

Peer Review File

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Reviewer Comments 1: The study studied patients with non- tuberculosis pyonephrotic non-functioning kidneys, but the data regarding etiological causes were not specified in the material-method section or tables.

Reply 1: Thank you very much for your valuable comments on this study. The pyonephrosis was caused by urinary stones located in kidney and/or upper ureter. We excluded all patients with pyonephrosis from other sources of obstruction, including ureteropelvic junction stenosis, ureteral stenosis, tumor compression, xanthogranuloma, etc.

Changes in the text: we added some data (see Page 5, line 4-5).

Reviewer Comments 2: The retroperitoneoscopic nature of the surgical technique provides an advantage for the study as it is still a rarely used method. However, the authors did not mention in the introduction section, the traditional method (transperitoneal), and the advantages and disadvantages of the retroperitoneoscopic method, and why they chose this method.

Reply 2: There was certain controversy over the better surgical approach of nephrectomy for benign lesions. Chen et al. believed both retroperitoneal and transperitoneal nephrectomy had no obvious difference in blood loss and postoperative hospital stay while other scholars found retroperitoneal nephrectomy could achieve less pain and shorter hospital stay.(Chen; Garg). In recent years of clinical practice, we have accumulated a series of experience in retroperitoneal laparoscopic nephrectomy. Owing to the relatively more experience, our team finally chosen the retroperitoneal approach for the current study.

Changes in the text: we added some data (see Page 4, line 7-10,12-13).

Reviewer Comments 3: The outcomes of the study were not discussed sufficiently in the discussion (The reason for the high rate of postoperative fever ?, intraoperative hypotension is very rare, and vasopressor use is not routine, but the reasons for the high rates in this study not mentioned? EBL values?).

Reply 3: At that time, we increased the index of hypotension to reflect the changes of vital signs in patients with pyonephrosis during operation. Most of the 69 patients included in the study had different degrees of perirenal infection and adhesive changes during operation. This was confirmed by the suppurative changes of pathological sections. In addition, the unconventional use of intraoperative antibiotics and the broad inclusion criteria of intraoperative hypotension possibly increased the cumulative value of intraoperative hypertension events to a certain extent.

Changes in the text: we added some data (see Page 9, line 1-4).

Reviewer Comments 4: In the material method, open surgery was never mentioned, it should be mentioned briefly. It is not clear whether open surgery is performed by the retroperitoneal method or not.

Reply 4: Thank you for your valuable advice. We added open surgery technique to the method section as follows. The open surgery was performed by professors with senior professional titles in the team. All included patients were treated through a retroperitoneal approach. Individuals who were initially assigned to open surgery and those who were transferred from laparoscopic surgery to open surgery were included in this group.

Changes in the text: we added some data (see Page 6, line 12-16).

Reviewer Comments 5: The authors mentioned severe postoperative complications included hyperkalemia and bleeding in 3 cases, which were effectively treated by drugs and surgery respectively. Which medication and surgery were used and how was the progression?

Reply 5: The serum potassium values of 2 patients with hyperkalemia were 6.2 and 6.1 mmol/L; 10 units of insulin and 25 grams of glucose were infused intravenously, and sodium bicarbonate was used to correct acidosis. Blood potassium returned to normal level within 12 hours after treatment. The bleeding occurred in one patient originated from the muscular arterioles at the incision; Second open operation was performed and the patient recover well.

Changes in the text: we added some data (see Page 7, line 19-22).

Reviewer Comments 6: The reasons for high postoperative fever and SIRS elevation in both groups and high in the open group were not mentioned.

Reply 6: Although postoperative complications of fever and SIRS did not differ between the two groups, the incidence of infection was higher in the two groups than that in the conventional nephrectomy. We thought that severe perirenal infection was exposed during the operation, and local inflammatory factors and bacteriocins entered the blood, resulting in relatively high postoperative infection. In addition, different degrees of pus or purulent viscous substances were found in the collecting system of the resected kidney.

Changes in the text: we added some data (see Page 10, line 2-5).

Reviewer Comments 7: Ipsilateral renal surgery history rate was high in both groups, which type of surgery they have in the background was not mentioned.

Reply 7: Based on your comprehensive opinions, we have add the history of ipsilateral renal surgery (IPS) to the data collection section. The history of ipsilateral renal surgery (IRS) included percutaneous nephrolithotomy, laparoscopic/open pyelolithotomy, and flexible ureteroscopic lithotripsy.

Changes in the text: we added some data (see Page 5, line 8-10).

Reviewer Comments 8: Conclusion section is not clear enough

Reply 8: According to the research results and requirements, we have made the following modifications to the conclusion of the abstract and the conclusion of the text. In the abstract, the conclusion was changed to “In conclusion, considering the advantages of LS in terms of postoperative blood transfusion, surgical drainage and length of hospital stay, we recommend it for non-tubercular OPNK when the stone load of pyonephrosis side was less than 280 mm² and the preoperative white blood cell (WBC) and neutrophil count were within the normal range”. In the text, the conclusion was changed to “In conclusion, compared with open surgery, laparoscopic surgery had significant advantages in reducing postoperative blood transfusion and the need for opioid analgesics, shortening postoperative surgical drainage and hospital stay for pyonephrotic nephrectomy. When the stone load of pyonephrosis side was less than 280 mm² and the preoperative white blood cell (WBC) and neutrophil count were within the normal range, laparoscopic operation can be preferred. Open surgery should only be the first choice for pyonephrosis with severe infection and large stone burden.”

Changes in the text: we have modified our text as advised (see Page 3, line 6-8 and Page 10, line 22-25).

Reviewer Comments 9: In the introduction section, it is mentioned that the studies in the literature are only conducted on tuberculous or simple non-functional kidneys, but it does not match with the referred literature to with this sentence. (In the 11th reference, only 1 of 62 patients was non-functional due to tuberculous and 25 were non-functional due to kidney stone, the 1st reference, none of 20 patients were due to tuberculous and 15 of 20 patients were non-functioning kidney secondary to obstruction due to stone. 7th reference, data of 32 patients including 15 patients with renal stone.) Therefore, contrary to the authors' presentation, most of the studies in the literature are not only related to tuberculous or simple non-functioning cases but rather due to the kidney stone.

Reply 9: I'm very sorry because our inaccurate description has brought you trouble in reading and understanding. As far as we know, there is few reports on the comparison of different surgical methods for calculous obstructive pyonephrotic nonfunctional nephrectomy (excluding other forms of obstruction). In fact, we want to emphasize that all 69 cases of pyonephrosis in this study were caused by stone obstruction, excluding other causes such as tumor compression or ureteropelvic stricture.

Changes in the text: we have modified our text as advised (see Page 4, line24-25)"