

# Kidney cancer

**Adenocarcinoma of the kidney** spreads per continuitatem (into the surrounding structures, angioinvasion - IVC), sometimes by lymphogenous spread (lumbar nodes) and especially by hematogenous spread (lungs, bones, liver). It comes from the cells of the tubules.

## Forms of the cancer

- Light cell - makes up about 70%  
light cells, thanks to glycogen and lipids
- Papillary - 10-15%  
papillary structure, contains psammoma bodies.
- Granular - 8%  
acidophilic cytoplasm, cellular atypia.
- Chromophobic - 5%  
contains clear cells with perinuclear halo + granular cells
- Sarcomatoid - 1.5%  
vortex atypical spindle cells.
- From collecting channels - 0.5%  
structure with tubular and papillary pattern

## Histopathological grading

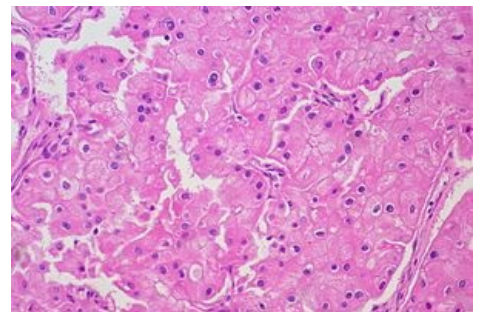
### Histopathological grading of renal adenocarcinoma:

- **GX** = degree of the differentiation can not be assessed,
- **G1** = well differentiated,
- **G2** = moderately differentiated,
- **G3-4** = poorly differentiated to undifferentiated.

## TNM classification



Kidney longitudinal section - carcinoma



Histological preparation of chromophobic kidney cancer

Kidney Cancer	
The size of the primary tumour	
T1	not more than 7 cm in the largest dimension, restricted to the kidney
T1a	not more than 4 cm in the largest dimension
T1b	more than 4 cm and not more than 6 cm in the largest dimension
T2a	more than 7 cm in the largest dimension, but not more than 10 cm
T2b	more than 10 cm in the largest dimension, restricted to the kidney
T3	the tumor spreads to the veins or tissue around the kidney, does not grow through the Gerota's fascia
T3a	tumor grows into the adrenal gland or the perirenal tissue
T3b	tumor grows into the renal veins or the inferior vena cava, but only below the diaphragm
T3c	tumor grows through the inferior vena cava above the diaphragm
T4	tumor grows through Gerota's fascia
Lymph node impairment	
N0	no metastases; at least eight regional nodes need to be examined for the pTNM
N1	metastasis in one regional node
Distant metastases	
M0	absent
M1	present

## Clinical manifestations

- Up to **60% of patients are asymptomatic**, the tumor is diagnosed as an accidental finding on sonography or CT,
- Triad (in an advanced tumor) - macrohematuria, lumbalgia, palpable tumor - in about 6-10% of diagnosed tumors,
- hematuria,
- general symptoms: anemia, fatigue, anorexia, cachexia, etc.,
- pathological fracture and bone pain,
- symptoms of a tumor thrombus: acute varicocele, lower limb edema, pulmonary embolism.

## Diagnostics

When finding an expansive kidney process:

- excretory urography,
- US, CT examination with an abdominal and chest contrast (staging),
- angiography, cavography (injection of the inferior vena cava with a contrast agent - tumor thrombus is being sought, nowadays replaced by MRI).

## Treatment

- Surgical,**
  - radical nephrectomy (preferably transabdominal, laparoscopic and open transperitoneal approach) - including the fat sheath and Gerota's fascia, adrenalectomy in tumors over 5 cm in the upper pole, regional lymphadenectomy is no longer performed (kidney cancer metastasizes mainly by hematogenous spread, non-lymphatic), tumors up to 8-10 cm are operated laparoscopically, without invasion of perirenal structures and tumor thrombus,
  - conservation operations - resection of a pole (tumor up to 5 cm) or excision of a tumor by lumbotomy or laparoscopy, or ablation methods (RFA, cryoablation). Indications for conservation surgery are: anatomically or functionally solitary kidney, bilateral tumor and hereditary forms of tumors),
  - advanced carcinoma - resection of solitary metastasis, embolization during massive hematuria, palliative radiation during bone pain,
- chemo-radiotherapy - the tumor is chemo- and radioresistant, vinblastine has an effect,
- immunotherapy (IFN $\alpha$ , IL-2) - since the 90s, effect on metastasis treatment, partial remission in 15% of patients (IL-2),
- biologic therapy (since 2006) - sunitinib, sorafenib, they doubled patient's survival, angiogenesis inhibitors such as bevacizumab.

## Tumor thrombus

Kidney cancer grows into the veins:

- renal vein - nephrectomy,
- lower vena cava below the level of the diaphragm - cavotomy,
- lower vena cava above the level of the diaphragm - a two-cavity operation with extracorporeal circulation and assisted by a cardiac surgeon.

## Links

### Related Articles

- Clear cell kidney cancer (preparation)
- Benign kidney tumors

### Bibliography

- PASTOR, Jan. *Langenbeck's medical web page* [online]. [cit. 24.5.2010]. <<http://langenbeck.webs.com>>.