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Challenges and Clinical Implications of Prostate Cancer Mimickers. A Study Conducted at a Tertiary Center

Mihai-Cătălin Roșu[1,2], Daniela Luminița Zob[3], Cristina Anita Ionescu[2,3], Bogdan Cîmpineanu[4], Mihaela Pundiche[4,5], Georgeta-Camelia Cozaru[1,6,7], Ionuț Iorga[4,8], Gabriela-Izabela Bălțătescu[1,6], Antonela-Anca Nicolau[1,6], Ionuț Burlacu[6], Oana Cojocaru[4,6], Sabina Elena Vlad[1], Miruna-Gabriela Vizireanu[1], Sînziana-Andra Ghițoi[6], Lucian Cristian Petcu[2,9]

[1]Center for Research and Development of the Morphological and Genetic Studies of Malignant Pathology, Ovidius University, Constanta, Romania
[2]Doctoral School of Medicine, Institute of Doctoral Studies, Ovidius University, Constanta, Romania
[3]Prof. Dr. Alexandru Trestioreanu Institute of Oncology, Bucharest, Romania
[4]Faculty of Medicine, Ovidius University, Constanta, Romania
[5]Department of General Surgery, Sf. Apostol Andrei Emergency County Hospital, Constanta, Romania
[6]Clinical Service of Pathology, Sf. Apostol Andrei Emergency County Hospital, Constanta, Romania
[7]The Romanian Academy of Scientists, Bucharest, Romania
[8]Department of Urology, Sf. Apostol Andrei Emergency County Hospital, Constanta, Romania
[9]Faculty of Dental Medicine, Ovidius University, Constanta, Romania

Abstract

Introduction: The accuracy of histopathological diagnosis is crucial in the management of prostate cancer. Benign entities such as atypical adenomatous hyperplasia (AAH) and atypical small acinar proliferation (ASAP), referred to as "lesions that mimic prostate cancer", represent a major diagnostic pitfall, placing the surgeon in a therapeutic dilemma. Thus, this study aimed to quantify the incidence of these entities in a tertiary center in Romania.

Materials and Methods: Retrospective study on a cohort of 900 patients who underwent ultrasound-guided prostate biopsy/TURP between January 2020 and March 2025. Histopathological diagnoses were established according to the International Society of Urological Pathology (ISUP) criteria.

Results: Of the 900 biopsies, the most common primary diagnoses were benign prostatic hyperplasia (BPH) (62%, n = 558) and prostatic adenocarcinoma (ADK) (27.6%, n = 248). The potentially major confounding entities, AAH and ASAP, together accounted for 6.6% (n = 59) of all biopsies. AAH (6%) was three times more common than Gleason 6 ADK (2%). The mean age of patients with AAH (69.2 years) was similar to that of patients with ADK (71.5 years). Multivariate analysis showed that age >70 years was an independent predictor of ADK (OR=1.9, $p<0.01$), and PSA values showed significant overlap between groups.

Conclusions: In total, 6.6% (n=59) of the biopsies analyzed presented entities that can mimic prostate cancer and that require careful interpretation to avoid errors and to establish the most appropriate surgical conduct. Histopathological correlation with imaging and rebiopsy, within a multidisciplinary approach, are essential steps in the management of these cases.

Keywords: clinical implications, prostate cancer, histopathology