

# Intra-Diverticular Bladder Tumor about a New Observation in the Urology Department of Chu Cocody—Abidjan, Côte d'Ivoire

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## Abstract

This case report is about a 61 years old woman who consulted for hematuria, the cystoscopy performed revealed an intra-diverticular bladder tumor. After tumor resection, an anatomopathological exam revealed the urothelial carcinoma pT1. A few months later she presented with a local recurrence of bladder tumor. We proposed her anterior pelvicotomy but she refused it and she was lost to follow-up. The aim of this study is to show the anatomopathological and evolutionary characteristics and the therapeutic difficulties of IDBT. These tumors are in the majority of cases infiltrating from the outset with a high potential for recurrence after transurethral resection of bladder (TURB). The standard treatments are TURB and total cystectomy.

## Keywords

Tumor, Bladder, Diverticulum, TURB

## 1. Introduction

Bladder diverticula are outpouchings of the bladder wall they are either congenital or acquired defects. They are usually thin-walled with a narrow neck and lack the muscular propria layer. A subset of these lesions, however, may be complicated with inflammation, calculus, infection, and malignancy [1]. Intra-diverticular bladder tumors (IDBT) are rare and pose diagnostic, therapeutic and anatomopathological difficulties. In 2% - 7% of patients with vesical diverticula, neoplasms develop within the diverticulum [2]. The absence of muscular in the diverticulum, and the direct contact between mucosa and the peri-bladder fat ex-

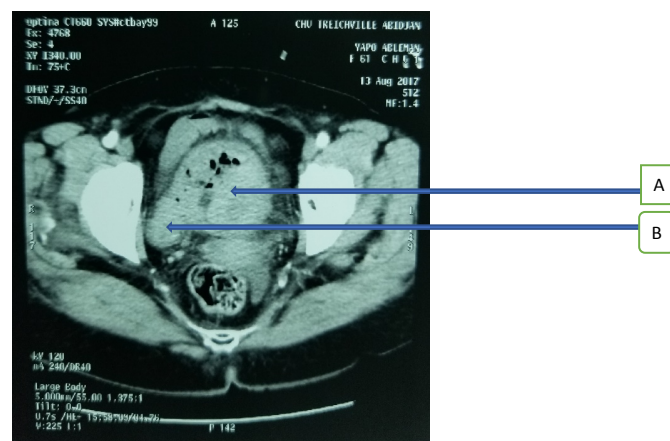
plains the different evolutionary profile of IDBT [3]. The aim of our study is to show the anatomopathological and evolutionary characteristics and the therapeutic difficulties of IDBT.

## 2. Observation

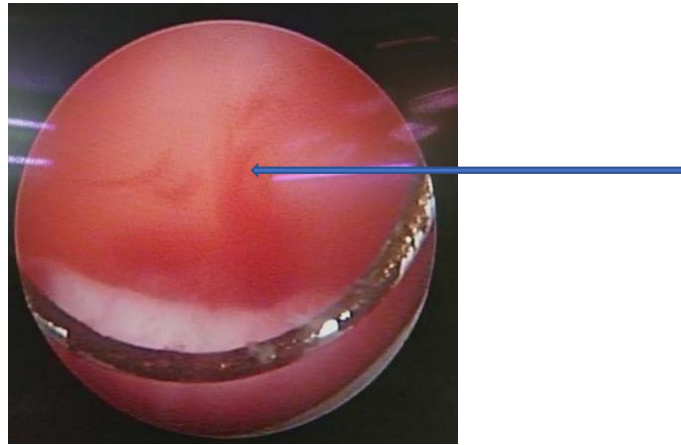
Mrs. Y.A.S., 61 years old, is a retired schoolteacher who was admitted to our department for total hematuria on 08/16/2017. She had presented for 3 months pelvic pain associated with intermittent terminal hematuria initially, which became total and permanent with numerous blood clots. This hematuria was associated with dysuria with an impact on the patient general condition such as asthenia, dizziness and palpitations. The physical examination found a conscious, cooperative patient with pale conjunctiva. Her blood pressure was 100/60 mmHg, a pulse of 100 bpm, her temperature was 37.4°C and a respiratory rate of 25 cycles/min. The examination of the lumbar fossa and hypogastrium was normal. The cervix was normal on vaginal examination and speculum.

The tomography performed showed an isodense necrotic tissular process at the bladder measuring 88 × 63 mm. This image was similar to a usual bladder tumor. In fact, it was a large blood clot. There were no locoregional invasion, lymphadenopathy or bone lesions. There was the presence of a diverticulum at the right lateral wall of the bladder (**Figure 1**).

The renal biological assessment was normal with a blood urea level of 0.27 g/l and serum creatinine at 7 mg/l (62 mmol/l). The blood count showed severe anemia with a hemoglobin (hb) level of 3 g/dl. She was transfused with 3800 ml of concentrate erythrocyte and after transfusion the blood count level was 7.8 g/dl of hbb. An indication for transurethral resection of the bladder (TURB) has been made. It was for hemostatic and diagnostic purposes. During the operation, the cystoscopy found many clots which we aspirated with the Ellick pear. The exploration revealed healthy bladder lining as a whole and a diverticulum in the right lateral wall about 3 cm in diameter. Bleeding was observed within this diverticulum (**Figure 2**).



**Figure 1.** CT scan showing an isodense necrotic tissular process in the bladder (A) and a diverticulum in the right lateral wall (B).



**Figure 2.** Bleeding from the diverticulum on cystoscopy.

Exploration of the diverticulum revealed a sessile-based urothelial tumor about 1 cm diameter (**Figure 3**).

During the resection, there was an accidental perforation of the bladder inside the diverticulum which required the catheter to be maintained for 10 days. Pathological examination of the surgical specimen revealed papillary urothelial carcinoma G II pT1 (**Figure 4**).

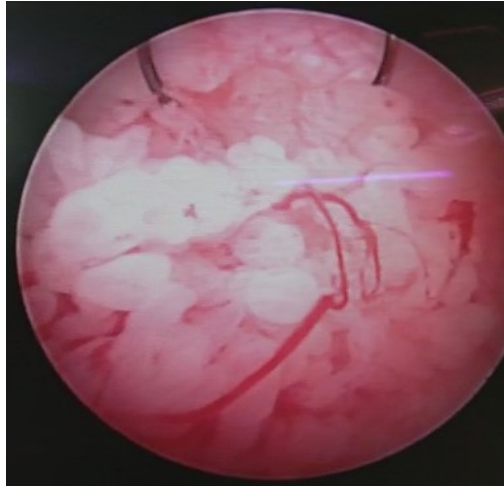
During monitoring, a cystoscopy performed at 3 and 6 months found normal bladder mucosa, a diverticulum with healthy mucosa. The patient refused all adjuvant treatment and was lost to follow-up. Reappeared 15 months later with terminal hematuria, the cystoscopy performed found a recurrence tumor in the diverticulum and another urothelial tumor in the bladder dome. An indication for a previous pelvicotomy was made but the patient refused and was lost to follow-up.

### 3. Discussion

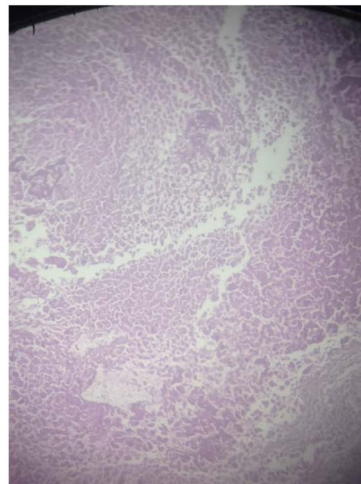
The incidence of IDBT is between 0.8% and 13.5% with a male predominance and an average age between 60 and 70 years [4] [5]. IDBT represents 1.5% of bladder tumors [6]. This case is the first observed in the CHU Cocody urology department.

There is a well-documented relationship between bladder diverticula and bladder cancer. One study reported that when a diverticulum was present, the likelihood of neoplastic changes compared to a normal bladder. It was increased by 0.8% to 10% [7]. Urine stasis in the bladder diverticulum is thought to produce chronic mucosal irritation and prolonged exposure to urinary carcinogens, thus increasing the risk of malignant tumors of the epithelial lining of the diverticulum [6].

The revealing symptoms are either those of a bladder tumor such as hematuria (66% to 100% of cases), or those of urinary obstruction [3]. Our patient presents profuse hematuria, which led to severe anemia with respiratory distress.



**Figure 3.** Intra-diverticular bladder tumor with urothelial tumor appearance.



**Figure 4.** Image anatomopathological showing urothelial carcinoma pT1 GII.

Cystoscopy is the gold standard for diagnosis [3]. It is limited in the case of a diverticulum with a narrow neck where the cystoscope cannot penetrate [7]. The CT scan and MRI make it possible to diagnose and furthermore assess the tumor extension to the peri vesical fat [2] [8] [9]. In our case the CT scan did not allow us to make the diagnosis, it's rather the cystoscopy. This cystoscopy was made during the TURB indicated to stop the bleeding and to do a pathological diagnosis of a large bladder tumor seen on CT scan.

Among malignant tumors, urothelial carcinoma is the most common (78%), followed by squamous cell carcinoma (17%), a combination of transitional and squamous cell types (2%), and adenocarcinoma (2%) [10]. IDBT progresses from Ta-T1 stage to T stage  $\geq 3$ . T2 stage does not exist due to the absence of muscle in the diverticulum. Fifty-five (55) to 60% of tumors diagnose are made at stage T3 [6] [11]. The absence of muscle fibers exposes a high risk of bladder perforation during resection. This accident occurred during our operation, wich required the maintenance of the urinary catheter for 10 days. This is why some

authors advise doing only a simple cold forceps biopsy [5] [6] [12].

Therapeutically: Ta-T1 and low-grade IDBT can be treated by endoscopic resection alone or followed by BCG therapy in the event of associated in situ carcinoma. High-grade IDBT, unique and without associated in situ carcinoma, can be treated by diverticulectomy associated with pelvic lymph node dissection. Multiple high-grade IDBT, or those associated with in situ carcinoma, justify total cystectomy [13]. Baniel and al [4] in their series of 8 patients with a tumor considered to be superficial (5pTa and 3pT1) used the combination endoscopic resection—endovesical instillation. With an average follow-up of 42 months, they obtained the following results:

- pTa: No recurrence.
- pT1: 1 disease-related death, 1 local recurrence and 1 positive cytology without visible tumor were reported. Thus, although this therapeutic combination (TURB + endovesical instillation) seems a better treatment for pTa tumors of low grade tumors, it is not recommended for tumors infiltrating the chorion [3]. Diverticulectomy and partial cystectomy have not showed their effectiveness due to the tumor frequency  $\geq$  pT3 [11] [14]. Total cystectomy remains the standard treatment. Despite this procedure, the prognosis for these tumors is more unfavourable, linked to the high percentage of peri-bladder extension  $\geq$  pT3a [3]. The endovesical instillation wasn't performed in our patient due to the unavailability of products. She presented with recurrence tumor at the diverticulum and at the bladder dome.

The survival rates, in the literature, were 45% at 1 year, 20% at 3 years, and 15% at 4 years at the pT3a stage after total cystectomy [5] [9] [15].

#### 4. Conclusion

IDBT are rare, the clinical signs are those of a usual bladder tumor. Cystoscopy provides a definite diagnosis as other bladder tumors. Pathology is distinguished by the absence of stage T2 because there are no muscle fibers in the diverticulum. These tumors are in the majority of cases infiltrating from the outset with a high potential for recurrence after TURB. The standard treatment is TURB and total cystectomy.

#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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