

The Importance of Early Diagnosis of Prostate Cancer

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Abstract: The main methods for diagnosing prostate cancer include digital rectal examination, determination of PSA levels and transrectal ultrasound (TRUS). The final diagnosis is established when adenocarcinoma is detected in biopsy and/or postoperative material of the prostate gland (PG). Pathological studies also make it possible to stage the tumor and determine its extent. In patients with a negative primary biopsy, it is recommended that PMRI be performed before pancreatic biopsy. (EAU 2019). In the vast majority of cases, under such conditions, localized forms of prostate cancer are detected.

Keywords: cancer, prostate gland, diagnosis, biopsy, morphology.

Prostate cancer (PCa) is one of the most common malignant diseases in men (Alyaev Yu. G., 2015). Every year, more than 550 thousand new cases of prostate cancer are registered worldwide. This is precisely related to the fact that more and more attention has recently been paid to the diagnosis and treatment of this pathology, both abroad and in Russia. The highest incidence rates of prostate cancer were observed in the USA, Canada and a number of European countries, where it ranks first in the structure of oncological pathology.

The main methods for diagnosing prostate cancer include digital rectal examination, PSA level determination and transrectal ultrasound (TRUS). The final diagnosis is established when adenocarcinoma is detected in biopsy and/or postoperative material of the prostate gland (PG). Pathological studies also make it possible to stage the tumor and determine its extent. At the same time, a trend has been established towards an increase in the detection of highly differentiated localized prostate cancer in patients with low cancer risk, which is associated with PSA screening and a large number of biopsies (including repeat ones). Such circumstances suggest that most of these patients can be monitored rather than operated on. We are talking about patients with locally localized prostate cancer, a blood PSA level <10 ng/ml and a degree of tumor cell differentiation ≤ 6 points on the Gleason scale. Randomized multicenter studies (Bill-Axelson A., 2008; Tewari A., 2004) indicate comparable oncologic and overall survival in groups of patients with active surveillance or watchful waiting and who received radical treatment for prostate cancer with a median follow-up of 10 years. Cancer discovered during histological examination of removed adenomatous nodes has several names in the literature: cancer in situ, incidental, latent, occult or microscopic. Clinical carcinoma is characterized as a cancerous tumor with clinical manifestations confirmed by microscopic examination. Occult (hidden) carcinomas include tumors that manifest as metastases before their primary location is identified. Despite the high level of modern pathomorphological diagnostics, histological findings after puncture biopsy of an organ (stage C) often do not correspond to histological findings after radical prostatectomy (RP) (stage P).

According to a number of studies, there is an underestimation of the Gleason score according to biopsy data in comparison with morphological material after RP by 33-45% (King S. R., Long J. R., 2000; King S. R., 2006; Tomioka S. et al., 2006). Often, data from a postoperative study of histological material from the removed prostate indicate a worse prognosis for the disease. In 40% of patients, the Gleason grade after RP exceeds that established based on the results of 12 puncture biopsies of the prostate, which automatically assumes that the patient is in a group of higher cancer risk. (Alyaev Yu. G., 2015) There was a significant increase in the proportion of incident prostate cancer and mortality associated with these cases according to long-term follow-up (Andrèn O., 2009), (Allué López M., 2006). Studying PSA levels before and after surgical treatment of BPH, as well as clarifying the

Gleason score are significant prognostic factors before planned RP in patients with incident prostate cancer. In addition, PSA level and Gleason score are independent prognostic factors for biochemical relapse after radical retropubic prostaectomy in patients with incident prostate cancer (Capitano U., 2008).

Diagnosis of prostate cancer is based on the detection of elevated PSA levels, as well as on the results of a digital rectal examination. However, the final diagnosis is made as a result of the detection of adenocarcinoma in a biopsy material, or when examining tissue after TURP or adenomectomy.

In modern medical practice, performing pancreatic biopsy under TRUS control is a standard diagnostic method. In addition, FUSION prostate biopsy under MRI control has now been introduced into practice. If prostate cancer (PCa) is suspected in patients with an enlarged prostate, it is recommended to perform a targeted biopsy as the primary diagnostic method (Zyryanov A.V., 2017). However, PIRADS recommendations must be followed for interpreting 13 mpMRI data. For PI-RADS ≥ 3 on mpMRI, targeted and systematic biopsy is recommended (EAU 2019). In patients with a negative primary biopsy, it is recommended that PMRI be performed before pancreatic biopsy. (EAU 2019). In the vast majority of cases, under such conditions, localized forms of prostate cancer are detected (Porcaro A.B., 2015).

Incidental prostate cancer (PCa) is cancer detected unintentionally during the examination of histological material after transurethral resection (TUR), as well as endoscopic laser or open adenomectomy for benign prostatic hyperplasia (BPH). In these patients, preoperative examination data (digital rectal examination, transrectal ultrasound) and the results of prostate biopsy did not reveal prostate cancer (Argyropoulos A., 2005).

According to the TNM classification, incidental prostate cancer corresponds to two T stages: T1a and T1b. The diagnosis of stage T1a cancer is made by chance histological detection of a tumor after surgery for prostate adenoma in 5% of the tissue, and the diagnosis of stage T1b cancer is made in more than 5% of the histological material after removal of BPH. We should not forget about the presence of the term "latent prostate cancer," which includes the frequency of cancer detection according to autopsy data. It is worth noting that the detection rate of latent prostate cancer significantly exceeds the detection rate of incident prostate cancer. For example, during autopsies of men over 50 years of age, latent forms of prostate cancer were identified in 40%, of which 9.5% were clinically significant forms. According to autopsies conducted in the United States, clinically undetectable foci of malignant degeneration of the prostate gland are detected in 15-30% of men over 50 years of age and in 80% of men over 80 years of age. According to an international multicenter study, the prevalence of latent prostate cancer in men aged 40-49 years was 12%. With age, there was an increase in the risk of prostate cancer detection. Thus, in the group of 60-69 years old it was 22%, and in the group over 80 years old - 43% (Coley C.M., 1997). During autopsies, the frequency of detection of latent forms of prostate cancer reaches 45% (Lopatkin N.A., 1995). Latent prostate cancer is detected in men aged 50-60 years in 5-14% of cases, in men aged 60-80 years - in 20-40% (Kogan M.I., 2006). Prostatic intraepithelial neoplasia (PIN) plays an important role in the development of prostate cancer. Prostate cancer is detected in 30% of cases in patients with previously identified highgrade PIN (Kogan M.I., 2006). At the same time, a strong correlation between PIN and benign prostatic hyperplasia has been proven (Anim J.T., 1998). Studying the combination of these processes may provide the key to further understanding the pathogenesis of prostate cancer and other cancers. The relevance of the problem of incidental prostate cancer is confirmed by the frequency of its detection in patients suffering from prostate adenoma and the possible consequences of cancer progression. The frequency of detection of incident prostate cancer during morphological examination after TUR of the prostate or open adenomectomy is 8-10% (Alyaev Yu.G., 2005). The detection rate of incident prostate cancer does not exceed 10%, but can vary greatly depending on the experience of the pathologist and the characteristics of the morphological study (Pushkar D.Yu., 2001). Treatment tactics for such patients remain the subject of active debate. The volume of tumor tissue remaining after TURP of BPH and the degree of risk of progression of the cancer process are unknown. According to a large European study conducted before the introduction of PSA screening, which included 23,288

patients with incident PCa, the specific 10-year mortality rate was 26.6%. The study does not contain data on the stage of the process (T1a, T1b), the degree of tumor differentiation, or the level of prostate specific antigen (PSA) (Andrèn O., 2009).

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