



Case report

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# Intradiverticular Tumor About 4 Cases



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## Introduction

The bladder diverticulum corresponds to a hernia of the urothelial mucosa through a congenital or acquired weak point of the bladder wall, developing outside the bladder, and communicating with it by a narrow neck called Ostium. Its wall is devoid of muscular tissue depriving it of any contractile function. Intra-diverticular bladder tumors (TVID) are only rarely encountered in urological pathology. These tumors formerly considered exceptional, have become more and more frequent thanks to the improvement of diagnostic means. Due to the nature of the diverticular wall marked by an absent or inconsistent muscle layer, these tumors are rapidly invasive, exceeding the adventitia and creating an array of infiltrating or locally advanced bladder tumors. In this work, we report a retrospective analytical study carried out in the urology department of the Ibn ROCHD CHU in Casablanca on 04 cases of intra-diverticular bladder tumors over a period of 4 years from January 2016 to September 2020.

## Observations

### Observation n ° 1:

- i. 62-year-old man
- ii. ATCDs:
  - a. Chronic smoking weaned 16 years ago.
  - b. Complete RTUTV (09/2013): on pathological examination, there is a low-grade pTa urothelial carcinoma with infiltrated muscle seen.
- iii. Admitted to the emergency room for anemia secondary to intermittent total hematuria evolving for one month, associated with signs of lower urinary tract made up of pollakiuria and urination burns.



**Figure 1:** Ultrasound of the bladder.

iv. Clinical examination: found a conscious patient, hemodynamically and respiratory stable, slightly discolored conjunctivae with a rectal examination a flat prostate and flexible bladder base.

v. Ultrasound of the bladder shows a right latero-vesical diverticulum containing a budding process. (Figure 1)

vi. Cystoscopy: objective a diverticulum with a neck of 2-3cm, containing a budding tumor mass : complete resection of the tumor.

vii. Histology: low-grade transitional pTa carcinoma, unifocal without associated carcinoma in situ.

viii. Evolution: favorable, the control cystoscopy performed at 3 months has returned to normal.

#### **Observation n° 2:**

i. 77-year-old man

ii. Comorbidities:

a. Diabetic under oral antidiabetics

b. Hypertensive under treatment

iii. ATCDs:

a. Chronic smoking at 40 PA weaned 6 years ago.

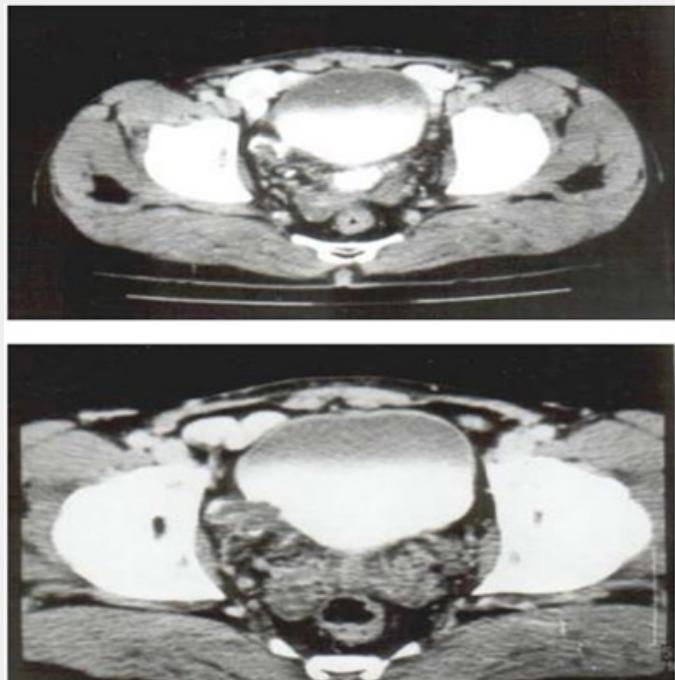
b. Chronic alcoholic

c. RTUTV completed in July 2015 without histological evidence.

iv. Admitted to the emergency room for anemia secondary to a clotting total hematuria evolving for 3 months, associated with disorders of the lower urinary tract made up of dysuria, pollakiuria.

v. Clinical examination: found a conscious patient in good general condition, hemodynamically and respiratory stable, slightly discolored conjunctiva, with a rectal examination a prostate estimated at 30 grams and a slightly infiltrated bladder base on the right with vesicoid block. mobile prostate.

vi. Abdomino-pelvic CT scan: shows a full-seated bladder at the level of the right posterolateral wall of a diverticulum containing an irregular process enhancing heterogeneously after injection of contrast product measuring 29mm maximum thickness. (Figure 2)



**Figure 2:** Abdomino-pelvic CT scan

vii. Cystoscopy: objective a crossable right diverticulum with a vegetative necrotico-hemorrhagic process complete RTUTV.

viii. Histology: high-grade invasive papillary urothelial carcinoma infiltrating the chorion and muscle classified as pT2

with a neuroendocrine component.

ix. The patient underwent a session of neo-adjuvant chemotherapy (MVAC with FDC) followed by a radical cystoprostatectomy with pelvic lymph node dissection.

- x. The postoperative follow-up was simple.
- xi. Patient lost to follow-up

**Observation n ° 3:**

- i. 67-year-old man
- ii. Comorbidities:
  - a. Diabetic on Metformin
  - b. Hypertensive under Bisoprolol and Diuretic
  - c. Follow-up for cardiac arrhythmia by atrial fibrillation (ACFA) under Dabigatran etexilate for 2 years
- iii. ATCDs:
  - a. Follow-up for benign prostatic hyperplasia under alpha blockers
  - b. Follow-up for bladder diverticulum since 2014 (without documents).
- iv. Admitted to the emergency room for severe anemia secondary to total hematuria evolving for 4 months, with an acute retention of urine.
- v. Clinical examination: the patient was conscious, hypertensive at 160/90 mm Hg, respiratory stable, discolored conjunctiva. On rectal examination: firm and regular prostate estimated at 50g, base of infiltrated bladder.
- vi. Reno-vesico-prostatic ultrasound: right lateral vesical diverticulum is the site of a budding tissue formation.
- vii. CT: diverticulum of the right lateral wall of the bladder with a gap with invasion of the right peri bladder fat with hypogastric adenopathies (ADP).

viii. Cystoscopy: presence of a hemorrhagic budding tumor diverticulum biopsy resection

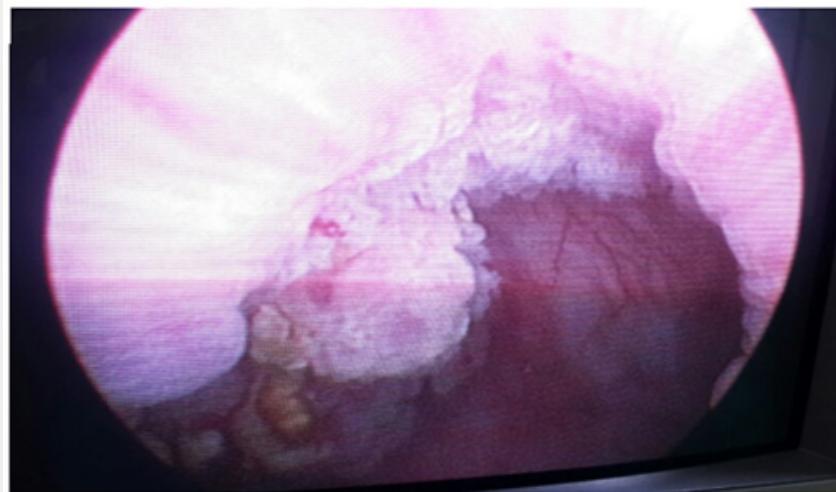
ix. Histology: pT2 squamous cell carcinoma.

x. The patient underwent a cysto-prostatectomy with lymph node dissection, with BRIKER-type urinary diversion.

xi. Evolution: death of the patient after 6 months.

**Observation n ° 4:**

- i. 70-year-old man with
- ii. ATCDs:
  - a. Chronic tobacco addict (40 pack years)
  - b. Operated ten years ago for a complicated benign prostatic hypertrophy endoscopically.
- c. He presented to the emergency room with intermittent terminal hematuria which had progressed for six months with signs of bladder irritation, including urge and burning urination.
- iii. Clinical examination: conscious patient, hemodynamically and respiratory stable, discolored conjunctivae, with an infiltrated bladder base on rectal examination.
- iv. Ultrasound: presence of a left latero-vesical cystic formation with tissue material suggesting a suspicious bladder diverticulum.
- v. Intravenous urography shows an intra diverticular gap in the left bladder horn.
- vi. Cystoscopy: found a crossable narrowing of the membranous urethra and a left bladder diverticulum with ulcerative budding tissue material è Complete RTUTV. (Figure 3)



**Figure 3:** Complete RTUTV.

vii. Histology: low-grade papillary urothelial carcinoma classified as pT1 without associated carcinoma in situ.

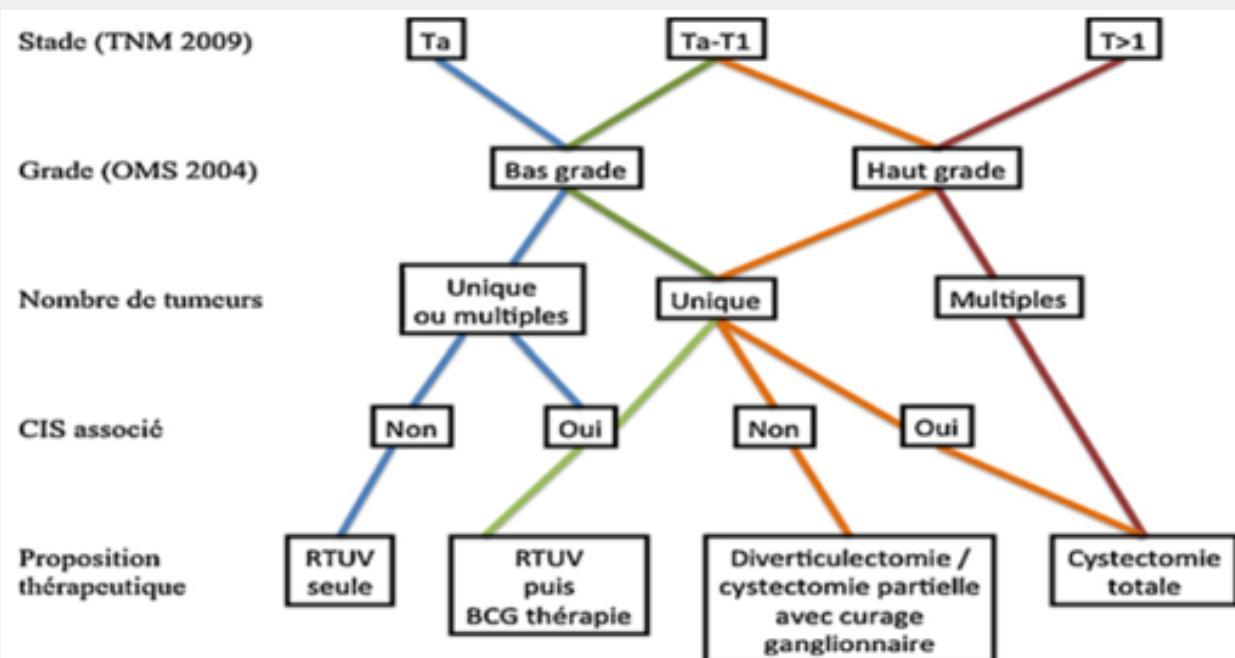
viii. Evolution: favorable with a clinical and radiological check-up made at 6 months and at 12 months with no particularities.

## Discussion

The incidence of intra-diverticular bladder tumors is low, varying from 0.8 to 13.5%, depending on the series, with an average of 4%. This frequency is between 1 and 2% compared to bladder tumors with an average age of 65 years [1]. In our series, the average age was 70.5 years with a predominance of male (all of our patients were male), the most exposed age group was between 60-77 years. This data is consistent with that of the literature. The frequency of occurrence of these tumors is much greater in men than in women, with a male / female sex ratio of 9/1 in adults aged 50 to 70 years [2]. Acquired diverticula are affected in the majority of cases (77 to 96%) compared to congenital diverticula [1]. The classic etiological factors of bladder tumors [3] have shown that the risk of a tumor occurring in a bladder diverticulum is increased by urinary stasis and chronic inflammation, responsible for chronic irritation of the mucous membrane, which is the source of dysplasia and malignant transformation. Without forgetting, common factors such as smoking and occupational exposure (aromatic amines, nitrosamines, etc.)

Clinically, the revealing symptomatology of this affection is

essentially urinary. Hematuria was the most frequently reported diagnostic circumstance (49-87% of cases). Macroscopic or microscopic, it can be intermittent, abundant, terminal or total and of variable duration. Disorders of the lower urinary tract, especially obstructive ones, are often reported by patients. Finally, in 30% of cases, the diagnosis of TVID was made incidentally, by imaging, in asymptomatic patients [4]. On the paraclinical level, several biological examinations are requested to guide the diagnosis and look for complications. We cite: the cytobacteriological examination of the urine (search for infections), blood count (search for anemia), renal function (IR) and urine cytology (in the detection of CIS lesions and follow-up bladder tumors). However, cystoscopy is the gold standard for diagnosing bladder tumors, but it only shows the intra diverticular tumor in 60% of cases [4]. In our study, cystoscopy was the gold standard in the diagnosis of all intra-diverticular bladder tumors (i.e. 100%). In terms of imaging, the performance of conventional bladder ultrasound has been described as poor in the diagnosis of TVID [5]. An image of buds protruding into the diverticular lumen was a suggestive but insensitive diagnostic sign. The development of ultrasound with contrast media injection or three-dimensional reconstructions opens up prospects but have not been studied in the field of TVID. Computed tomography constitutes the reference examination for the diagnosis as well as for the assessment of extension allowing: The evaluation of the impact on the upper urinary tract, the search for invasion of the neighboring organs, peri-vesical fat and metastases.



**Figure 4:** TVID.

According to Montague, pathological examination of the tumor shows that it is in 80% of cases a transitional carcinoma and in 14% a squamous cell carcinoma [6]. Regarding the therapeutic aspect, the treatments could be distinguished according to whether or not they allow the preservation of the patient's bladder. Complete endoscopic resection of the intra-diverticular bladder tumor could theoretically be sufficient in conservative treatment, provided that the TVID does not cross the urothelial basement membrane. Some authors have proposed to perform bladder instillations (BCG, Mitomycin C) in addition to endoscopic resection in order to reduce the rate of recurrence and to delay tumor progression. Diverticulectomy and partial cystectomy, contraindicated in case of multifocal tumors and / or associated CIS, expose to tumor persistence in case of positive margins. The major risk is represented by local recurrence. Finally, radical cystectomy represents the standard treatment for bladder tumors infiltrating the bladder muscle. In contrast, indications for cystectomy in non-muscle infiltrating tumors (TVNIM) have been limited to the treatment of failures of BCG therapy and, exceptionally, to young patients with very high risk TVNIM. For TVID, the results of total cystectomy were, as for other treatments, mostly old (more than 20 years) and low level of proof. However, due to extra-bladder extension, the rate of local recurrence is high. The benefit of adjuvant chemotherapy has not been specifically studied in the context of total cystectomy for TVID [4] (Figure 4).

The prognosis is linked to the importance of the tumor grade and to the deep infiltration of the wall [4]. The survival of patients with stage T3-4 intra-diverticular tumors is markedly shorter than that of patients with bladder cancer [7]. As a result, intra diverticular bladder tumors have a poorer prognosis. The early diagnosis is the most important element for the prognosis. Monitoring makes it possible to search for tumor recurrence, through cystoscopy with urinary cytology and a quarterly

uroscanner with biopsies performed in the event of abnormalities, and to check the functional capacity of the bladder (urodynamic assessment, reno-bladder ultrasound with measurement of the post-voiding residue).

## Conclusion

Intra-diverticular bladder tumors are rare and predominant in the elderly. They have a pathological specificity with a high frequency of  $T \geq 3a$  tumor and non-urothelial carcinomas. Faced with a suspicion of TVID, endoscopic exploration is systematic with earlier and more aggressive treatment of these tumors, hoping to give the patient the maximum chance of survival.

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