



# The effectiveness of off-clamp and non-renorrhaphy technique regarding postoperative renal function in patients with partial nephrectomy

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Renal cell carcinoma (RCC) is one of common malignant neoplasm in the kidney, with more than 300,000 new cases diagnosed each year (1). With the widespread use of abdominal computed tomography, most patients present with early lesions of the renal tumor (2). Complete surgical resection is the only curative treatment for localized RCC. In surgery for RCC, preservation of renal cell function is necessary along with an oncological outcome (3-6). Therefore, partial nephrectomy (PN) is considered one of the standard treatment options for the excising small renal masses (3-6).

In this study, Nakamura *et al.* investigated the perioperative renal function and the utility of off-clamp and non-renorrhaphy technique for preserving renal function after open PN (7). The authors reviewed the clinical records of 138 patients with renal tumors who underwent open PN using off-clamp and non-renorrhaphy techniques at a single institute between 2013 and 2020. The estimated glomerular filtration rate (eGFR) was used to assess renal function and perioperative reduction in renal function. The mean eGFR preservation rate was 95.3% at 5 days, 91.0% at 1 month, and 90.7% at 3 months after surgery. Multivariate analysis revealed that the estimated blood loss was an independent predictor of perioperative eGFR decline at 5 days, 1 month, and 3 months postoperatively ( $P < 0.001$ ,  $P < 0.001$ ,  $P = 0.007$ , respectively). Additionally, age was an independent predictor of perioperative decline in eGFR 3 months after surgery ( $P < 0.001$ ). In patients over 80 years of age, eGFR was significantly reduced after surgery ( $P < 0.05$ ).

The data on perioperative renal function in combined off-clamp and non-renorrhaphy open PN are limited. Accordingly, the results of this study provide crucial data regarding chronological changes in renal function and predictors in patients undergoing combined off-clamp and non-renorrhaphy PN. Reducing blood loss in combined off-clamp and non-renorrhaphy open PN may help preserve renal function, and perioperative blood loss should be especially noted in older patients.

In the era of minimally invasive surgery, robot-assisted renal partial nephrectomy (RAPN) is increasing more than open PN and laparoscopic PN. Huang *et al.* reported an updated evidence-based analysis that compared off-clamp and on-clamp in RAPN (8). In this study, the off-clamp group had a superior postoperative renal functional outcome (8). However, few studies evaluate renal function after off-clamp and non-renorrhaphy in RAPN. Hence, future studies on changes in renal function over time in off-clamp and non-renorrhaphy in RAPN would be warranted.

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