

## **Non-functioning Kidneys: Is Nephrectomy Indicated? A 10-Year Review**

**Introduction and Objective:** To review the necessity of nephrectomies in incidentally found non-functioning kidneys (NFK) in adults without clinical or radiological features suggestive of malignancy.

**Materials and Methods:** Retrospective review of all nephrectomies primarily did for non-functioning kidneys in a urology center in Hong Kong in 10 years (from January 2000 to December 2009). Demographic data, preoperative diagnosis of NFK, intraoperative data, final histological diagnosis, peri-operative complications and preoperative and postoperative serum renal function changes were analyzed.

**Results:** A total of 167 patients (75 male, 92 female) mean aged 56.0 years (range 18-84) with radionuclide renal scan showing non-functioning kidneys (i.e. <10% of differential function) had nephrectomies done in Tuen Mun hospital from January 2000 to December 2009. The preoperative diagnoses were obstructive urolithiasis (79.0%), genitourinary tuberculosis (9.0%), ureteric strictures (5.4%) and congenital renal malformation (1.8%). Infective complications were found in 47 patients (28.1%) with NFK including pyelonephritis/pyonephrosis (93.6%), recurrent urinary tract infection (6.4%) and perinephric abscess (2.1%). Twenty (42.6%) patients required either external drainage or internal stenting prior to nephrectomies. Open and laparoscopic nephrectomies were performed in 61 patients (36.5%) and 94 patients (63.5%) respectively. Twelve (12.8%) of the patients with initial laparoscopic approach converted to open nephrectomies. The mean ASA score was 1.7. The mean operative time and mean estimated blood loss were 144 minutes and 214 ml respectively. The final histological results were chronic pyelonephritis (46.1%), nephrosclerosis & hydronephrotic kidneys (43.4%) and malignant tumors (3.0%) which consisted of two renal cell carcinoma, two upper tract transitional carcinoma and one squamous cell carcinoma. Perioperative complications included prolonged ileus (1.8%); wound infections (1.2%), intraabdominal collections (1.8%) and pneumothorax (1.2%). No mortality resulted. There was no statistically significant difference in serum renal function before the surgery and within 1 year after the surgery.

**Conclusion:** Although the natural history of NFK was not known, nearly one third of patients with NFK had infective complications and minor percentages had underlying malignancies in final histological result in our series. And thus nephrectomies should be considered in NFK. Perioperative complications were not significant and no further worsening on renal function was noted in short term.