

Examination methods in urology

Physical examination

- In addition to the classic examination, the following should be mentioned:
 - Israel's touch – bimanual palpation of the kidney;
 - Tappotement – tap on the kidneys.

See the Physical Examination page for more detailed information .

Urine examination

- Methods of urine collection:
 - the first stream of urine – for the detection of parasites;
 - medium stream of urine - highest permissible bacteriuria up to 10^5 /ml
 - last stream of urine – when diagnosing prostatitis
 - catheterization of the urinary bladder - the highest permissible bacteriuria up to 10^3 /ml
 - suprapubic puncture - the highest allowable bacteriuria is 0 (urine is sterile).
- Urine is examined in different ways - physically, chemically, by culture and by examination of urine sediment
More detailed information can be found on the Urinalysis page .

Examination of urethral and prostatic secretions, semen

- **of urethral secretions** - when urethritis is suspected, a microscopic and culture examination is indicated
- **prostatic secretion** – after 2-3 days of sexual abstinence, prostatic secretion is obtained by prostatic massage
- **semen examination** - 2-3 days of sexual abstinence is recommended, microbiological and culture examination may be indicated
- if trichomoniasis, bilharziosis is suspected, the material can be sent for parasitological examination^[1]

Cytology

Cytological examination is used for cytological examination of cells contained in urine, in irrigation fluid (physiological solution from the bladder or renal pelvis) or fluid obtained by puncture (e.g. from a renal cyst). It is mainly used in uro-oncology both in screening and especially in monitoring patients with tumors from the transitional epithelium.

Implementation

The freshly obtained material is, if possible, immediately centrifuged at 1500-3000 revolutions per minute in a cuvette and *stained by the Papanicolaou method* . The architecture of the cells, the nucleus and nuclear atypia (multiple prominent nucleoli, shape and structural deviations of the nucleus) are assessed.

The results:

- PAP 1-2 – negative finding, but a well-differentiated carcinoma of low degree of malignancy may be;
- PAP 3 – suspicious finding;
- PAP 4-5 – positive finding.

Display methods

- Ultrasonography – method of first choice;
 - almost everything can be visualized, with the exception of the ureter, which is difficult to visualize in its entirety;
 - can be performed through the rectum – transrectal ultrasonography (TRUS);
 - findings:
 - concretions – have an acoustic shadow;
 - tumors – do not have an acoustic shadow;
 - hydronephrosis – expansion of the calicopelvic system;
 - the condition of the kidney is important for therapy (detected by IVU, see below) – if it is functional, pyeloplasty is performed, if not, nephrectomy is indicated.
- Magnetic resonance
 - angiography
 - urografie
- Radiodiagnostic examinations
 - **micturition cystourethrography** – intended mainly for evaluation of bladder pathologies;
 - **micturition urethrocytography** - indicated in suspected urethral strictures, bladder neck sclerosis;

- **intravenous excretory urography (IVU)** – evaluates morphological and functional changes in the kidneys and urinary tracts, especially the calicopelvic (CP) system and ureters;^[1]
- **ascending pyelography** - used only if other non-invasive methods do not provide enough information
- **angiography**
- **interventional methods** – percutaneous nephrostomy, stents, etc.^[1]
- **native nephrogram** (native image of the supine abdomen)
 - indicated for lithiasis (sensitivity but only 45–70%!); less so for tumors or tuberculosis;^[1]
 - urate stones do not have contrast - then a CT scan is indicated (a CT scan has a higher radiation load than a native nephrogram)

Examination procedure in case of suspicion of a stone:

1. Anamnesis, physical examination (tapottement positive in 95% of cases);
2. Ultrasonography (it is difficult to detect a concretion in the middle part of the ureter);
3. Native nephrogram, preferably intravenous excretory urography (do not perform in case of acute problems);
4. CT scan.^[2]

More detailed information can be found on the page Radiodiagnostic examination of the urinary tract .

- **Radionuclide examinations**
 - **dynamic kidney** scintigraphy (nephrography)
 - furosemide test - use in obstructive uropathy, if the pelvis does not empty during the dynamic scintigraphy of the kidneys by the end of the examination;
 - **static scintigraphy of the kidneys** - intended for the evaluation of the functional renal mass (pyelonephritis , scars and relative function of the kidneys);
 - **radionuclide voiding cystography** - for monitoring children with vesicoureteral reflux;
 - **scintigraphy of the scrotum** - for swelling and/or pain in the testicle area (differentiates acute testicular torsion from acute inflammation).

More detailed information can be found on the Radionuclide kidney examination page .

- **Endoscopy**
 - only cystoscopy can be performed on an outpatient basis ;
 - anesthesia is required for other examinations - urethroscopy, percutaneous nephroscopy, ureterorenoscopy.
- **Urodynamic examination**

Links

External links

- Flexible cystoscopy (<https://mefanet.lfp.cuni.cz/clanky.php?aid=392>)

Source

- VAL'OVÁ, Z. *Basic examination procedures in urology* [lecture on the subject of Urology, field of General Medicine, 1st Faculty of Medicine, UK]. Prague. 9/12/2013.

Used literature

- HANUŠ, Tomáš. *Urologie*. 1. edition. Triton, 2011. 207 pp. pp. 18. ISBN 978-80-7387-387-5.

References

1. ↑ Jump up to:a b c d e HERÁČEK, Jiří and Michael URBAN, et al. *Urology for students* [online]. Androgeos, ©2013. Latest revision Version 2.0 [2013], [cit. 2013-12-12]. < <http://www.urologieprostudenty.cz> >.
 2. ↑ VOBORIL, Vladimír. Diagnosis and treatment of urolithiasis. *Practicus* [online] . 2012, year 11, vol. 2, pp. 7-10, also available from < <http://www.practicus.eu> >. ISSN 1213-8711.
1. HERÁČEK, Jiří and Michael URBAN, et al. *Urology for students* [online]. Androgeos, ©2013. Latest revision Version 2.0 [2013], [cit. 2013-12-12]. < <http://www.urologieprostudenty.cz> >
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