A rare case of a patient with primary urothelial carcinoma of the prostate urethra - Multidisciplinary approach

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**ABSTRACT**

Urethral carcinomas are rare cancers, so there are no definite recommendations and a unified approach in their diagnosis and treatment. We present a patient with invasive urothelial carcinoma of the prostate urethra, in whom, due to severe psychological trauma and unsuccessful suicide attempt after diagnosis, the initial decision for radical surgical treatment was changed. CyberKnife radiation therapy and immunotherapy with a very good therapeutic response were administered.

**Introduction**

Malignant neoplasms of the urethra are the rarest anatomical location among urological neoplasms. They represent less than 1% of all urinary system carcinomas, and men are the more affected sex. The most common histological variants in men are urothelial carcinoma, squamous cell carcinoma, and adenocarcinoma. The initial diagnosis is difficult, erroneous, or late, given their rarity. The treatment principles are insufficient evidence and recommendation level (level of evidence and strength rating), based on individual cases.

**Case presentation**

A 72-year-old man with lower urinary tract symptoms (voiding symptoms) underwent 8 months of outpatient treatment with an alpha-blocker. The abdominal ultrasound did not detect the urinary system’s pathology, and the volume of the prostate was 42 cm³. The performed laboratory tests were in reference values, and the PSA was 0.6 ng/ml. There was no significant improvement in the complaints, so the patient was referred to the Urology Clinic for endoscopic diagnosis and treatment. Physical examination did not reveal any abnormalities. Planned cystoscopy reveals papillary formations in the prostate urethra, leading to incomplete obstruction. Intralumenally, no pathological findings were found in the bladder, and both ureters secrete clear urine. After radical transurethral resection, histologically high-grade invasive transitional cell carcinoma with PD-L1 expression above 10% was verified (Fig. 1). Postoperative CT of the lung, abdomen, and pelvis was performed without evidence of dissemination, and the disease was staged as T2N0M0. Six weeks after the initial resection, a new cystoscopy was performed, and recurrence of the disease was detected. The patient was assessed for radical surgical treatment in a planned manner. Five days later, he attempted suicide with a firearm in his head (Fig. 2).

After a successful brain surgery and minimal neurological deficit, the patient was presented again to the Medical Oncology Board. Given his refusal of radical surgical treatment and satellite morbidity (Arterial hypertension, Coronary artery disease, Heart failure with low ejection fraction - 48%), a decision was made for immunotherapy with Pembrolizumab and robotic stereotactic radiosurgery. There are no data for local recurrence and metastatic disease from the performed control cystoscopies and restorative CT at the 6th month.

**Discussion**

According to the accepted definition, those carcinomas that are less...
than 50/100 000 in frequency are considered rare in Europe. In 2013, the number of newly diagnosed cases of primary urethral carcinomas in the European Union was 1504.1 Urinary carcinomas in the urinary system are multifocal diseases that can originate from the kidney’s cavity to the urethra. The lining of the prostate urethra and the prostate’s ducts are upholstered with transitional cell epithelium. Pre-requisites for the occurrence of neoplasms in this area are the spread of existing bladder cancer, implantation of transitional cell tumor cells with primary localization in other parts of the urinary system, or exposure to the same carcinogenic factors leading to the development of bladder cancer. Cystoscopy is considered the ‘gold standard’ for monitoring transitional cell carcinomas of the prostate urethra, although its diagnostic sensitivity is 83.3% and its specificity is 95.1%.2

A very small number of cases of primary urothelial carcinomas of the prostate urethra have been reported in the scientific literature. Therefore, there is no standard for therapeutic behavior. The best results are observed with radical surgery, with or without adjuvant chemotherapy. The leading indicator is radicalism, but the goal is also the quality of life, following the patient’s values.

Cancer increases suicide risk and the incidence of suicide among cancer patients is high. Surgical treatment for many localizations (head, neck, urinary system, genitals) is associated with body changes and dysmorphia. The suicide is result from depression, fear and reluctance for surgery.3

The multidisciplinary approach to advanced disease includes surgical treatment, systemic chemotherapy, and radiation therapy. Platinum-based therapy is associated with cardiotoxicity and is not well tolerated in adult patients with comorbidity. Although there are no recommendations, our patient was evaluated for immunotherapy with Pembrolizumab by analogy with transient invasive bladder carcinomas. The use of stereotactic radiosurgery with CyberKnife, on the other hand, has enabled us to take more gentle approach with the administration of a large dose in a small volume, with a high dose gradient while maintaining healthy tissues.5

Conclusion

The case presented by us is a rare urological neoplasm, clinically manifested with non-specific symptoms of the lower urinary tract. The severe psychological trauma that occurred in the patient after the proposed invasive surgical treatment changed the Medical Oncology Board’s initial decision, as a result of which modern methods such as stereotactic radiosurgery and immunotherapy were applied.

Declaration of competing interest

The authors declare that they have no competing interests.

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