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CASE REPORT

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Atypical granular cell tumour of urinary bladder – case report of an extremely rare neoplasm

Dominika Muniak[1,2], Dariusz Łaszczych[2], Aleksandra Czernicka[1], Tomasz Drewa[1,2], Jędrzej Borowczak[3]

[1]Department of Urology and Andrology, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Poland
[2]Department of General and Oncological Urology, University Hospital No. 1 in Bydgoszcz, Poland
[3]Department of Clinical Oncology, Prof. Franciszek Lukaszczyk Memorial Oncology Centre in Bydgoszcz, Poland

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Corresponding author
Dariusz Łaszczych
Department of General and Oncological Urology,
University Hospital No. 1,
9 Marii Skłodowskiej-Curie St.,
85-094 Bydgoszcz, Poland
laszczychdariusz@gmail.com

We report a case of a 59-year-old woman presenting with haematuria and suprapubic pain. Cystoscopy revealed a spherical lesion within the urinary bladder, which was subsequently removed by transurethral resection. Histopathology confirmed the diagnosis of an atypical granular cell tumour (AGCT). So far, during 12 months of follow-up, no evidence of tumour relapse has been detected. This article highlights the challenges associated with bladder AGCT, emphasising the importance of histopathological examination and appropriate management. Bladder AGCT presents with non-specific symptoms that delay its diagnosis. This case emphasises the need for further research to improve treatment and follow-up guidelines for bladder AGCT.

Key Words: atypical granular cell tumour ‹› urinary bladder ‹› cystoscopy ‹› transurethral resection ‹› case report

INTRODUCTION

Bladder granular cell tumors (GCTs) are extremely rare, with atypical variants (AGCTs) being even less frequently reported [1]. We present a case of a 59-year-old woman with haematuria and suprapubic pain, ultimately diagnosed with bladder AGCT after transurethral resection. This case emphasizes the diagnostic challenges of bladder AGCT, highlighting the crucial role of histopathological analysis. Given the tumor's uncertain malignant potential and nonspecific clinical presentation, our report underscores the necessity for diligent follow-up and further research to improve management strategies [2, 3].

CASE REPORT

A 59-year-old female patient was admitted to the Department of Urology due to an episode of haematuria and periodic lower abdominal pain. Her past medical history included asthma, migraine, and haemorrhoids. She also underwent a hysterectomy due to uterine fibroids and laparoscopic salpingectomy for hydrosalpinx. Physical examination revealed no deviation from the norm, including no suprapubic pain during palpation or signs of genitourinary bleeding. Performed abdominal ultrasound showed a spherical lesion in the area of the left ureter orifice, measuring approximately 1.5 × 1.5 cm, with no signs of dilatation of the calyceal-pelvic system. Subsequent cystoscopy confirmed the presence of an unusual lesion covered with normal mucosa measuring approximately 2 × 1.5 cm in diameter located above the left ureteral orifice.

The patient underwent transurethral resection of the bladder tumour (TURBT) with complete resection of the lesion. Subsequent histopathological examination revealed a tumour composed of epithelioid polygonal cells with abundant, granular, acidophilic

cytoplasm. (Figure 1, left side). The tumour infiltrated the muscularis propria and subepithelial connective tissue of the bladder. Vesicular nuclei with prominent nucleoli were located focally within the tumour tissue. Immunohistochemical staining was positive for S100 (Figure 1, right side). The Ki67 proliferation index reached 1%. According to the Fanburg-Smith criteria, histological images with immunophenotype results were consistent with diagnosing an atypical granular cell tumour (Table 1) [4].

Three months later, during a follow-up cystoscopy, no evidence of disease recurrence was observed (Figure 2). A pelvic MRI with a control cystoscopy was scheduled for a 6-month follow-up. At the last outpatient clinic appointment, the patient reported significant improvement and denied further episodes of lower abdominal pain and haematuria. Given the uncertain malignant potential of AGCT, follow-up care following the guidelines for pTa LG non-muscle-invasive bladder cancer (NMIBC) was recommended [5].

DISCUSSION

The urinary bladder is an exceedingly rare location for GCT. So far, less than 30 cases of bladder GCT have been reported in the literature, and only 4 of them were bladder AGCTs (including our case) [1, 3, 6, 7]. In Table 2 we present a summary of demographic-clinical data of published AGCT cases.

Considering the extreme rarity of bladder AGCT, the possibility of drawing conclusions and clinical

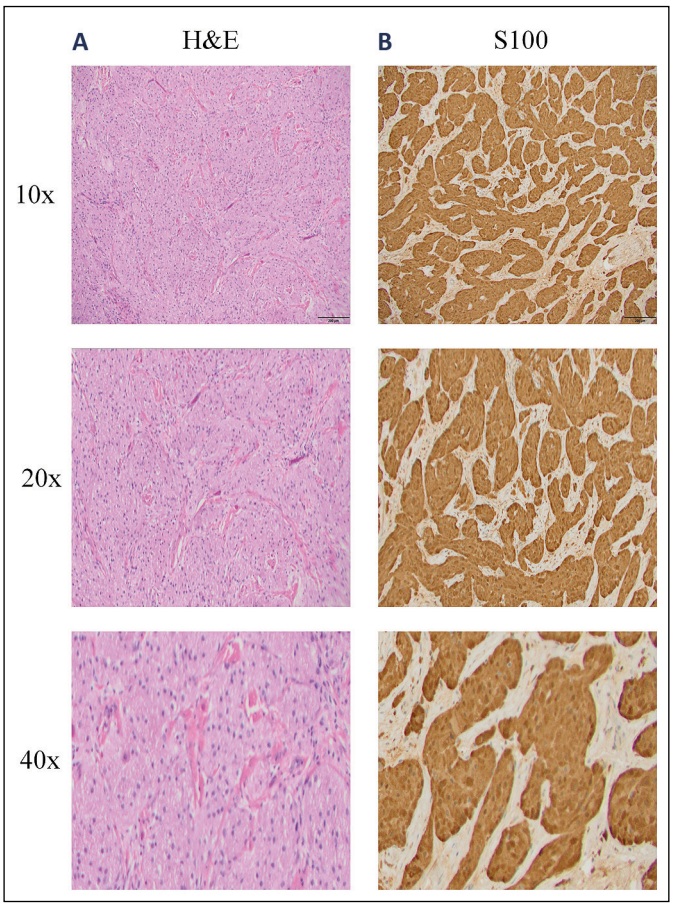

Figure 1. A) *Histopathological evaluation of H&E-stained bladder GCT demonstrating nests and cords of polygonal cells with abundant granular eosinophilic cytoplasm and a central nucleus separated by fibrous connective tissue.* **B)** *Immunohistochemical staining of the bladder GCT demonstrating intense nuclear and cytoplasmic staining for S100 within tumour cells.*
H&E – haematoxylin and eosin; GCT – granular cell tumour

Table 1. *The malignancy score following Fanburg-Smith criteria for granular cell tumours presented in this manuscript*

Feature	Score
Increased nuclear-cytoplasmic ratio	0
Nuclear pleomorphism	0
Necrosis	0
Spindling of tumour cells	0
Vesicular nuclei with prominent nucleoli	1 (visible focally)
>2 mitoses per 10 high-power fields	0

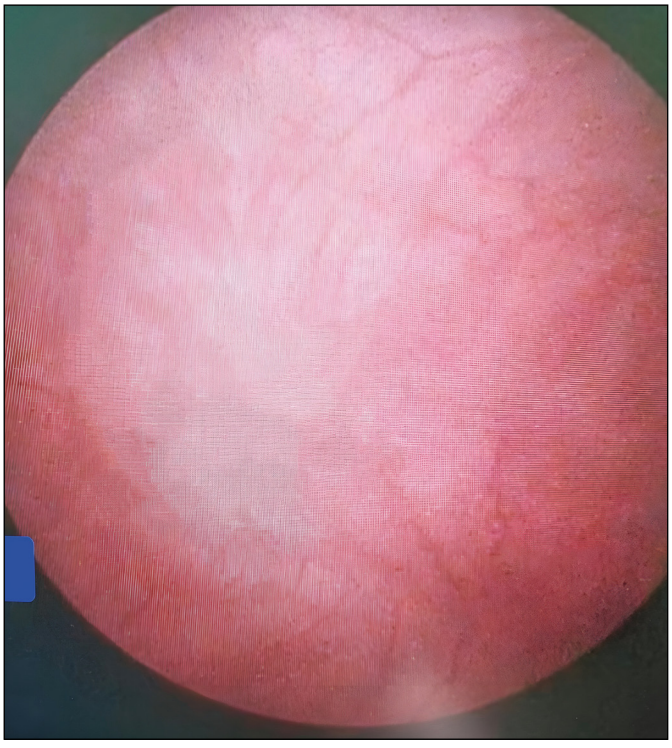

Figure 2. *Follow-up cystoscopy 3 months after initial treatment. In the centre of the procedural image, visible fibrous in the tumour bed without signs of recurrence. No other changes inside the urinary bladder were detected.*

Table 2. *The demographic-clinical data of atypical granular cell tumour cases*

Reference	Age/sex	Initial presentation	Tumour size [cm]	Diagnosis	Treatment	Recurrence	Follow-up [months]
Tufano et al. [5]	54/F	Haematuria	2.2	Cystoscopy	TURBT	–	36
Wei et al. [6]	62/F	No symptoms, incidental finding	4.0	Cystoscopy, MRI	Laparoscopic partial cystectomy	–	6
Movahed et al. [4]	50/M	Lower abdominal pain	3.0 × 2.5	Cystoscopy	TURBT	–	3
Present case	59/F	Haematuria, lower abdominal pain	2 × 1.5	Cystoscopy, USG	TURBT	–	12 (to date of publication)

MRI – magnetic resonance imaging; TURBT – transurethral resection of bladder tumour; USG – ultrasonography

recommendations is limited. Bladder AGCT predominantly affects women in their sixth decade of life. The most common symptoms are haematuria and lower abdominal discomfort, consistent with the patient's presenting symptoms [3, 6, 7]. Due to the nonspecific presentation of AGCT, the final diagnosis requires additional exams. Cystoscopy remains the diagnostic method of choice due to its ability to visualise the interior of the urinary bladder and allow the biopsy. However, preceding or concurrent supplementary exams, such as USG, CT, or MRI of the pelvis, may also be necessary. In our case, an abdominal ultrasound revealed a 1.5 × 1.5 cm bladder lesion at the orifice of the left ureter, so cystoscopy was recommended for further evaluation. However, since the AGCT is not associated with unique or highly specific radiological features, the diagnosis can be verified only by histopathology [8].

The microscopic image of AGCT with a broad panel of immunohistochemical staining allows the final diagnosis. In our case, according to the Fanberg-Smith scoring system, microscopic images had one atypical feature (Table 2), which confirmed the diagnosis of AGCT [4]. After diagnosis, an appropriate treatment strategy can be implemented. Unfortunately, the literature lacks evidence-based recommendations on whether a conservative approach with the use of TURBT is sufficient, as it was in our case. Indeed, none of the reported AGCT cases was associated with local recurrence or metastasis. AGCT has a similar recurrence potential as benign lesions, but since the tumour is not encapsulated and shows an infiltrative growth pattern, achieving negative surgical margins may be challenging for a surgeon [8]. While in most cases local resection through TURBT seems clinically justified, AGCT relapse is highly associated with incomplete tumour excision and positive surgical margins [2]. In such cases, repeat TURBT or partial cystectomy with clear margins should be considered [3].

Finally, follow-up care plays a critical role in AGCT management. Due to its unaggressive clinical course and low risk of local recurrence, adjuvant treatment, as in the case of low-risk/G1 pTa NMIBC, seems to be justified. This strategy includes a repeat of cystoscopy at 3 and 9 months after initial resection, followed by yearly control cystoscopies for 5 years. In our case, follow-up care was conducted in the same manner [9].

Concluding, the rarity of bladder GCT cannot be overstated, and urologists must be aware of that neoplasm during differential. Because less than 30 cases of GCT with only 3 reports of AGCT exist in the literature, more research is needed to explore biomarkers, new treatment modalities, and long-term follow-up results to provide better management for bladder AGCT.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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ETHICS APPROVAL STATEMENT

The ethical approval was not required.

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