHS) policy.
- A chart review in EPIC was performed on all patients who had undergone donor nephrectomy at TUKHS between 1/1/25 and 12/31/25.
- Inclusion criteria include adult patients 18 years or older undergoing donor nephrectomy.
- The patients were then grouped into patients who received erector spinae plane catheter (ESPC) and those who had erector spinae plane single shot (SS) nerve blocks.
- Pain in the immediate postoperative period up to 48 hours after surgery is the primary outcome studied.
- We also observed opioid dose in mg morphine equivalents (MME) from the intraoperative period through 48 hours after surgery.

RESULTS/CASE

- Of the 20 patients analyzed, 10 were in the ESPC group and 10 in Control (SS).
- There was a statistically significant decrease in pain at 24 hrs (3.7 vs. 5.8, $p=0.011$) and 48 hrs (3.5 vs. 5, $p=0.046$) postoperatively.
- However, there was no significant difference at other time periods.
- At all time points there was a numerically decreased opioid use, but none of these differences were statistically significant.

DISCUSSION

Although the catheter group demonstrated lower opioid consumption across time points, differences were not statistically significant, suggesting limited power or modest effect. However, patients with catheters reported less pain at 24 and 48 hours postoperatively, indicating a clinically meaningful analgesic benefit. Improved pain control during this period may enhance mobilization and recovery without opioid reduction, supporting the need for larger, adequately powered studies to confirm outcomes and clarify the role of catheter-based analgesia in practice.

REFERENCES

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Pain Scores

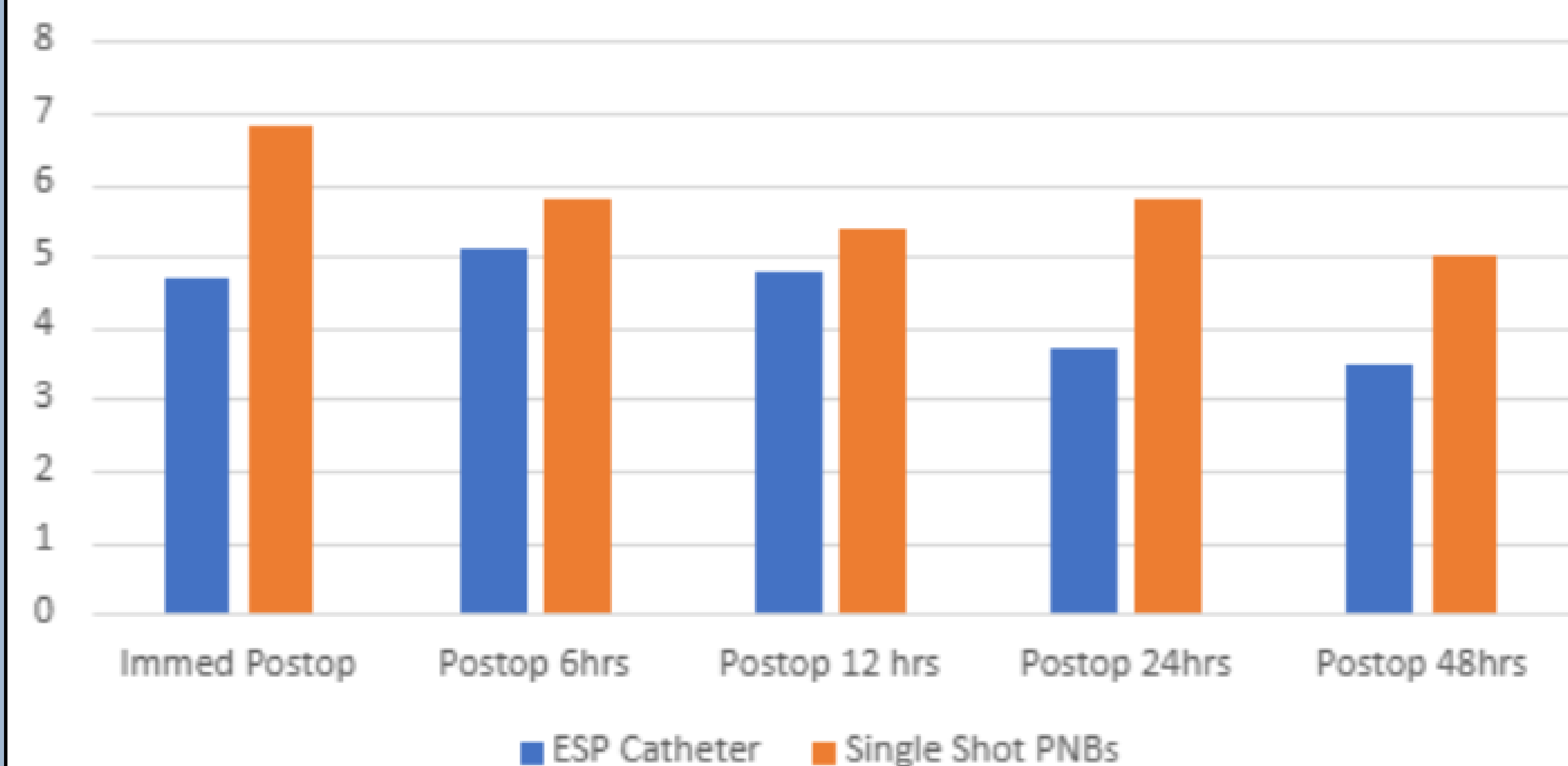


Figure 1: Pain scores on 0-10 scale for patients postop at 6h, 12h, 24h, and 48h in groups with ESP single-shot and ESP catheters

Opioid Use (OMME)

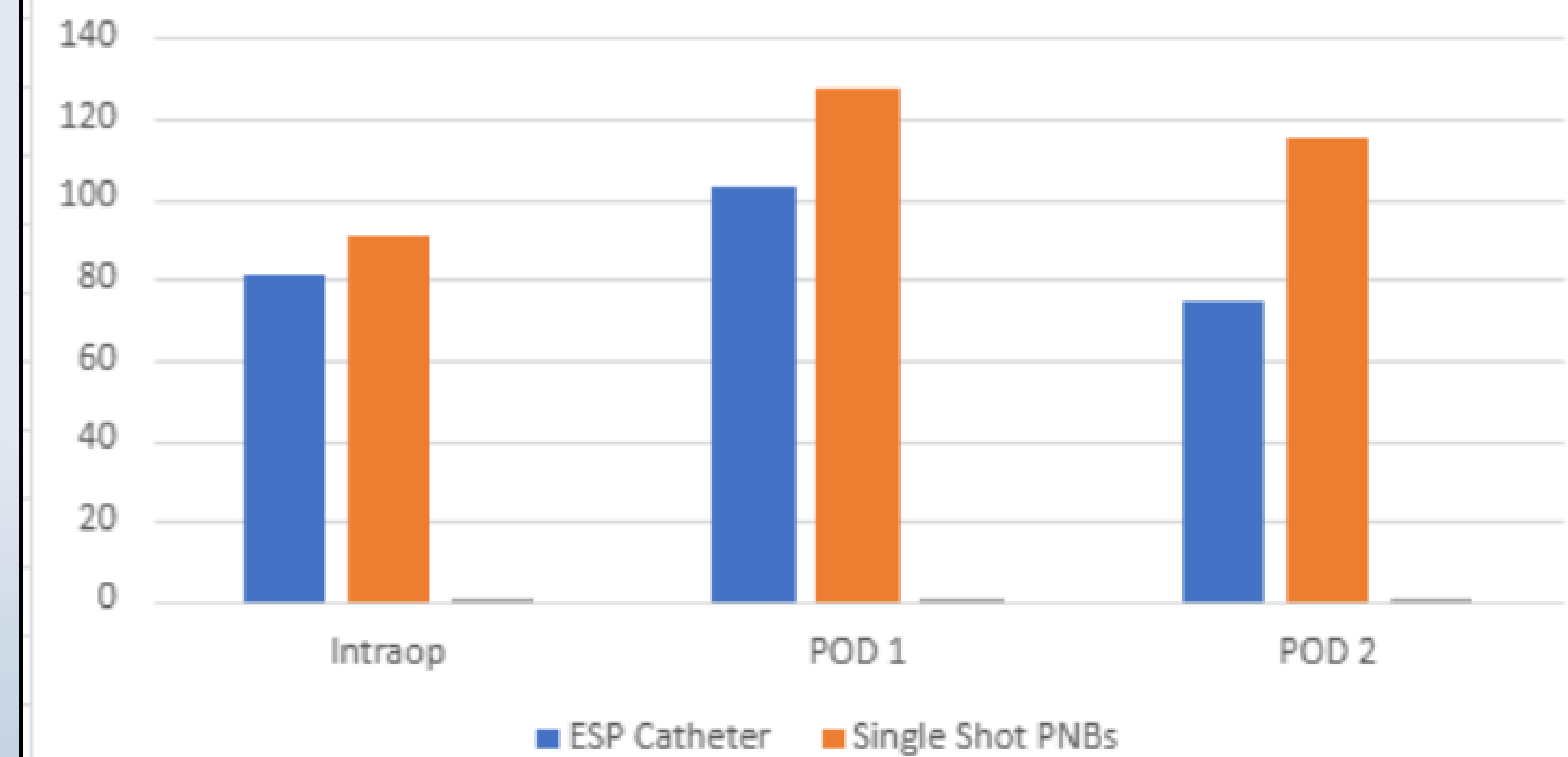


Figure 2: Oral morphine equivalents for patients intraop, POD 1, and POD2 from laparoscopic hand assisted donor nephrectomies.

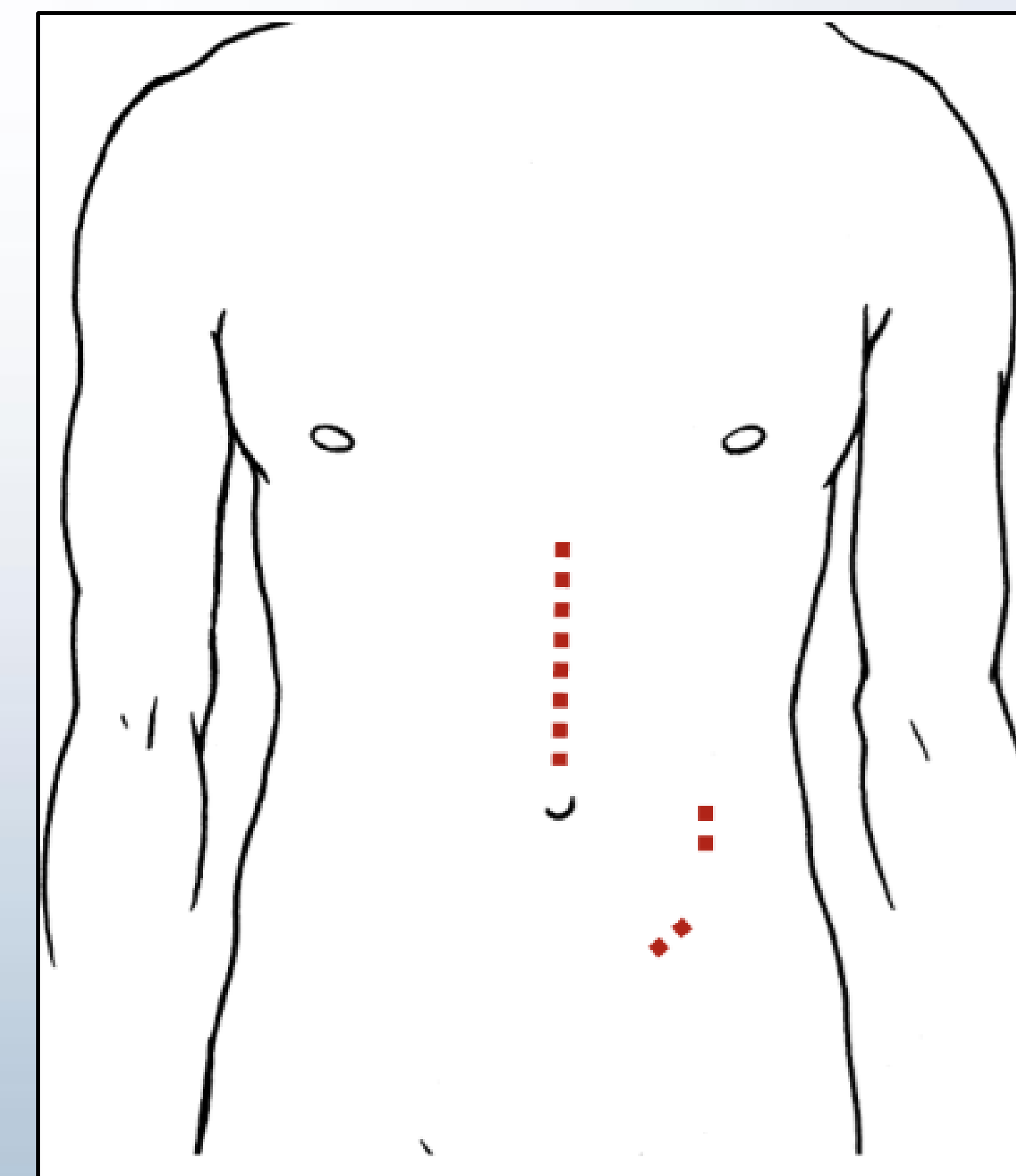


Figure 3: Laparoscopic hand assisted donor nephrectomy incision sites