

RECENT ADVANCEMENT IN RENAL TRANSPLANTATION – LAPAROSCOPIC LIVE DONOR NEPHRECTOMY

End-stage renal failure (ESRF) is a common problem in Hong Kong and about 1,000 patients die of this disease annually. The causes of this disease include chronic nephritis, diabetes, hypertension and kidney stone etc. Patients having ESRF depend on dialysis to sustain their life. However, the treatment seriously affects patients' quality of life. The only way to get rid of dialysis is renal transplantation. Ideally, the graft kidney should come from cadaveric donor. Currently, about 991 patients in Hong Kong are on the waiting list for renal transplantation. Nevertheless, due to the scarcity of cadaveric donor in Hong Kong, the average waiting time is about 64 months.

Renal Transplantation in Queen Mary Hospital

Queen Mary Hospital is one of the four renal transplant centers in Hong Kong under Hospital Authority. The Urology Division, Department of Surgery, Faculty of Medicine, the University of Hong Kong is also a tertiary referral centre for complicated urology cases. In the past 20 years, 333 renal transplantations were performed, in which 54% was cadaveric and 46% was living-related. The milestones of renal transplantation in Queen Mary Hospital include:

- 1969 **First** cadaveric renal transplantation in Hong Kong
- 1980 **First** living-related renal transplantation in Hong Kong
- 2001 **First and only center** in Hong Kong performing laparoscopic live donor nephrectomy (LLDN) for living-related renal transplantation

Living-related versus Cadaveric Renal Transplant

The overall short-term graft survival rate performed by the Urology Division, Department of Surgery, Faculty of Medicine, the University of Hong Kong is high (about 90% after 1 year). Long-term survival gradually drops, particularly for the cadaveric transplantation. Ten-year graft survival for living-related transplant is 87% whereas that for cadaveric transplant is 78%. The reason behind is probably due to better graft quality, shorter ischaemic time, less rejection and lower complication rate for living-related transplantation.

Laparoscopic Live Donor Nephrectomy

Traditionally, live donor nephrectomy is an open operation, which requires a long wound over the loin region. It produces a wound of poor cosmetic appearance but most importantly, it also results in significant postoperative pain, analgesic requirement, long hospital stay and convalescence. After the operation, the donor requires a significantly long time for convalescence. It means that an otherwise healthy individual will be taken away from their daily activity and work for a long period of time.

To reduce the potential postoperative morbidity and shorten the convalescence period of live donors, the Urology Division, Department of Surgery, Faculty of Medicine, the University of Hong Kong introduced laparoscopic live donor nephrectomy since late 2001. Five laparoscopic live donor nephrectomies were successfully performed at Queen Mary Hospital so far. There was a significant reduction in postoperative pain and analgesic requirement of live donors. They were also discharged from the hospital earlier and a shorter convalescence

period was required. Therefore, the donors could resume their usual daily activity and work early after the surgery. Most importantly, there was no significant change in complication rate, both on donors and recipients, compared with previous open donor operation for renal transplantation.

Open vs Laparoscopic Donor Nephrectomy

	Open Donor Nephrectomy	Laparoscopic Donor Nephrectomy
1. Cosmesis	Poor	Good
2. Analgesic	More (Morphine sulphate equivalent 57.5 gm)	Less (Morphine sulphate equivalent 19.4 gm)
3. Hospital Stay	Longer (6.8 days)	Shorter (3.6 days)
4. Convalescence		
i. Time return to normal kidney function for recipients	4.3 days	3 days
ii. Resume full daily activities for donors	19 days	11 days
iii. Resume work for donors	29 days	24 days
5. Mean follow-up period for recipients	29 months	12 months
6. Complications in recipients and donors (%)		
i. Vascular/ureteric complications	0%	0%
ii. Lymphocele	20%	17.6%

Future Direction of Laparoscopic Donor Nephrectomy

According to overseas experience, the introduction of laparoscopic donor nephrectomy increases the incentive of living donor for donor nephrectomy and hence the living-related transplantation rate. It is hoped that by introducing the new technique to Hong Kong, the number of live donor can be increased and more patients can benefit from shorter waiting time for renal transplantation.