

**Case report:**

**Delayed post gastrectomy haematuria: A rare distant site of signet ring cell carcinoma metastasis**

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**Abstract:**

Secondary bladder tumour is rare and most of the cases were direct extension of local tumour. Distant tumour metastasis to the bladder is extremely rare. We report a case of isolated bladder metastasis from gastric cancer after 2 years of sub-total gastrectomy. The patient presented with gross haematuria and bladder growth was noted during diagnostic cystoscopy. Transurethral resection of bladder tumour was performed and histopathology result confirmed the diagnosis of metastatic signet ring cell carcinoma which is a similar subtype with the previous cancer in the stomach. Radiological investigation confirmed the presence of bladder mass, but no peritoneal dissemination was shown on the imaging. Thus, this particular presentation of isolated bladder metastasis without peritoneal seedling was extremely rare.

**Keywords:** Haematuria; Secondary bladder cancer; Signet ring carcinoma

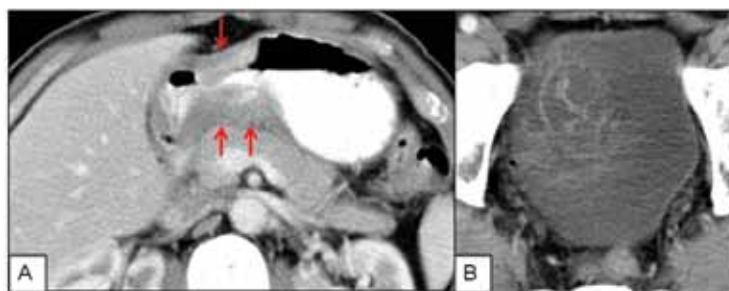
*Bangladesh Journal of Medical Science Vol. 15 No. 04 October '16*

**Introduction:**

Primary and secondary signet ring cell bladder carcinomas are rare. Both are considered as adenocarcinoma of the urinary bladder which comprised about 0.5-0.2% of all bladder cancer.<sup>1</sup> Majority of metastatic signet ring carcinoma manifest as part of disseminated disease. The most common site of primary is the stomach. This tumour known to have transperitoneal spread in female patients via the ovary, known as Krukenberg's tumour.<sup>2</sup> However, isolated bladder metastasis with early disease (T1) in male patient is rare.

**Case History:**

A 53-year-old male presented with a sudden onset of gross haematuria. He had previous history of sub-total gastrectomy 2 years earlier for signet ring cell carcinoma of the stomach (Figure 1).



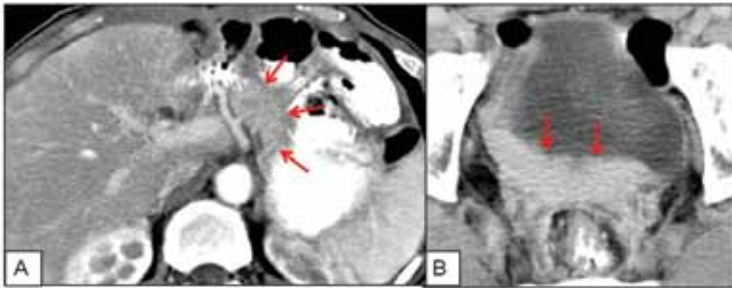
**Figure 1:** Contrast enhanced axial CT scan image of upper part of the abdomen shows thickened and enhanced gastric wall at the pyloric region (arrows). Subtotal gastrectomy was done, and histopathology result was subtype of signet ring cell carcinoma (Stage T1N0M0).

Review of previous operative notes revealed that his initial disease was stage T1N0M0 and the histopathology result was a subtype of signet ring cell carcinoma. He was on regular follow up under general surgical team and upper gastro-intestinal scope (OGDS) 6 months ago showed no local recurrence. During the current admission, bladder irrigation was done until

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the urine became clear of blood and followed with diagnostic cystoscopy. Bladder growth was noted during the procedure, and transurethral resection of bladder tumour was performed. Histopathology result confirmed the diagnosis of signet ring cell carcinoma to be a similar subtype with the previous cancer in the stomach. Patient was offered chemotherapy in view of distant metastasis, but he refused. Six months later he developed early satiety and constitutional symptoms. Repeat upper gastrointestinal scope (OGDS) showed recurrence of gastric cancer in the remaining part of the stomach. Computed tomography (CT) of the abdomen and pelvis prior to transurethral resection (TUR) further confirmed the presence of gastric and urinary bladder tumour (Figure 2). I



n spite of aggressive tumour recurrence, there was still no evidence of peritoneal dissemination seen on imaging.

#### **Discussion:**

Majority of bladder cancers are primary tumours, and the vast majority is transitional cell carcinoma (TCC). Adenocarcinoma is another type which comprises 0.5-2% of all primary bladder cancers.<sup>1,2</sup> On the other hand, metastasis or secondary tumour account for less than 1%.<sup>3,4</sup> Signet ring cell carcinoma may be either primary or secondary in urinary bladder. Primary signet ring cell carcinoma of the urinary bladder has been reported in more than 70 patients in literature, whereas the presence of secondary signet ring cell carcinoma is rare.<sup>5</sup> The most common secondary urinary bladder carcinoma spread direct from surrounding organs namely colorectal cancer (33%), prostate cancer (12%) and cervical cancer (11%).<sup>2</sup> Distant metastasis from other organs in majority of cases manifest in advanced stage with disseminated diseases. The primary sites were mainly from gastric cancers, malignant melanomas and, breast and lung cancers.<sup>2</sup>

In the absence of any clear clinical presentation, formulating the diagnosis of primary or secondary signet ring carcinoma poses a great challenge to the pathologists. Differentiating a gastrointestinal tract (GIT) spread from primary signet ring carcinoma cannot be done with certainty. The presence of a background of urothelial intestinal metaplasia with associated glandular dysplasia may favour a primary origin.<sup>6</sup> However, one should be aware of the possibility of colonization of the bladder urothelial mucosa by a secondary well differentiated adenocarcinoma mimicking intestinal background.<sup>2</sup> Thus, in

clinical practice GIT screening for primary adenocarcinoma must be done prior to diagnosis of primary adenocarcinoma of the bladder is made. This will avoid unjustifiable radical cystectomy.<sup>9</sup> In our patient the clinical presentation clearly suggested that the bladder growth is a secondary tumour, in which management was towards a metastatic disease. On the other hand the bladder growth presenting in a clinically localized gastric cancer disease without any peritoneal dissemination will invite a query about mode of spread.

In general, cancer metastasis to the urinary bladder is usually via direct extension from the surrounding organ tumour, haematogenous, lymphogenous or peritoneal dissemination.<sup>8</sup> These spread can be via contiguous or non-contiguous mode. These mode of spread suggest that gastric cancer metastasis to the bladder may behave differently in the different sexes. In female patients majority of gastric cancer cases with Krukenberg's tumour will develop bladder secondaries. This shows the ability of ovary to act as window to the pelvic organ.<sup>9</sup> On the other hand, in male patients there is no definite window for pelvic metastasis. In these cases the definite mechanism of malignant gastric cancer spread to the bladder in the absence of peritoneal seeding is still not clear.<sup>9</sup> The other possible route of metastasis for male patients was retroperitoneal lymphatic drainage. Most of lymphatic metastasis associated with lymph node enlargement and proper scintigraphy study is the best way to prove the lymphatic involvement.

In managing cases of bladder secondary, the severity or stage of the primary tumour will determine the definite management.<sup>1</sup> In most cases of bladder secondary due to direct extension by surrounding organ, radical pelvic exantration may give hope for total tumour irradiation.<sup>7</sup> On the other hand, in cases of distant spread the prognosis is poor and more towards palliative management. If there was no recurrence at the primary site, this tumour is usually managed with combination of complete transurethral bladder tumour resection (TURBT) and chemotherapy.

Common chemotherapy used is combination of gemcitabine and carboplatin. However, in spite of aggressive chemotherapy most of the cases have poor prognosis.<sup>1,7</sup>

**Conclusion:**

Almost all cases of bladder metastasis from gastric cancer have peritoneal dissemination. This particular

presentation of bladder metastasis from gastric cancer is extremely rare. Thus, in gastric cancer patient who presented with haematuria, meticulous screening to rule out any bladder secondary need to be considered.

**Conflict of interest:** None declared

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**Figure legends:**

**Figure 2:** Local tumor recurrence after 2 years following subtotal gastrectomy. Axial contrast enhanced CT scan image shows thickened and enhanced residual gastric wall (arrows) with irregular inner border.

**Figure 3:** A, B: Contrast enhanced axial CT scan images show an irregular mass at the base of the urinary bladder (arrows). C, D – Retrospective review of CT scan images 2 years ago revealed no urinary bladder mass.