

When and How to Remove Nodes in Renal Cell Cancer?



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News

The role of lymph node dissection during radical nephrectomy for renal cell carcinoma (RCC) remains unclear. Obviously lymphadenectomies in patients with suspicious (i.e. enlarged) nodes on CT scan are performed by most urological surgeons [1,2]. But what about clinically negative ones?

The EAU guidelines do not recommend lymph node dissection for localized tumours without clinical evidence of lymph node invasion [3].

In daily practice, one could perform lymph node dissection in all patients that undergo radical nephrectomy, but also in patients treated with partial nephrectomy, small and larger tumours. But, is this evidence-based surgical practice?

The question when and to what extent lymph nodes need to be removed while performing (partial) nephrectomy remains debated. Enlargement of lymph nodes on computed tomography (CT) does not always mean invasion. In a majority of patients (58%), lymph node enlargement is due to inflammatory changes [4]. This was documented more frequently occurring with renal vein invasion and tumour necrosis. Lymph node invasion in RCC surgery has a very unpredictable spread. The lymph nodes can be located around the hilum and the aorta/inferior vena cava. However, also lymph nodes of the mediastinum or supraclavicular and iliac nodes can be invaded [5].

Bex and colleagues described a sentinel node technique in RCC surgery. They also found retro caval and extra peritoneal locations (eg, along the internal mammarian chain) as sentinel nodes [6]. Sentinel technology is not routine and needs to be further investigated. The extent of lymph node dissection is debated as well.

The EORTC study (protocol 30881) demonstrated that only 3,3% of 772 clinically node negative patients receiving radical nephrectomy with lymph node dissection had a pathologically positive lymph node [2]. Nevertheless, we must take into account

that the study was underpowered to conclude that the outcome in both arms was equivalent, since only very few patients were node positive, that the number of nodes resected was not recorded, and that there were obviously too few patients with high-risk tumours [7]. The same study showed that a primary lymph node dissection for RCC is easy, does not prolong the operation by more than half an hour, and adds practically no morbidity. The value of an extended lymph node dissection is improving the staging and information about prognosis.

Blute, et al. [8] described five predictors of nodal invasion in a retrospective analysis: clinical stage (T3-T4), tumour size (>10 cm), tumour grade (Furhmann 3-4), sarcomatoid differentiation and presence of necrosis. These primary tumour pathological features can be used to predict patients at the greatest risk for regional lymph node involvement at radical nephrectomy [8].

In a retrospective study Crispin, et al. [1] propose a lymph node dissection template [1]. They advise to perform an extended removal of the peri caval/per aortic nodes together with the intra-aorta caval nodes from the crus of the diaphragm down to the common iliac artery. In this study, nodes were removed based upon intra operative pathologic assessment of the primary tumour when two or more risk factors were identified. Those factors included nuclear grade 3 or 4, sarcomatoid component, tumour size 10 cm, tumour stage pT3 or pT4, or coagulative tumour necrosis.

Capitanio, et al. [9] concluded that at least 15 nodes need to be removed to achieve a 90% probability of detecting lymph node invasion [9]. A staging lymphadenectomy therefore should be 'extended'. The group of pathologically lymph node positive patients who benefit from lymph node dissection is described by Delacroix, et al. [10] for pathologically lymph node positive patients, the prognosis is very poor with only 7-17% 5 year overall survival. Four favorable factors were found in a multi-variant analysis: good performance status, single node invasion, no sarcomatoid features and papillary histology [10].

The patients that can be cured with extended lymph node dissection are those with microscopic invasion of a low number of lymph nodes (less than four positive nodes) or without extra-nodal extension [11]. There is a rationale for prophylactic lymph node dissection in patients with clinically negative lymph nodes. Patients can develop isolated lymph node recurrences, without systemic metastases. They can be rescued by a salvage lymphadenectomy, which is often difficult surgery. Those patients have a chance for cure with extensive primary surgery.

Conclusion

There is no reason today not to do an easy lymph node dissection in RCC patients that are at risk of having microscopic nodal disease, i.e., all patients undergoing radical nephrectomy and all patients with tumour larger than T1b, certainly when risk factors like advanced T-stage, large size and tumour necrosis are present.

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