

Treatment of localised renal cell carcinoma (RCC)

Surgical Treatment

Most analyses show a significantly lower cancer-specific mortality for patients treated with surgery compared to non-surgical management.

T1 RCC: The oncological outcome in terms of overall survival (OS) following partial nephrectomy (PN) equals that of radical nephrectomy (RN) in patients with T1 RCC.

T2 RCC: Retrospective studies suggest that oncological outcomes are similar following PN vs. RN in patients with larger (> 7 cm) RCC. Post-operative complication rates are higher in PN patients.

Lymph node dissection (LND) for clinically negative lymph nodes (LN) (cN0): In patients with localised disease without radiographic evidence of LN metastases, a survival advantage of lymphadenectomy in conjunction with RN is not demonstrated in RCTs. Retrospective studies suggest a clinical benefit associated with LND in high-risk patients.

Embolisation: Before routine nephrectomy, tumour embolisation has no benefit. In patients unfit for surgery, or with non-resectable disease, embolisation can control symptoms, including visible haematuria or flank pain.

Recommendations	Strength rating
Offer surgery to achieve cure in localised renal cell cancer.	Strong
Offer partial nephrectomy (PN) to patients with T1 tumours.	Strong
Offer PN to patients with T2 tumours and a solitary kidney or chronic kidney disease, if technically feasible.	Weak
Do not perform ipsilateral adrenalectomy if there is no clinical evidence of invasion of the adrenal gland.	Strong
Do not offer an extended lymph node dissection to patients with organ-confined disease.	Weak
Offer embolisation to patients unfit for surgery presenting with massive haematuria or flank pain.	Weak

Radical and partial nephrectomy techniques

- Laparoscopic RN has lower morbidity than open nephrectomy.
- Short-term oncological outcomes for T1–T2a tumours are equivalent for laparoscopic- and open RN.
- PN can be performed, either by open-, pure laparoscopic- or robot-assisted approach, based on surgeon's expertise and skills.
- Robot-assisted and laparoscopic PN are associated with shorter length of hospital stay and lower blood loss compared to open PN.
- PN is associated with a higher percentage of positive surgical margins (PSMs) compared to RN.
- Transperitoneal and retroperitoneal laparoscopic PN do not differ in in post-operative surgical and medical complications, PSMs, and kidney function.
- Hospital volume for PN might impact on surgical complications, warm ischaemia time and surgical margins.
- Radical nephrectomy after PSMs can result in over-treatment in many cases.

Recommendations	Strength rating
Offer laparoscopic radical nephrectomy (RN) to patients with T2 tumours and localised masses not treatable by partial nephrectomy (PN).	Strong
Do not perform minimally-invasive RN in patients with T1 tumours for whom a PN is feasible by any approach, including open.	Strong
Do not perform minimally-invasive surgery if this approach may compromise oncological-functional- and peri-operative outcomes.	Strong
Intensify follow-up in patients with a positive surgical margin, especially in upstaged pT3a patients.	Weak

Therapeutic approaches as alternatives to surgery

Active surveillance (AS) and watchful waiting

Elderly and comorbid patients with incidental small renal masses (SRMs) have a low RCC-specific mortality and significant competing-cause mortality. Active surveillance is defined as the initial monitoring of tumour size by serial abdominal imaging with delayed intervention reserved for tumours showing clinical progression during follow-up.

Role of renal tumour biopsy before active surveillance

Histological characterisation of SRMs by renal tumour biopsy is useful to select tumours at lower risk of progression based on grade and histotype, which can be safely managed with AS. Pathology can also help to tailor surveillance imaging schedules.

Tumour ablation (TA) (Cryoablation, Radiofrequency ablation RFA, Stereotactic ablative radiotherapy, Microwave ablation)

Low-quality studies suggest higher disease recurrence rates after RFA of tumours > 3 cm and after cryoablation of tumours > 4 cm.

Low-quality studies suggest a higher local recurrence rate for TA therapies compared to PN, but quality of data does not allow definitive conclusions.

Recommendations	Strength rating
Offer active surveillance (AS) or thermal ablation (TA) to frail and/or comorbid patients with small renal masses.	Weak
Perform a percutaneous renal mass biopsy prior to, and not concomitantly with, TA.	Strong
When TA or AS are offered, discuss with patients about the harms/benefits with regards to oncological outcomes and complications.	Strong
Do not routinely offer TA for tumours > 3 cm and cryoablation for tumours > 4 cm.	Weak