Transpl Int (2001) 14: 52–54

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Laparoscopic live donor nephrectomy for transplantation: urgent need for standardising procedures

Received: 8 June 2000
Accepted: 6 September 2000

Sir: The persistent shortage of cadaveric organs for renal transplantation has stimulated live kidney donation [6]. The excellent results obtained using both genetically related [21] and unrelated donors [5, 23] have increased this trend, and the recent promotion of allograft harvesting by laparoscopy may favour this option even further. Many teams have indeed already abandoned the traditional and safe trans- and retroperitoneal open nephrectomy techniques. At first glance, this switch to minimally invasive surgery appears as a significant advance. A closer look indicates however that this is far from being established. It is therefore our purpose to suggest a critical and careful approach to this question, so as to comply with the Hippocratic *primum non nocere* principle.

Previous observational studies have established that the mortality- and major morbidity rates of open live nephrectomy are in the order of 0.03% [2] and 2–4% [10], respectively. Our current clinical practice guidelines are based on these figures. It may however be illegitimate to use them blindly when advising donors to undergo the endoscopic procedure. Although many of the established advantages of laparoscopy – improved cosmesis, less pain, early resumption of diet, shorter hospitalisation, and time away from work and social activities – are likely to be confirmed in the donation setting, other major issues remain to be settled. These relate to the quality and function of the graft. Pioneer series seem to indicate that the recipients of laparoscopically procured kidneys are not disadvantaged [7, 19], but the follow-up studies must be longer [14]. Endoscopic harvesting indeed increases the warm ischemia time by several minutes, an injury that may adversely impact on long term graft survival [17]. In addition, the early operations have been performed by leading laparoscopic surgeons, and the retrieved kidneys were selected according to more restrictive criteria than those usually accepted for the open approach [7, 19]. The most striking difference is that right kidneys were rarely considered for laparoscopy for fear that stapling the right renal vein would shorten this 1–2 cm-long-vessel too much, thus making anastomosis in the recipient problematic. Similarly, kidneys with more than one artery have only occasionally been procured. Since these initial reports – and because of their positive conclusions – laparoscopic donation has quickly become so attractive as to virtually abolish the traditional method at many transplant centres. Simultaneously, the industrial equipment has improved, and the surgical techniques have developed so far that several variants of the operation – some strictly endoscopic and others only video-assisted – are now being performed. Right nephrectomies are now more frequent and vascular anomalies are not regarded as absolute contraindications anymore [1]. More laparoscopists – some with possibly lesser skills than their pioneer colleagues, and many with minimal or no experience in transplantation – have joined the venture so that some failures may well go unreported. The scene is therefore set for a replay of the laparoscopic cholecystectomy saga, i.e. the rapid spread of a new surgical procedure without a thorough preliminary scientific assessment. Concerning the gall bladder, the penalty has been that it took a full decade to obtain a clear picture of the advantages and complications of the new operation [20]. Should history repeat itself, the delay will be even longer for the comparatively uncommon live donor nephrectomy. Of course, a large multicenter randomised controlled trial comparing open and laparoscopic nephrectomy is highly desirable [13, 15]. Such a study, however, is unlikely to be performed for the following reasons. Firstly, fund raising for this long term and logistically complex trial would be difficult: medical schools and universities are unlikely to provide financial resources; governmental authorities may not regard the issue as a public health priority, and industrial support may introduce a methodological bias. Secondly, should this economic hurdle be overcome, it is probable that many physicians and surgeons would feel uncomfortable mixing the issues of altruistic nephrectomy and randomisation when informing potential donors only concerned with the health of a sick relative. Finally, even if enough patients were recruited, the results would not be available for several years, at a time when the coelioscopic procedure has already gained much acceptance and enthusiasm among transplant surgeons, nephrologists and, most importantly, potential donors.

Under these circumstances, are we therefore condemned to lack scientific assessment of live donor laparoscopic nephrectomy? Will our good practice guidelines be based on the proliferation of uncontrolled case series only? If so, healthy donors and patients may undergo avoidable complications, and the already questioned credibility of surgical research [8] will decline further. If this sequence of

events is to be prevented, the best alternatives to a randomised trial must be urgently enforced [3, 9]. First of all, an accreditation process for hospitals wishing to perform the new techniques is needed. The minimal requirements should include: the existence of established cadaveric and open live nephrectomy transplantation programmes producing state of the art patient and graft survivals; all year round, 24 h/day; availability of surgical and nephrological expertise; proved experience in other fields of complex and advanced laparoscopy; a donor and patients selection procedure respecting the local and international ethical guidelines and the laws; an obligation to provide follow-up to donors and recipients. The candidate teams should also demonstrate that they have taken all the possible precautionary measures to avoid the ill-effects of the learning curve phenomenon. Visits to centres of excellence and the presence of an expert at the first procurement should be strongly encouraged. Moreover, in our current technology and media driven environment, telemedicine should be used liberally [4]. As live donor kidney transplantation is an elective procedure, and as a video conference via telephone network is of reasonable cost, the online guidance and comments of an expert, until a new team feels comfortable, would be an investment that could offer additional safety for the first donors.

Finally and most importantly, the data and results obtained by all centres ought to be pooled in a central registry, thus allowing permanent up-dating of standards and practices. So far, several members of the transplantation community have already called for such co-operation [11, 12]. In Switzerland, the six kidney transplantation centres have voluntarily agreed to do so for all their live open and laparoscopic donations. The country is however small, and in 1999 only 63 such transplantations were carried out [22]. At this pace, several years will elapse until meaningful differences between the open and laparoscopic operations emerge. It is therefore desirable to extend this effort to the international level. As some degree of state control of transplantation activities and specific laws now exist in most countries, this should not be too difficult to plan and fund. This could become a task of the Council of Europe who have already published recommendations and guidelines for their member states for more than 20 years. Alternatively, the well-oiled infrastructure and logistics of the Collaborative Transplant Study [18] that has collected and analysed the outcome of more than 200,000 renal transplants could be adapted to this purpose.

In conclusion, the rapidly spreading practice of live donor laparoscopic nephrectomy may become a new standard. It may significantly contribute to narrowing the gap between the demand and supply in renal transplantation [16]. It still needs to be assessed critically and prospectively, however, to prevent laparoscopic nephrectomy becoming a marketing tool to convince hesitant potential donors.

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