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A Rare Case of Urinary Bladder Metastasis From Gastric Adenocarcinoma: A Case Report

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Abstract

The urinary bladder localisation of a gastric adenocarcinoma is a very uncommon situation, generally tied to an advanced stage of the primary tumour and a poor prognosis.

This case involves a 48-year-old man who presented to the emergency department with abdominal pain, hematemesis, and urologic symptoms. Endoscopy identified a gastric wall tumour, and a CT scan indicated possible extension into the bladder, confirmed by a transurethral bladder biopsy. The patient started a chemotherapy protocol and alpha-blockers, resulting in improved overall condition. He remains on the same treatment, with a follow-up scan planned after the first chemotherapy course.

This case highlights an exceptional situation that needs to stay in the minds of clinicians and urologists when faced with such a symptomatic association.

Categories: Urology, Oncology
Keywords: case report, gastric adenocarcinoma, haematuria, metastasis to the bladder, urinary bladder

Introduction

Stomach cancer is a global health problem; it is ranked fifth in incidence and mortality according to the International Agency for Research on Cancer [1,2]. In 2024, more than 980,000 cases were reported worldwide [1].

In Morocco, stomach cancer is amongst the most frequent gastrointestinal tract malignant tumours, with 788 new cases recorded in the region of Casablanca between 2017 and 2021, and with an incidence of 4.9/100,000 in men and 3.7 in women [3]. Adenocarcinoma is the most common histological type [4].

Secondary bladder locations of other cancers account for approximately 2-3% of all malignant bladder tumours [5]. These locations may involve pelvic cancers that have spread to the bladder by contiguity, or distant cancers, which is an even rarer situation [6]. Previous research on this subject is relatively outdated and primarily relies on autopsy studies [7,8]. The case in hand describes a rare and little-documented situation in urological and gastrointestinal pathology, namely a urinary bladder metastasis of gastric adenocarcinoma, responsible for urological symptoms as severe as the digestive ones [9-12].

Based on imaging, cystoscopy, and histological analysis, we identified a rare case of a man diagnosed with a urinary bladder metastasis of gastric adenocarcinoma. This case report serves as a reminder that such a situation may exist, especially in a patient with an oncological history when urological symptoms emerge.

This case report has been reported in line with the Surgical CAse REport (SCARE) checklist [13].

Case Presentation

This case report describes a 48-year-old married man from Salé, Morocco. The patient was an electricity meter inspector and a chronic smoker. Three months earlier, he was diagnosed with chronic gastritis, confirmed by fibroscopy and pathological examination. The patient was put on medical treatment based on proton pump inhibitors.

The patient arrived at the emergency department of a tertiary-care centre, 15 days before diagnosis, experiencing persistent epigastric pain that did not respond to analgesic treatment. This was accompanied by hematemesis, as well as secondary urological symptoms, including haematuria, bilateral low back pain, and signs related to the lower urinary tract. These urological symptoms had been present long before the more serious symptoms developed.

During the clinical examination, the patient was stable and afebrile. The abdominal examination revealed distension with sloping dullness, suggestive of ascites, which made palpation difficult. Both lumbar fossae

were tender, and examination of the external genitalia showed no abnormalities.

Several complementary assessments were then performed, including a gastroscopy performed a day after admission, which revealed a large ulcerated mass originating from the angulus and extending along the lesser curvature up to the cardia. The mass invaded the antrum but did not reach the pylorus, which remained open. This condition significantly narrowed the gastric lumen, hindering a thorough macroscopic assessment of the disease. Biopsies were taken, and pathological examination confirmed an infiltrating gastric adenocarcinoma with signet-ring cells.

One day later, a CT scan of the chest, abdomen, and pelvis revealed a process affecting the right gastric wall, measuring over 136 mm. The scan also showed several enlarged lymph nodes in the surrounding region and signs of peritoneal carcinomatosis. Additionally, it indicated circumferential thickening of the bladder wall (Figures *1A*-*1C*), with a maximum thickness of 20 mm, along with bilateral dilation of the ureters and pelvicalyceal system (Figure *1D*).

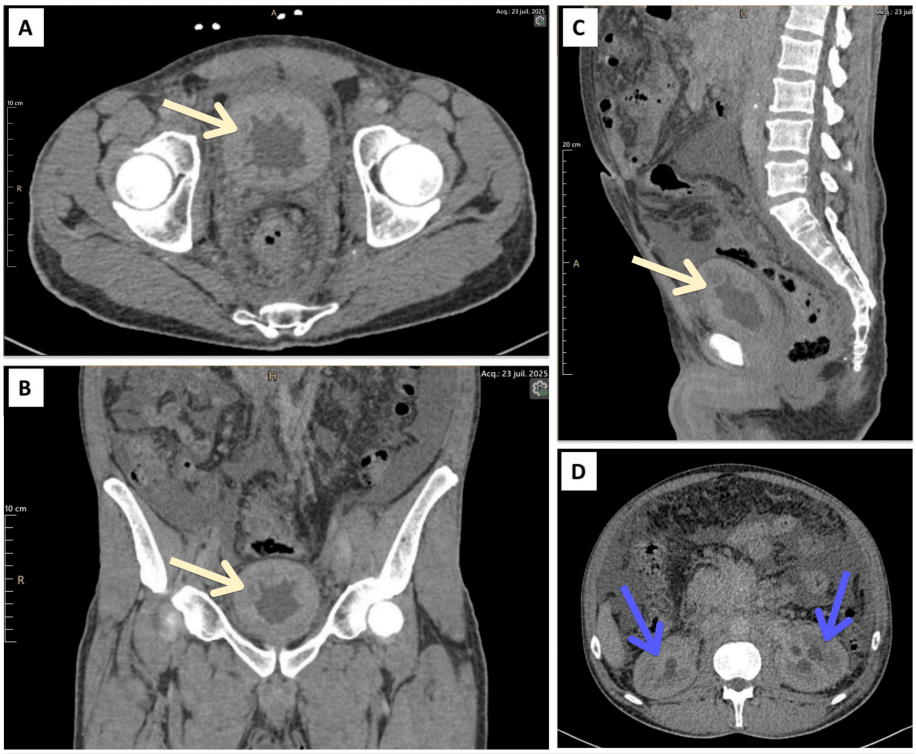


FIGURE 1: CT scan showing thickening of the bladder wall (yellow arrows) and bilateral hydronephrosis (blue arrows).

(A) Axial view of the bladder. (B) Coronal view. (C) Sagittal view. (D) Axial view of the kidneys.

On the fourth day of admission, a three-way urinary catheter was placed. Two days later, an ultrasound examination of the kidneys showed that the pelvicalyceal dilatation had almost completely resolved.

Biologically, renal function was initially impaired, with a creatinine level of 35 mg/L and a glomerular filtration rate (GFR) of 21 mL/min on the second day of admission. After bladder catheter placement, renal function improved considerably, with creatinine at 19 mg/L and GFR at 38 mL/min two days before the transurethral resection of the bladder (TURB). Subsequent biological assessments confirmed the normalisation of renal function.

At cystoscopy, performed on the 10th day of admission, the urethra was permeable and free, with no abnormalities. The bladder mucosa had an infiltrative, rigid-looking and multinodular appearance (Figure *2*), with bleeding in places; the ureteral orifices were not seen that day. A biopsy resection was then performed using a monopolar resectoscope (manufactured by Richard Wolf GmbH, Knittlingen, Germany), and the sections were sent for pathological examination.

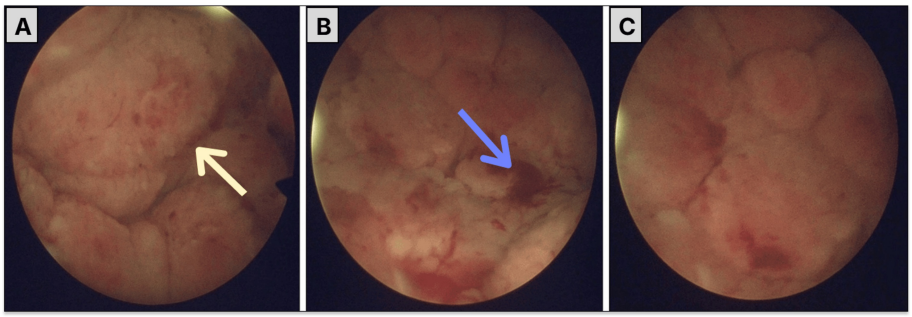


FIGURE 2: Endoscopic aspect of the bladder.

(A) Bladder wall thickening. (B) Haemorrhagic aspect of the bladder mucosa. (C) Multinodular aspect of the bladder wall mucosa.

The result was consistent with a poorly differentiated carcinomatous process (CK7 and CK20 positive) of metastatic origin, gastric, given the context (P63 and GATA3 negative) (Figure *3*).

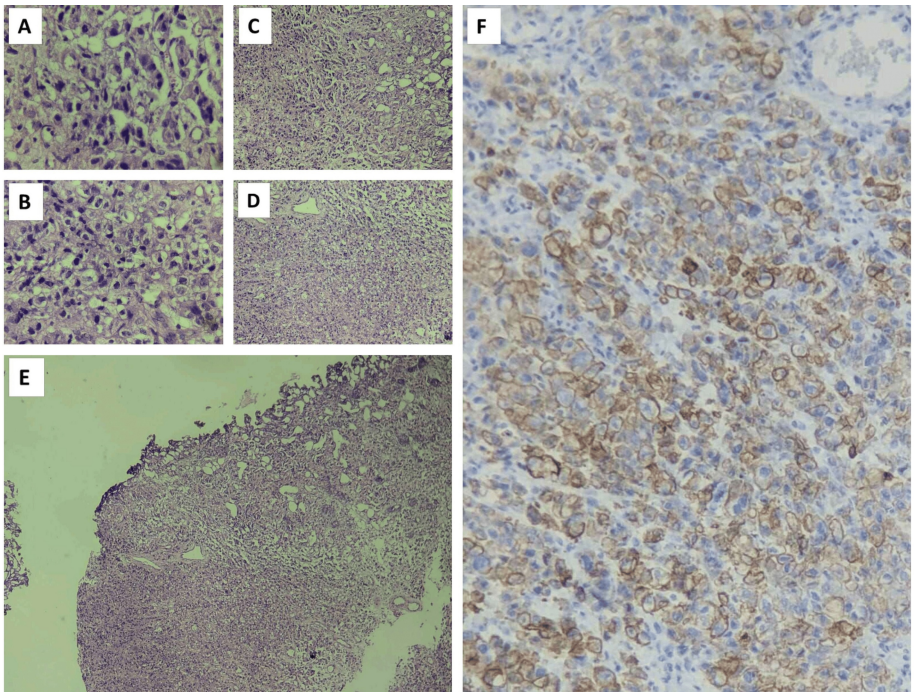


FIGURE 3: Microscopic examination of bladder biopsies. Diffuse infiltration of the bladder mucosa by poorly differentiated neoplastic cells.

(A,B) Magnification ×400. (C,D) Magnification ×100. (E) Magnification ×40. (F) Immunohistochemistry. Positive CK7 antibodies (magnification ×100).

The postoperative evolution was favourable. The patient was discharged from the hospital two days after the TURB, after removal of the urinary catheter and after ultrasound confirmation of the absence of significant post-void residual urine volume. Ten days later, another ultrasound of the kidney and the bladder showed the complete disappearance of the pelvicalyceal dilatation and the absence of any post-void micturition residue.

The patient was subsequently started on chemotherapy following the FOLFOX protocol.

A follow-up assessment of the patient two weeks after starting chemotherapy showed significant clinical improvement. Although some minor lower urinary tract symptoms persisted, they were effectively managed with alpha-blockers. Additionally, laboratory tests indicated that renal function was normal, and radiological monitoring demonstrated partial regression of the thickening in the bladder wall.

Discussion

Bladder cancer is amongst the most common malignant diseases, and urothelial carcinoma is the dominant histological subtype; other subtypes are rare. The bladder can also be involved as a secondary site to other cancers, either by direct locoregional invasion [14] or by distant metastatic behaviour [15]. Metastatic involvement can occur via hematogenous or lymphatic spread, or transcoelomic extension after intra-peritoneal tumour cell migration; extension to the bladder may occur via direct invasion from peritoneal implants [11,16-18].

In Bates and Baithun's study, distant metastases were most commonly secondary to gastric adenocarcinoma, melanoma, lung cancer, and breast cancer [7].

In Wang et al.'s study, most patients were male (68%); haematuria and lower urinary tract irritative symptoms were the most common clinical presentations of bladder metastases from distant cancers [19].

Our case report was about a 48-year-old male who presented to the emergency department with haematemesis and abdominal pain and distention, associated with haematuria and obstructive urinary tract symptoms. A gastric endoscopy revealed a large gastric tumour; a CT scan was then performed, showing a metastatic gastric tumour with peritoneal carcinomatosis and ascites, and revealing a thickened bladder wall with bilateral hydronephrosis, a commonly described radiological sign in other case reports [19,20].

After bladder catheterisation and irrigation with saline, the patient's condition improved, with a decrease in creatinine levels and disappearance of bilateral ureteral and pelvicalyceal dilatation. This was confirmed by ultrasound imaging a few days later. This led to the conclusion that vesicoureteral reflux may be implicated, either due to a subvesical cervico-prostatic obstruction, a small bladder capacity, or both components combined, especially given the maintenance of this improvement under alpha-blocker treatment, as confirmed by a kidney, bladder, and prostate ultrasound with measurement of post-void residual urine volume, one month later.

A biopsy of the gastric mass was in favour of gastric adenocarcinoma with independent signet-ring cells, which was the case for three of 10 patients with bladder metastasis from gastric adenocarcinoma in Bates and Baithun's study [7].

The endoscopic aspect of the bladder had an infiltrative, rigid-looking, and multinodular appearance; the histologic examination of a bladder biopsy was in favour of a poorly differentiated carcinomatous process of metastatic origin (CK7 and CK20 positive; P63 and GATA3 negative). In a case reported by Khoury et al., although a more specific marker was used, p40 to be specific in association with GATA3 [20], which were negative, the panel we used was a pretty complete one, making it possible to eliminate a primitive bladder cancer and suggest the possibility of a metastatic origin, gastric, given the context at hand.

This pattern has been described in other case reports, specifically in the signet ring cell (SRC) histological subtype of gastric adenocarcinoma, and is suggestive of either a lymphatic/haematogenous or peritoneal spread. In our case report, retrograde lymphatic/haematogenous spread seems like a possible route, particularly given the diffuse, non-focal nature of the bladder involvement, but transcoelomic extension also seems like a plausible assumption, given the peritoneal carcinomatosis [11,16-18].

The patient was subsequently started on chemotherapy following the FOLFOX protocol. Later reassessments showed a significant urological improvement. Biologically, renal function remained normal, and radiological monitoring showed a partial regression of the bladder wall infiltration.

The occurrence of bladder metastases from remote primary tumours is extremely rare and under-documented, and most studies and case reports are post-mortem [7,15].

This case highlights the need to consider that lower urinary tract symptoms, especially haemorrhagic symptoms, in patients undergoing follow-up for a neoplastic disease, may be indicative of the progression of their underlying carcinoma.

Conclusions

Although very uncommon, bladder metastases can occur from a distant gastric adenocarcinoma either via hematogenous or lymphatic spread, or via transcoelomic extension after intra-peritoneal tumour cell migration. Identifying this scenario requires an approach that integrates clinical findings, radiologic assessments, cystoscopic features, and pathologic profile. This case highlights the need for particular attention from both clinicians and urologists. Such a scenario must remain within the differential diagnostic framework when confronted with a similar symptomatic association.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

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