

Editorial comments to paper published in this issue on pgs. 152–155

The article "Radical or simple nephrectomy in localized renal cell carcinoma: what is a choice?"

Radical or simple nephrectomy for localized renal cell carcinoma – The decision making is much more complex in 2011

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The authors report on a retrospective study of nephrectomies in 418 patients with clinically localized RCC. Localized RCC is classified as T1 and T2 tumors using the TNM classification. A T1 RCC is <4 cm, T1b is between 4–7 cm, and T2 RCC >7 cm. 248 patients had what is described as a radical nephrectomy and 170 patients had a simple nephrectomy. The authors defined a simple nephrectomy as the removal of the kidney with its enveloping perinephric fat. A radical nephrectomy is defined as the removal of the kidney with the perinephric fat and the regional lymph nodes. The 3- and 5-year overall and cancer specific survival were similar between the two patient groups. Thus, the authors concluded that regional lymphadenectomy does not increase survival in patients with T1-T2 RCC. Thus, by their definition the surgeon can choose to perform a simple or radical nephrectomy.

SIMPLE NEPHRECTOMY

The first simple nephrectomy was performed by Simon Gustav in 1869 [1]. A description of a simple nephrectomy in the Atlas of Urological Surgery by Frank Hinman Jr. was to "dissected the perirenal fat from the lower pole and posterior surface of the kidney after entering into the Gerota's fascia" [2]. The authors of the renal cancer chapter in Campbell's Urology stated that "the cleavage between the perinephric fat and the renal capsule is developed during a simple nephrectomy" [3]. Hence when performing a simple nephrectomy, one removes the kidney, without Gerota's fascia, the perirenal fat or the ipsilateral adrenal gland. This is commonly performed for benign, chronic inflammatory renal diseases. A simple nephrectomy is often performed with an extra-peritoneal approach via a flank incision. This approach minimizes contamination of the intraperitoneal compartment during the operation. Thus Shulyak and Banyra use a different definition of simple nephrectomy as the perirenal fat was removed and there was early ligation of the artery and vein.

RADICAL NEPHRECTOMY

Gregoire reported the first radical nephrectomy in 1903 [4]. However, it was not until 1969 that Robson established radical nephrectomy as the "gold standard" in treating renal cell carcinoma [5]. The principles of the radical nephrectomy were early ligation of the renal pedicle, *en bloc* excision of Gerota's fascia, as well as performing a regional lymphadenectomy from the crus of the diaphragm to the bifurcation of the aorta. The most important aspect of Robson's surgical technique was the *en bloc* resection of the kidney with Gerota's fascia because capsular invasion and perinephric fat involvement occurred in 22% of cases at that time.

LYMPHADENECTOMY

The role of lymphadenectomy in T1-T2N0M0 RCC continues to be debated. A randomized trial by The European Organization of Research and Treatment of Cancer Genitourinary Group comparing radical nephrectomy with complete lymphadenectomy versus radical nephrectomy alone, indicated only 3.3% lymph node metastases in patients with clinically negative nodes. The trial did not demonstrate any difference in tumor-free or overall survival between the groups [6]. Blute et al. described five high risk features that were associated with lymph node metastases: primary tumor stage T3 or T4, nuclear grade 3 or 4, tumor size 10 cm or greater, presence of a sarcomatoid component, and presence of tumor necrosis [7]. Patients with two features had a 4.4 % incidence of lymph node metastases, where as patients with five features had a 50% incidence. Thus, as Doctor Stanislaw Wronski has pointed out, a regional lymphadenectomy might be appropriate for patients with clinical evident lymphadenopathy or high-risk features. Fortunately with sophisticated modern imaging we can fairly accurately distinguish which patients are in the high- risk category.

ADRENALECTOMY

Historically, adrenalectomy has been a part of a radical nephrectomy. Direct extension or metastasis to the adrenal gland occurs in 8–40% of patients with locally advanced RCC, but in only 0.6% of patients with T1 and T2 disease [8]. Of the renal cell carcinomas that involve the adrenal gland, the great majority arise from the upper pole of the kidney. In comparison, very few lower and mid pole RCC have adrenal involvement. There is no evidence to suggest an increase in disease free survival with ipsilateral adrenalectomy for all patients with localised renal cell carcinoma. Importantly the added exposure required with adrenalectomy can add morbidity in some patients, particularly those who are obese.

OUR PRACTICE

Due to the availability of CT scans, the number of RCC detected incidentally has increased from 10% to 60% [9]. Of those incidental renal cell carcinomas, the proportion of localised RCC has increased from 49% to 74%. This stage migration of renal cell carcinoma has translated into an overall 5 years disease free survival of 93%.

Nephron-sparing surgery is the preferred therapeutic approach for most small renal tumors. Lau and colleagues demonstrated similar overall and cancer specific survival for patients who had a partial nephrectomy (PN) compared to radical nephrectomy for small renal cell carcinomas [10]. The patients who had PN, however, had a lower incidence of chronic renal disease. Moreover, the local