

MP57-12 Perioperative detection of circulating tumor cells in radical or partial nephrectomy for renal cell carcinoma

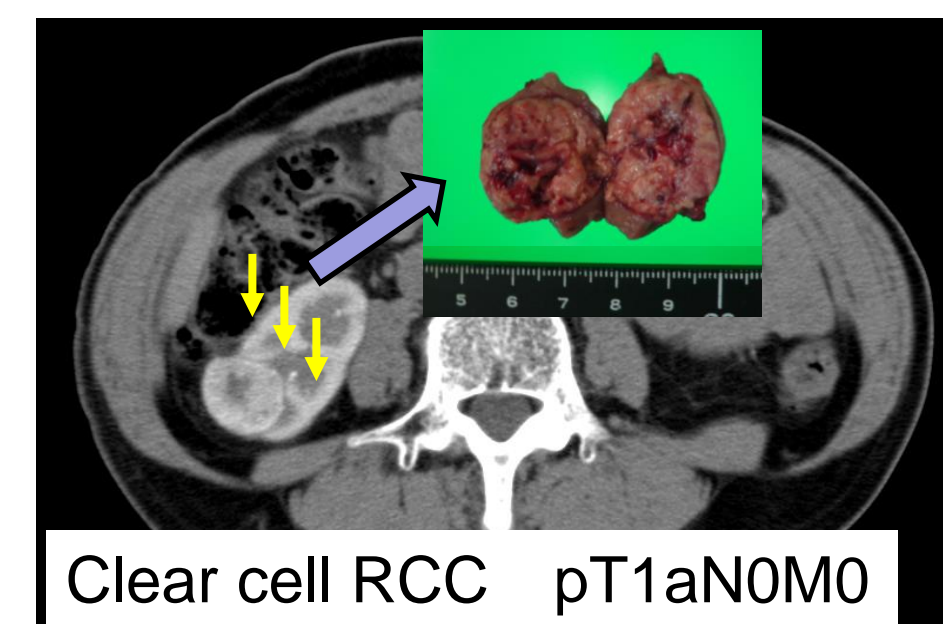
Nobuhiro Haga^{1,2}, Tomoyuki Koguchi¹, Seiji Hoshi¹, Soichiro Ogawa¹, Hidenori Akaiha¹, Junya Hata¹, Ruriko Honda¹, Ryo Tanji¹, Yuichi Sato¹ Yoshiyuki Kojima¹

Dept. Of Urology, Fukushima Medical University¹⁾ Fukuoka University, Fukuoka Japan²⁾

I. Background

Pierorazio PM et al. J. Urol, 2016

The case of the lung metastasis after partial nephrectomy in the patient with early stage renal cancer



3years after surgery



Lung metastasis

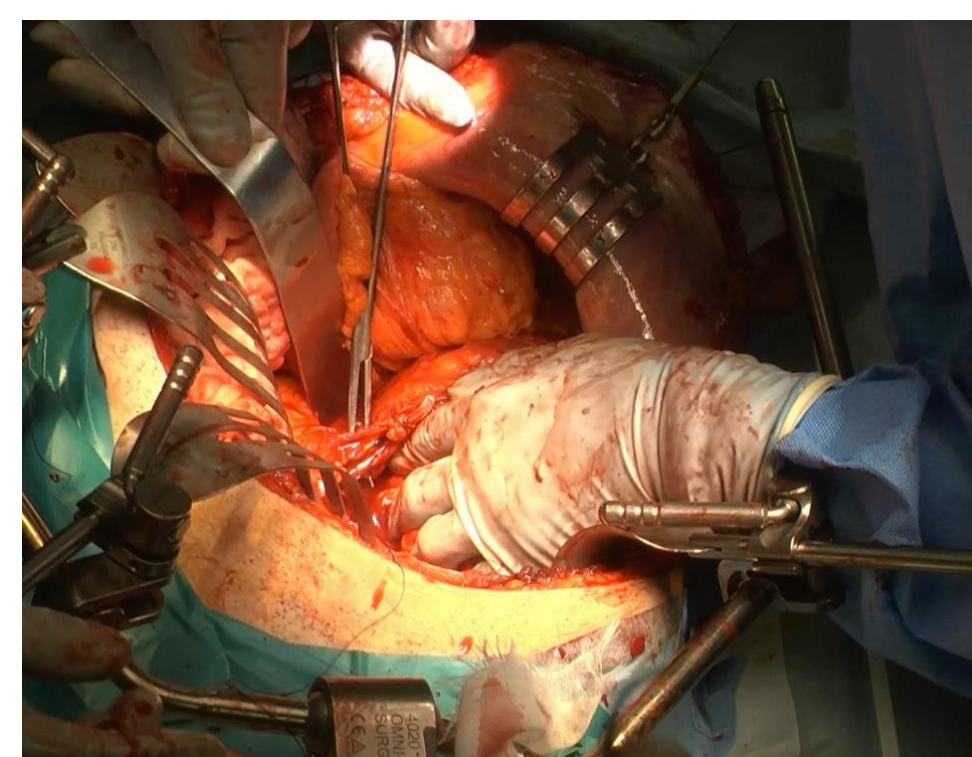
Cancer-specific survival after renal surgery

pT1a: 98%, pT1b: 90%

Even in relatively early-stage RCC, not a few patients suffered tumor recurrence. However, the causes of recurrence have not been fully elucidated to date.

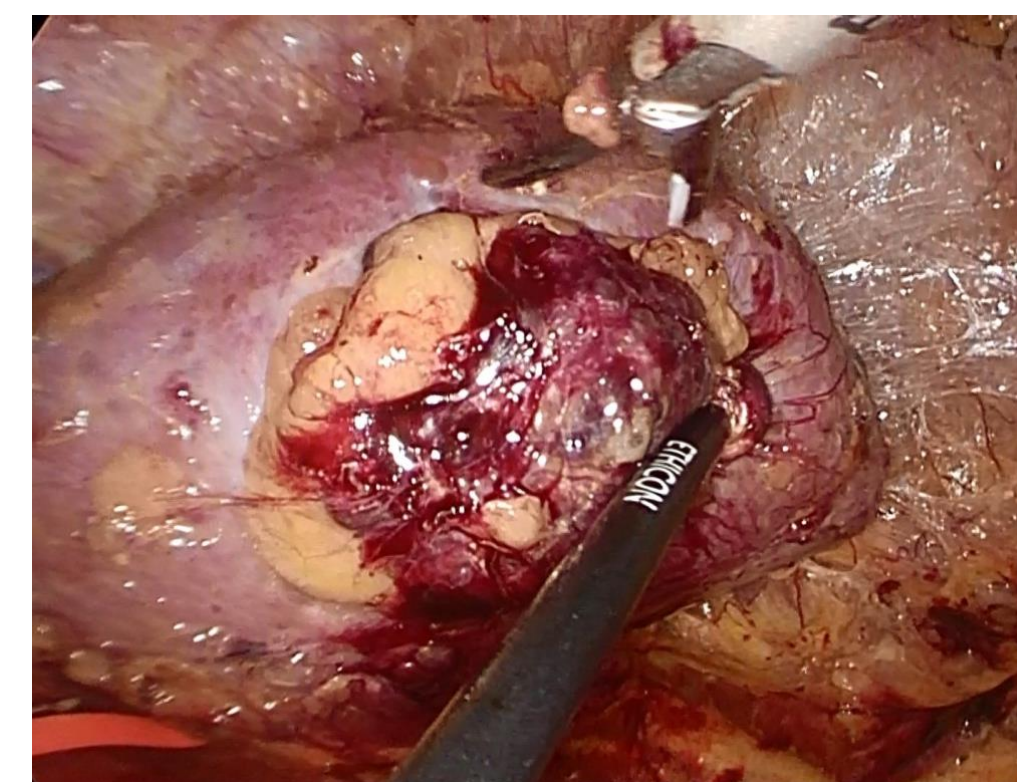
II. Hypothesis

Open radical nephrectomy



Countertraction for the kidney in case of the ligation of the renal arteries or veins

Laparoscopic partial nephrectomy



Dissection around the kidney to subsequently perform tumor resection or renorrhaphy

These surgical procedures, both in radical and partial nephrectomies, can induce cancer cells in the venous system during the surgery. In principle, these cancer cells might seed and give rise to micrometastases, consequently inducing distant site metastases after surgery.

II. Objective

Whether an increased number of cancer cells in the blood stream was observed following radical or partial nephrectomy was determined by investigating the number of circulating tumor cells (CTCs) before and after surgery.

1. Comparison of the number of pre- or postoperative CTCs among the clinical stage
2. Comparison of the number of CTCs between the open and laparoscopic approach
3. Determination whether partial nephrectomy would increase the postoperative CTCs

III. / Patients and methods

This prospective cohort study involved 60 consecutive patients who underwent renal surgery at our institution

Laparoscopic radical nephrectomy (Lap. Rad. Nx) (n=22)

Laparoscopic partial nephrectomy (Lap. Par. Nx) (n=19)

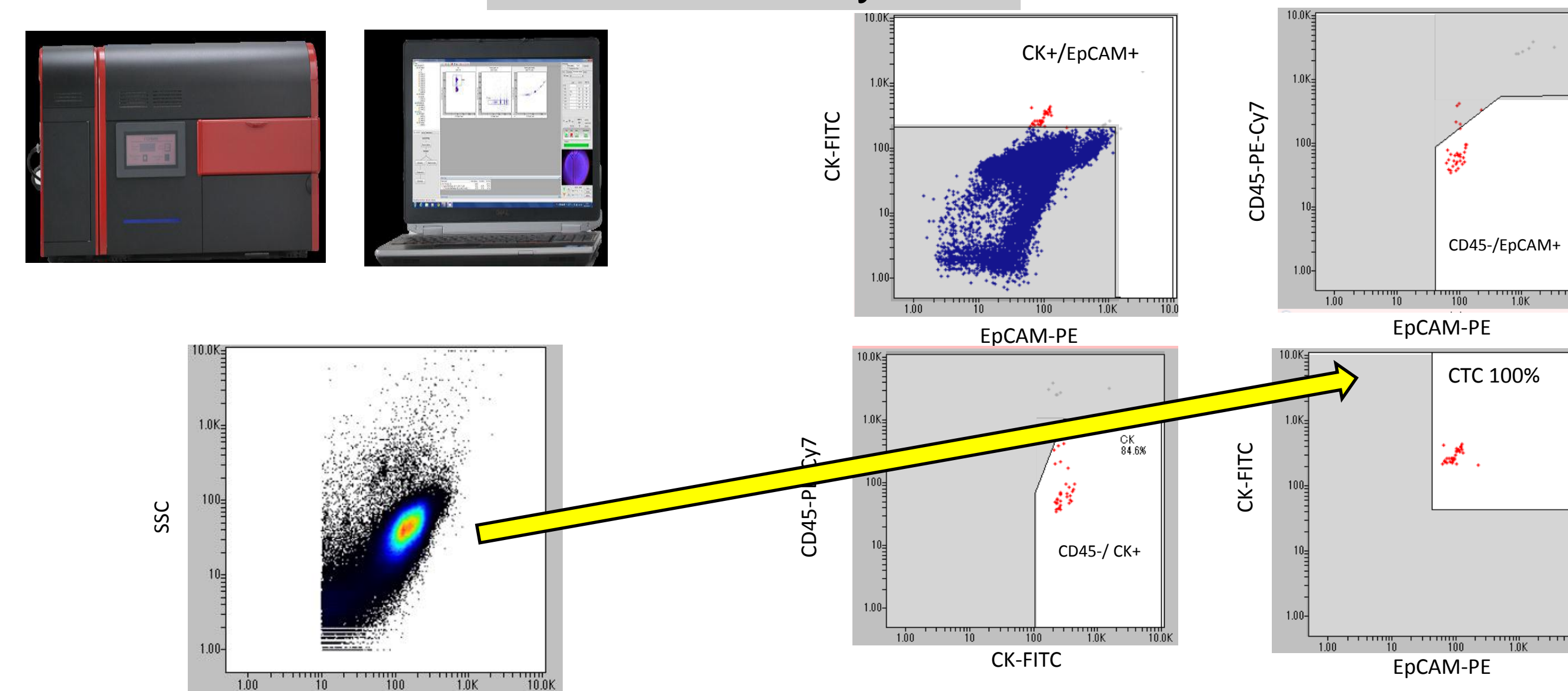
Open radical nephrectomy (Op. Rad. Nx) (n=22)

Open partial nephrectomy (Op. Par. Nx) (n=19)

Measurement of the number of CTCs

- CTCs were measured by the FISHMAN-R® system. CTCs drawn from a peripheral artery were collected just before and immediately after surgery.
- The number of pre-and postoperative CTCs and the perioperative changes of CTCs were measured for each surgical modality.

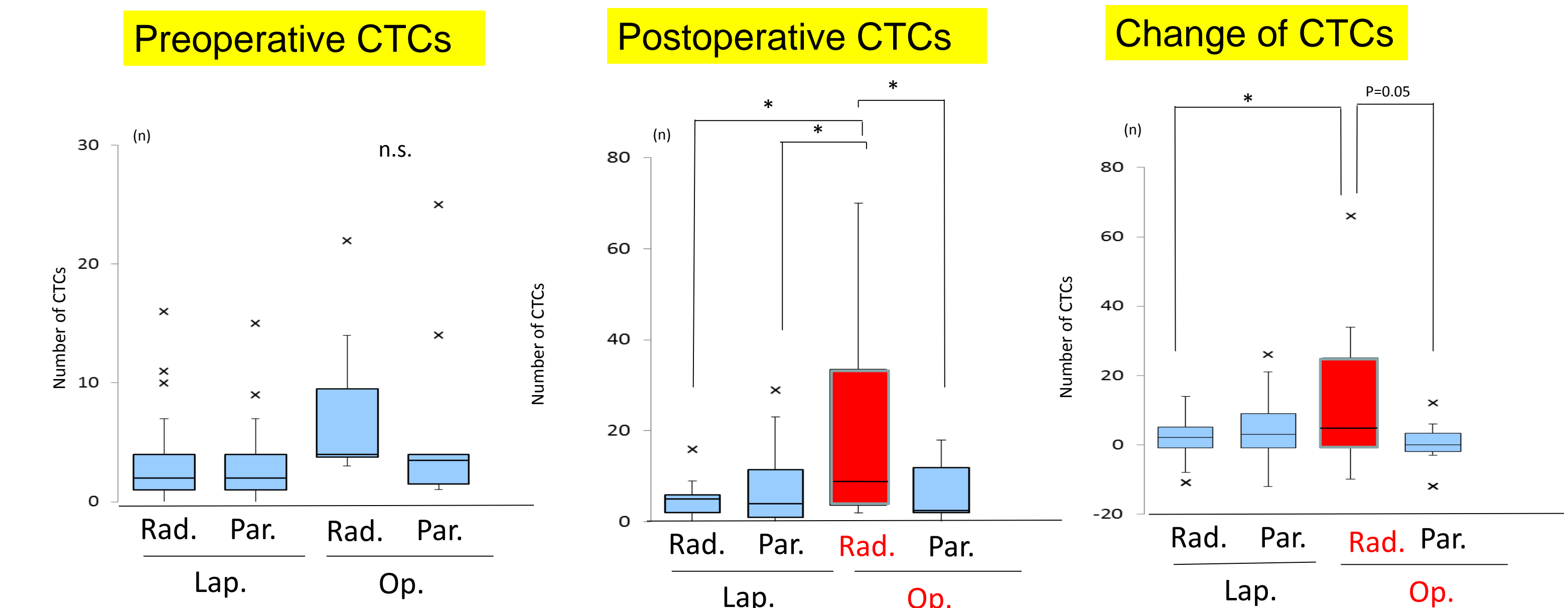
FISHMAN-R® system



The number of CTCs was measured by means of flow cytometry

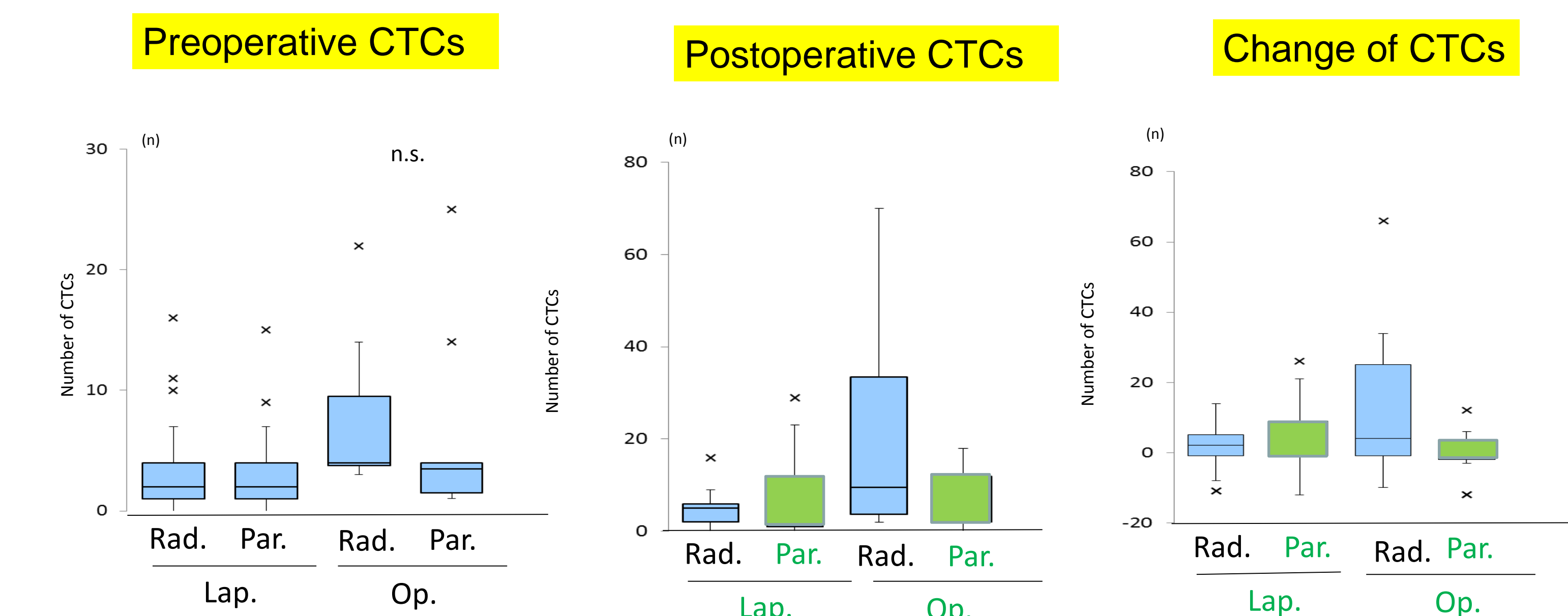
IV. Results

2. Comparison of the number of CTCs between the open and laparoscopic approach



The number of postoperative CTCs and change of CTCs have significantly increased in the Op. Rad. Nx. Group.

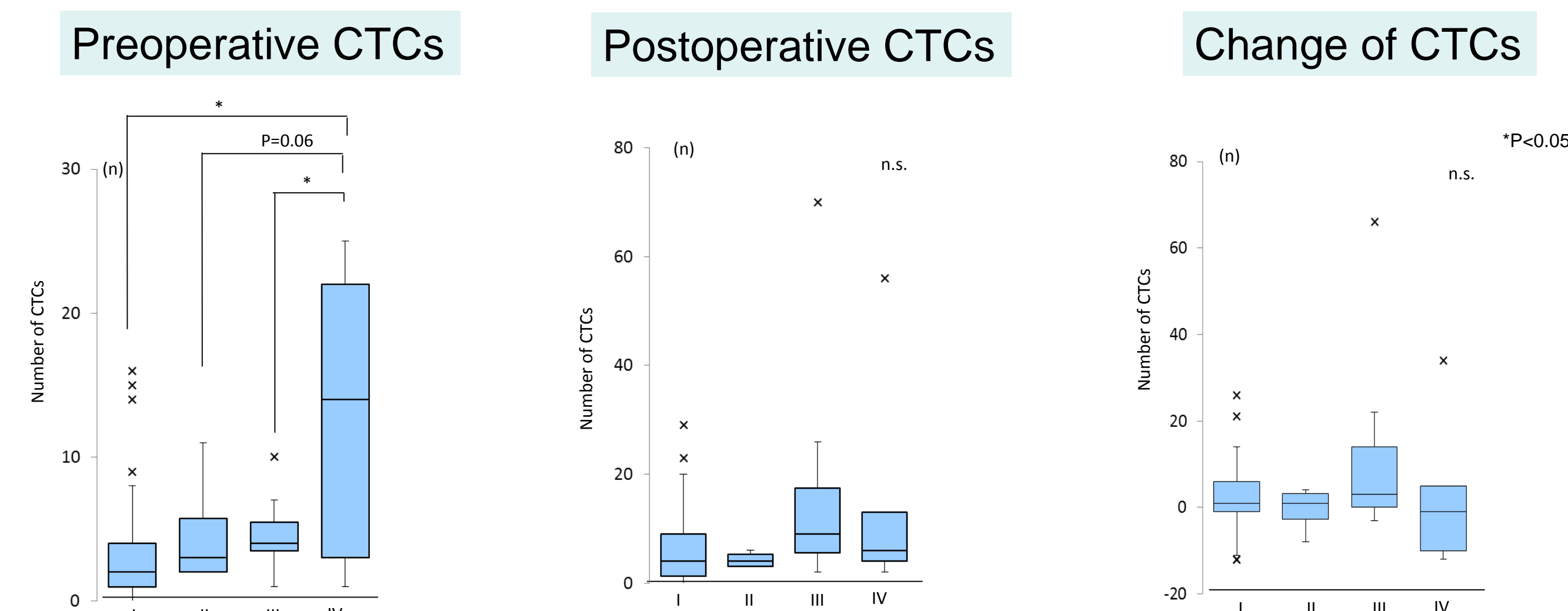
3. Determination whether partial nephrectomy would increase the postoperative CTCs



Significant changes of postoperative CTCs and change of CTCs were not observed between the Lap. and Op. partial nephrectomy.

IV. Results

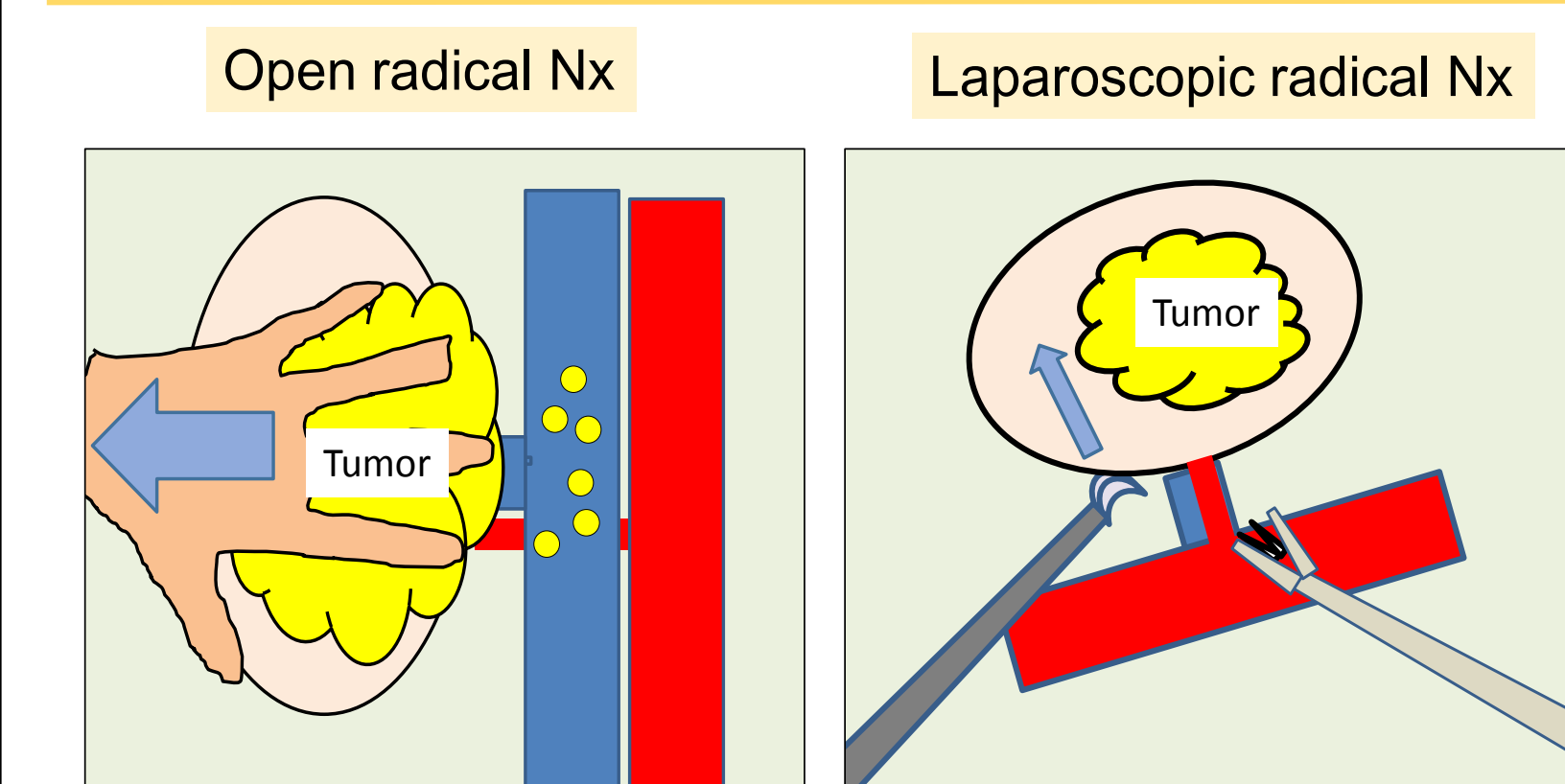
1. Comparison of the number of pre- or postoperative CTCs among the clinical stage



The number of preoperative CTCs has increased according to the progression of clinical stage.

V. Conclusions

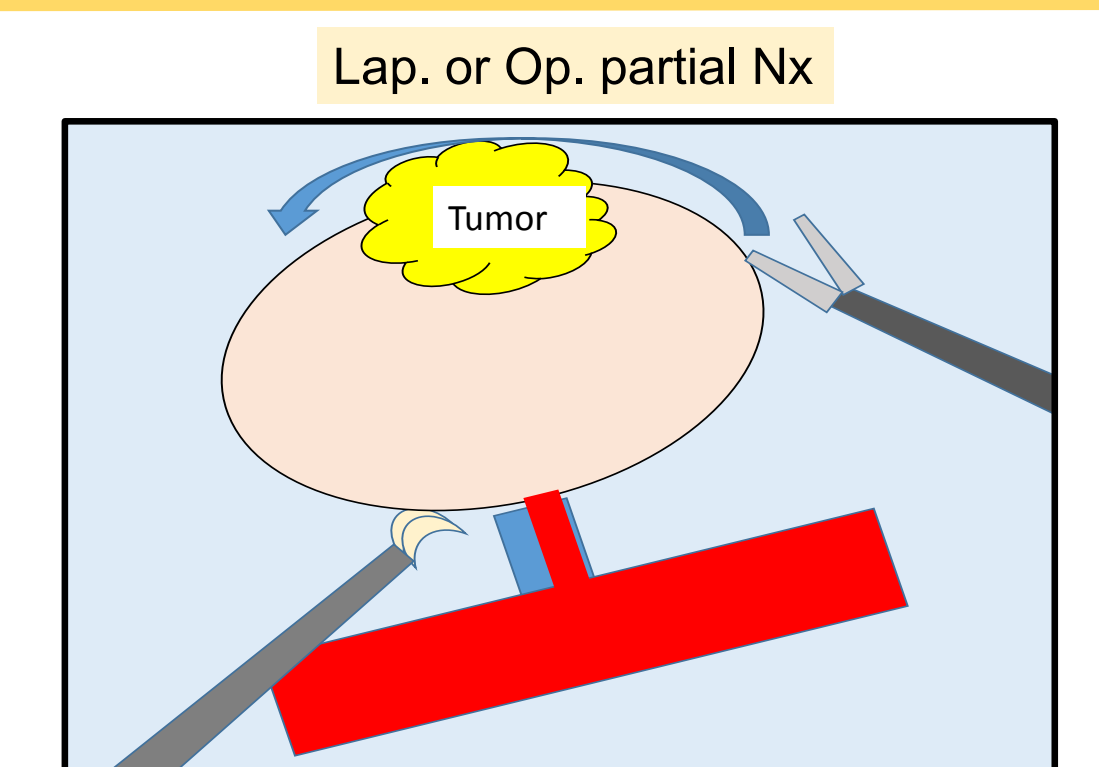
The reason why postoperative CTCs has increased in the open radical Nx



Renal tumor might be manipulated in the Op. Rad. Nx compared with the Lap. Rad. Nx., when renal arteries or veins were ligated.

→ Increase of postop. CTCs --- Possibility of distant metastasis

The association between the postop. CTCs and Par. Nx.



Postop. CTCs has not increased both in the Lap. and Op. partial Nx.

--- Partial Nx. might be a safe procedure.