



Feasibility of robot-assisted partial nephrectomy in morbidly obese patients

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Obesity is a significant risk factor of kidney cancer (1). Once being a problem in high-income countries, obesity has recently become an important issue in low-income countries as well. Given the global increase in obese population, the number of robot-assisted partial nephrectomy (RAPN) for obese patients is in the rising trend (2).

Stout *et al.* have reported multi-institutional experience of retroperitoneal RAPN (rRAPN) in morbidly obese patients with a mean body mass index (BMI) of 44.9 kg/m² (3). The World Health Organization defines a BMI over 25 is overweight, and over 30 is obese. In the current study, the authors defined BMI over 40 to be morbidly obese. Twenty-two tumors (19 posterior, 1 anterior, 1 central, and 1 unknown) were resected via retroperitoneal approach. The operative time, the estimated blood loss, and other surgical results were equivalent to those of other reports.

According to the authors, the retroperitoneal approach has the following advantages over the transperitoneal approach; direct and shorter approach to the renal artery, direct access to posterior tumors, avoidance of adhesive peritoneal cavity after prior abdominal surgery, and less possibility of developing postoperative ileus due to blood and CO₂ pneumoperitoneum. Actually, rRAPN is associated with lower rates of minor complications and less estimated blood loss, and shorter length of hospital stay (3,4). On the other hand, retroperitoneal approach has disadvantage in working space. Basically, transperitoneal or retroperitoneal approach is determined depending on the tumor location.

According to the literatures, tumors located in the mid-line are better resected via retroperitoneal approach (5).

As for visceral fat, adherent perinephric fat (toxic fat) significantly complicates RAPN. The definition of adherent perinephric fat includes the followings: (I) when adipose tissue was dissected around the kidneys and fat was layered on top of each other; (II) when dissecting the adipose tissue with severe bleeding and meticulous hemostasis were required; (III) when some inseparable adipose tissues adhered to the kidney parenchyma around the tumor (6). The Mayo Adhesive Probability score which utilizes posterior perinephric fat thickness and stranding is reported to predict the probability of troublesome adherent perinephric fat (7). Although it was not addressed in the current study, the relationship between morbid obesity and existence of toxic fat is intriguing.

Representative port sites described in the figure are helpful. Presumably, it is important to put the assistant port on the ventral side. If it was made on the dorsal side, the thick subcutaneous fat and the iliac bone will impose restriction on the move of assistant port. Besides, it is necessary to prepare appropriate surgical devices including laparoscopic port referring preoperative computed tomography images.

Stout *et al.* proved the safety and feasibility of rRAPN for severely obese patients (3). Although the surgical indications should be strictly limited, rRAPN is a safe surgery when performed by experienced surgeons.

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