

## Nephrectomy in patients with autosomal dominant polycystic kidney disease, does size matter?

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Dear Editor,

Autosomal dominant polycystic kidney disease (ADPKD) is well known for its association with renal function decline, due to massive bilateral cyst formation in the kidneys [1]. Sometimes ADPKD patients may benefit from a native nephrectomy, for instance when patients suffer from chronic pain related to the enlarged kidneys, recurrent hematuria, therapy-resistant cyst infection, or do not have enough abdominal space to allow for a renal allograft [2].

Recently The World Journal of Urology published an article by Benoit et al. [3] that evaluated the feasibility of transperitoneal and retroperitoneal laparoscopic approaches for nephrectomy in ADPKD patients. Their study had a retrospective design and included 82 patients in total, 43 patients underwent nephrectomy by the transperitoneal approach and 39 by the retroperitoneal approach. They concluded that both approaches provided good outcomes and suggested, like others, that laparoscopic nephrectomy may be preferred over an open approach in ADPKD patients

because of a shorter duration of hospitalization, less blood loss, and improvement in cosmetic aspects [4]. Despite these results, we are doubtful whether these techniques can be easily performed in the general ADPKD population.

The main indication to perform nephrectomy in ADPKD patients is that there is not enough abdominal space to allow kidney transplantation [5]. Benoit and coworkers briefly mentioned that kidney weight and volume were not collected in their study [3]. To our knowledge, of the six other studies that have compared a laparoscopic with an open approach for nephrectomy in ADPKD, none collected data on pre-operative kidney volume and only four examined kidney weight post-operatively [4]. In addition, none of these studies described clearly what the eligibility criteria were with respect to pre-operative kidney volume for choosing the various approaches that were investigated. In these studies, mean weight of the removed kidney varied between studies from 966 to 1507 g [6–9]. Data from our center show that, in 20 ADPKD patients who underwent nephrectomy (17 for transplant preparation, 2 for mechanical complaints, and 1 for cyst infection), the median weight and volume of the removed kidney was 2875 (95 % CI 1880–4943) g and 2.83 (95 % CI 1.68–5.49) L, respectively. Only in four cases was the procedure performed by a laparoscopic approach and the remaining 16 by an open approach. In these latter cases, the treating urologist considered, because of the size of the native kidney, that a laparoscopic approach was not feasible. The fact that in the literature the mean weight of the removed kidney is considerably lower than in our experience, and also low when considering that removal of a large polycystic kidney to allow a renal transplant is the most frequent reason for a nephrectomy in ADPKD, suggests that selection bias is likely in these studies. It seems that ADPKD patients with

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relatively large kidney have not been selected to undergo a laparoscopic procedure.

Given these considerations, we are of the opinion that the literature is not conclusive which approach we should choose for nephrectomy to our ADPKD patients. Due to the limited availability of data on pre-operative kidney volume and missing eligibility criteria in the studies that have been performed, it cannot reliably be assessed what the place is of laparoscopic versus open approaches, nor what the preferred laparoscopic approach is for individual ADPKD patients. We suggest that radiological imaging before the procedure, with volumetry of the kidney that is to be removed, should be performed and the result taken into account when deciding which patients will be selected for a laparoscopic approach. Information on eligibility criteria and pre-operative kidney volume should also be included in future investigations that compare various operative nephrectomy techniques in ADPKD patients in order to be able to conclude whether size does matter when deciding what the best approach is.

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