

DONOR FACTORS INFLUENCING THE PROCEDURE OF RETROPERITONEAL LAPAROSCOPIC LIVE DONOR NEPHRECTOMY

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OBJECTIVES

Retroperitoneal laparoscopic approach for live donor nephrectomy (RPLDN) has the advantages such as no risk to intra-abdominal organ injuries and direct access to the renal artery/vein, however, the disadvantages of a small working space. We assessed the donor's factors which influenced the operating time and difficulty of the procedure, focused on fat tissue in retroperitoneal space

METHODS

We performed RPLDN in 164 living donors. The donor was placed in the full lateral position and 3 ports are created under the 12th rib. Under the insufflation of CO₂, tissue dissection around the kidney, the renal artery/vein and the ureter were prepared. A 6 cm skin incision was made from the inner port to the rectal muscle and the ureter was transected directly from the incision. Thereafter, the renal artery and vein were transected using an EndoGIA vascular stapler laparoscopically and the kidney was removed from the incision using a hand. The relationship between the operating time and the donor's factors such as BMI, kidney weight and fat tissue thickness/volume of subcutaneous, flank pad, and around the kidney measured by CT findings were investigated by univariate and multivariate analyses.

PROCEDURE

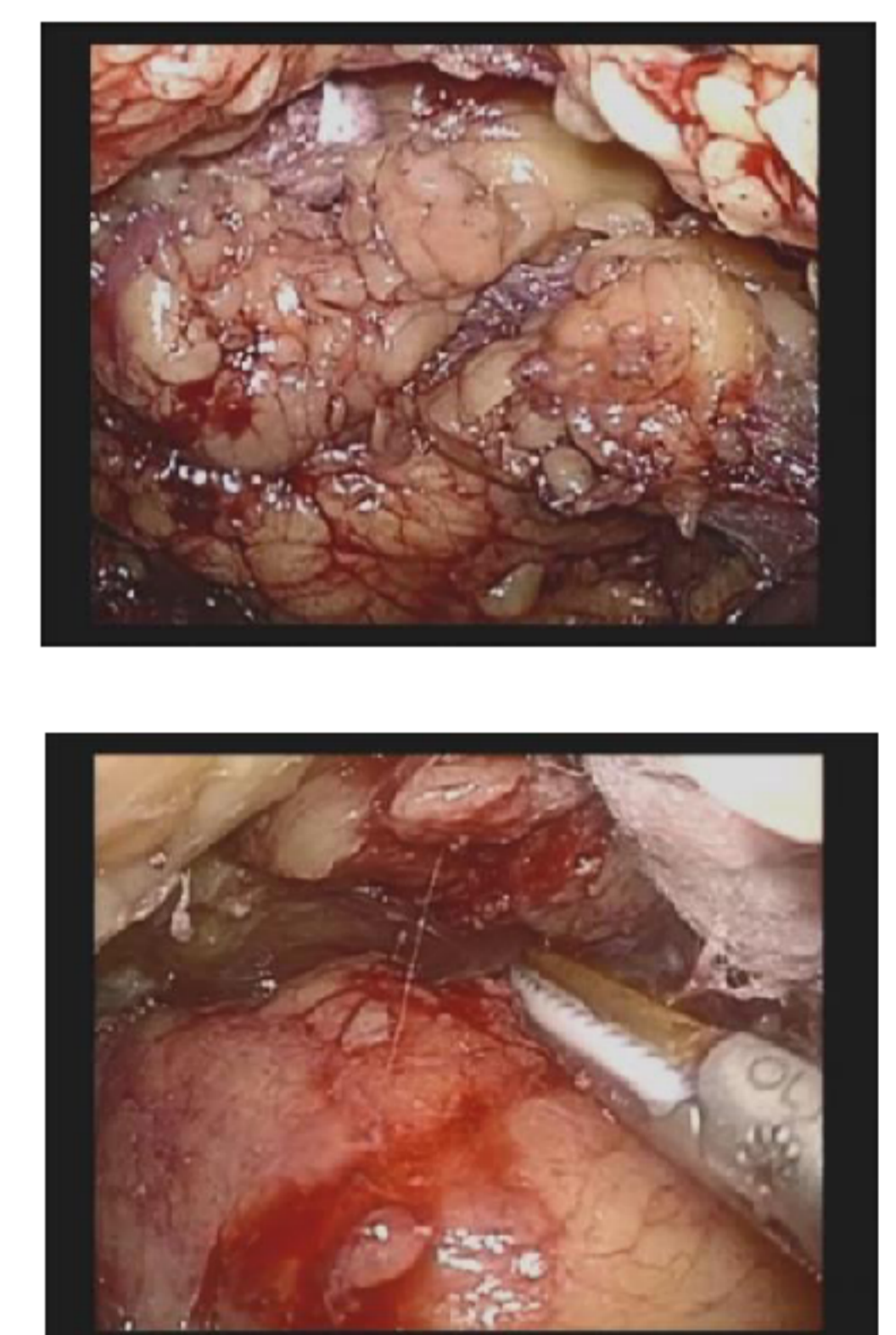


MATERIALS

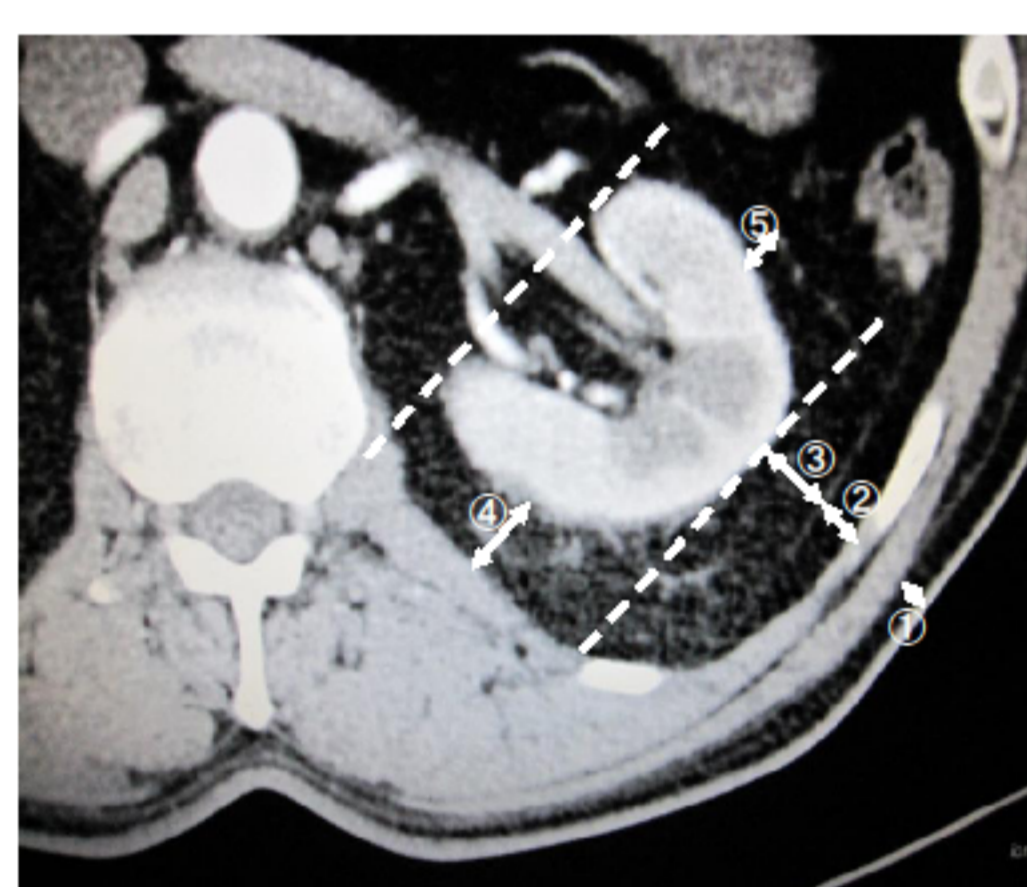
2003/4~2013/6	N=164
Age : median	58 (29~80)
Sex : M/F	58 (35.4%) /106 (64.6%)
Side : L/R	142 (86.6%) /22 (13.4%)
BMI : median	23.6 (17.3~33.1)

Items	
Operating time : median	220 min. (148~381) [to kidney removal : minus 30~40 min.]
WIT : median	136 sec. (88~234)
Kidney weight	174 g (109~356)
Blood loss : median	87.5 ml (5~770)
Open conversion (Incision between ports)	4 cases (Left : 2 cases, Right: 2 cases) [Difficulty to bleeding control : Right 2 cases, Left 1 case Severe adhesion between kidney & perirenal fat & peritoneum : Left 1 case]
Other complications	Small kidney capsule laceration : 2 cases Small peritoneal rupture : 7 cases
Post op. complications	None : > Clavien grade 2

CASES with abundant fat around the kidney

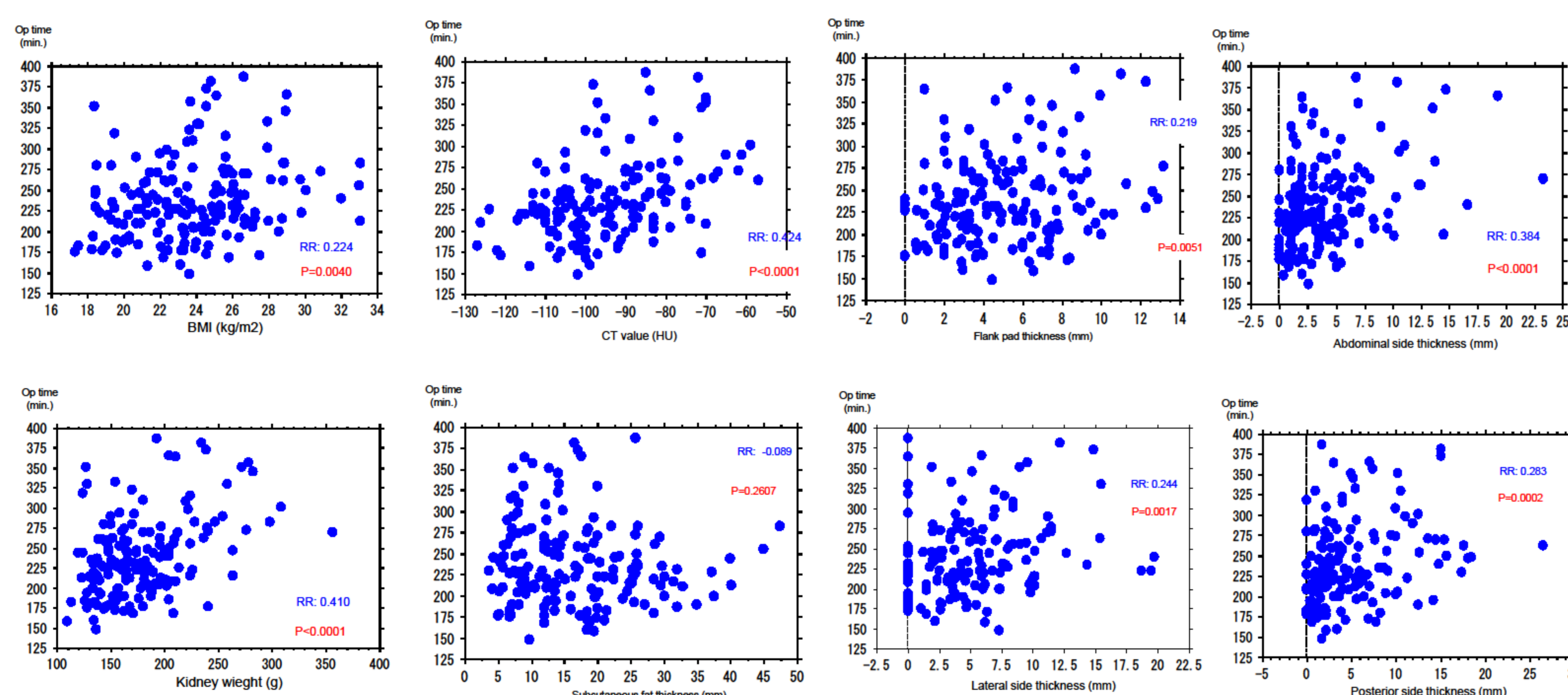


ANALYSIS



- ① subcutaneous thickness
- ② flank pad thickness
- ③ lateral side thickness
- ④ posterior side thickness
- ⑤ abdominal side thickness
(measured at renal pedicle level)

RESULTS



Multivariate analysis of operating time

(logistic regression analysis)

	Odds ratio	CI 95%	P-value
Sex (female)	0.435	0.634~8.350	0.1992
Side (right)	1.517	0.482~4.776	0.4752
BMI	0.978	0.854~1.225	0.8037
Kidney weight	1.008	0.980~1.005	0.2287
Subcutaneous thick	0.991	0.946~1.076	0.7773
Flank pad thick	0.951	0.905~1.223	0.5121
Lateral side thick	1.024	0.871~1.094	0.6760
Abdominal side thick	1.098	0.764~1.088	0.2802
Posterior side thick	1.121	0.775~1.027	0.0998

CONCLUSIONS

- The BMI, kidney weight, and fat tissue thickness/volume of retroperitoneal space, especially abdominal side around the kidney, are the limiting factors of the operating time and difficulty in RPLDN.
- Although these backgrounds, RPLDN is successfully performed and a feasible procedure for donor kidney procurement.

REFERENCES:

- Yagisawa T, et al: Retroperitoneoscopic living donor nephrectomy: A safe and minimally invasive procedure for the donor. *Transplant Proc.* 37: 617-619, 2005
- Yashi M, et al: Retroperitoneoscopic hand-assisted live-donor nephrectomy according to the basic principle of transplantation in donor kidney selection. *J Endourol* 21(6): 587-592, 2007

