Renal transplantation is the most effective and least expensive method for treating terminal renal insufficiency. Accordingly, despite different strategies for activating cadaver donations, the universal critical organ shortage during the last decade motivated a striking boom of new living-donor kidney transplant (LDKT) programs. In 2004, the number of living donors surpassed the number of cadaver donors in the United States. A similar tendency was recognized in Europe, including Spain, where, for the first time in many years, the health authorities started favoring this program. In the era of laparoscopic surgery, existing surgical transplant teams and newcomers to the field are confronted with the following questions: Which are the gold-standard surgical procedures to be applied for the nephrectomy? Which strategy is the best for facilitating optimal grafting?

Donor nephrectomy in a healthy individual is a unique urologic procedure. Fortunately, previous ethical and legal criticism has been overcome, and living donations are well regulated in most countries. The permanent priority, however, in this type of surgery continues to be donor safety, followed by organ safety, referring to optimal anatomic and functional conditions of the kidney to be grafted. Reduced donor pain, shorter stay in the hospital, or a better cosmetic effect are secondary aims. Laparoscopic nephrectomy has progressively obtained such excellent results, and the media affect such clamorous success that they have hugely contributed to both facilitating the recruitment of new potential donors and starting new LDKT programs [1,2].

Although most publications clearly state that safety for the donor and for the organ are equivalent to open surgery [3–6], it looks as if many major complications have been underreported. A recent review [7] detected eight perioperative dead and 15 organs lost for grafting. A careful analysis of these provocative data suggests that most unacceptable complications (loss of life or loss of the organ) happened during the learning period (numbers matter!) and that the laparoscopic technique itself causes new and unexpected complications that are more common and severe than reported (e.g., gas embolism, thermic intestinal perforations [8–10]). The suspicion that these complications are only the tip of the iceberg, representing far more underreported cases, has motivated the proposal of a central registry to track real incidence and to prevent underreporting.

Is open nephrectomy for living donors an obsolete procedure? Should open surgery programs be converted to laparoscopic programs or even cancelled? We have tried to answer these questions regarding our LDKT program, which has several singularities that are most relevant for this debate:

1. Our program was started in 1968 and has received both criticism and help from the local medical community and health authorities during the past 40 yr.
2. Only 5–10 nephrectomy graftings were performed per year (a cadaver kidney program had been simultaneously running since 1964).
3. Our open nephrectomy procedure was never done through a conventional lumbar approach with rib resection. The Turner-Warwick supracostal approach was the initial technique [11,12], and, since 1974, an anterior, subcostal, horizontal, extraperitoneal small incision (10 cm) was used [13].
4. The procedures are started simultaneously in two adjacent operating rooms (ORs)—one team works on the nephrectomy, while the other prepares the recipient.

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area for grafting—but the same senior surgeon performs the nephrectomy and the grafting.

A retrospective review has been done recently [14] of our 40-yr program, during which we performed 243 cases with the following results:

1. The nephrectomy never caused life-threatening complications or the loss of any donor. The common complications of conventional lumbotomy (ie, perioperative pneumothorax, postoperative bleeding, re-interventions for any cause, or, in the long term, incisional hernia or abdominal wall paresia) were not detected in our series.

2. We never lost an organ for grafting due to parenchymal fractures, vascular dilacerations, inadequate length of the vessels, and so forth or for nonsurgical reasons. Minor problems such as subcapsular hematoma or capsular perforations were rarely observed. Excellent anatomic integrity of the organ and the vessels was the rule.

3. The mini-incisional anterior abdominal approach is as valid on the left side as on the right. Seventy-five percent of our nephrectomies were on the right. The short right renal vein has never been considered a limiting factor, in our experience.

4. Warm ischemia time is very brief (30–60 s), as is the cold ischemia time (40–60 min), including time of perfusion. The delay function detected in several consecutive cases was rapidly identified as due to cyclosporin overdosing toxicity and not to technical deficiencies.

5. The mini-incisional abdominal approach is far less painful than conventional lumbotomy. As the length of the incision is similar to the one used for the final extraction of the kidney in laparoscopic surgery, a similar use of analgesic, length of stay in the hospital, and recovery time is expected.

6. Working in two adjacent ORs with two different teams under the responsibility of a single surgeon (not necessarily always the same surgeon) permitted some strategic and operative benefits. The OR occupation time is reduced in both ORs. As the surgeon who is handling the kidney and sectioning the vessels is the same one doing the grafting, the correct position of the kidney and selection of the vessels for the anastomosis is facilitated. The excellent anatomic conditions of the organ and vessels help ensure the quality of the vascular anastomosis.

In conclusion, for a period of 40 yr, in an LDKT program with a small number of cases per year, mini-incisional open nephrectomy has offered excellent results for donor and organ safety. Mini-incisional surgery considerably reduces donor morbidity, both short- and long-term, offering a limited advantage over laparoscopic nephrectomy in this aspect. Simultaneous surgery in two adjacent ORs and the same surgeon having responsibility for both procedures optimizes the grafting and reduces the operation time. As numbers matter in laparoscopic surgery and the learning period is critical, the mini-incisional alternative is a safer option for starting new programs or not delaying the opportunity to participate in this exciting and fundamental urologic commitment of renal transplantation.

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References