

## Case Report

**Malignant priapism secondary to metastatic colon adenocarcinoma: a case report**Shunde Wang<sup>1</sup>, Chengguo Ge<sup>1,\*</sup>, Junyong Zhang<sup>1</sup><sup>1</sup>Department of Urology, The Second Affiliated Hospital of Chongqing Medical University, 400010 Chongqing, China\*Correspondence: [kinghongyi@163.com](mailto:kinghongyi@163.com) (Chengguo Ge)

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**Abstract**

**Background and objective:** Priapism is an uncommon urological emergency, and is even less commonly caused by colon adenocarcinoma metastasis. The aim of this article is to report a case of malignant priapism caused by metastatic colon adenocarcinoma. **Methods and materials:** Case sharing and clinical experience summary of a 61-year-old man with priapism and hematuria persisting for more than 30 days presented to our hospital in September 2019. **Results:** The patient did not have a history of perineal trauma, nervous system disease, or hematological system disease. Penile Doppler ultrasound showed no obvious blood flow signal, and penile arterial blood gas parameters were pH of 7.01, partial pressure of oxygen of 26 mmHg, and partial pressure of carbon dioxide of 71 mmHg, suggesting the occurrence of ischemic priapism. Abdominopelvic computed tomography enhancement images showed a localized irregular shape and high-density imaging of the root of the corpus cavernosum. Histopathology after cystoscopy confirmed the metastasis of colon adenocarcinoma. Superselective embolization of the internal pudendal artery was performed, which partially relieve the abnormal penile erection, but drug treatment did not significantly alleviate the patient's priapism. **Conclusion:** Priapism secondary to metastatic colon adenocarcinoma suggests systemic dissemination, indicative of a poor prognosis. In such cases, unnecessary surgery should be avoided. Superselective embolization could be an optional treatment for priapism secondary to cancer.

**Keywords:** Priapism; Colon adenocarcinoma; Tumor metastasis**1. Introduction**

Priapism is prolonged abnormal penile erection that lasts over 4 h without sexual or libido stimulation [1,2], occurring in men of all ages. The etiologies include trauma, leukemia, sickle cell anemia, tumors, and drugs including tamsulosin and phentolamine [3]. Ischemic priapism, often leads to serious complications, such as erectile dysfunction, ischemic necrosis or fibrosis of the penile corpus cavernosum, and penile deformity. Penile metastases are clinically uncommon, and usually the tumors originate in the bladder, prostate, colon, rectum, or kidney. Priapism secondary to colon adenocarcinoma metastasis occurs less frequently [4].

This article reports a case study of malignant priapism caused by colon cancer metastasis, which was a disseminated manifestation of colon cancer. However, the prognosis of this kind of metastasis is very poor, regardless of the therapy, as it typically occurs in end-stage cancer.

**2. Case presentation**

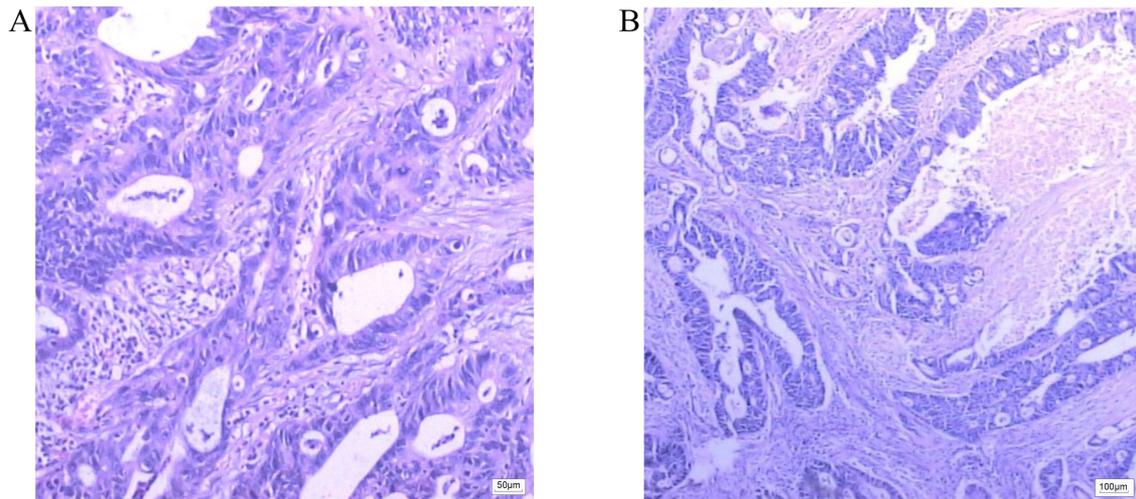
A 61-year-old man was admitted to our clinic with abnormal penile erection and hematuria persisting for over 30 days. Two months earlier, the patient had undergone laparoscopic resection of the primary sigmoid colon cancer in another hospital, supplemented by two cycles of intravenous chemotherapy with the oxaliplatin + capecitabine (XELOX) regimen. Postoperative pathology showed a low

to moderately differentiated adenocarcinoma (Fig. 1A), a pathological T4 tumor with liver and lymphatic multiple metastases. One month earlier, the patient experienced persistent abnormal penile erection and hematuria, followed by progressive aggravation.

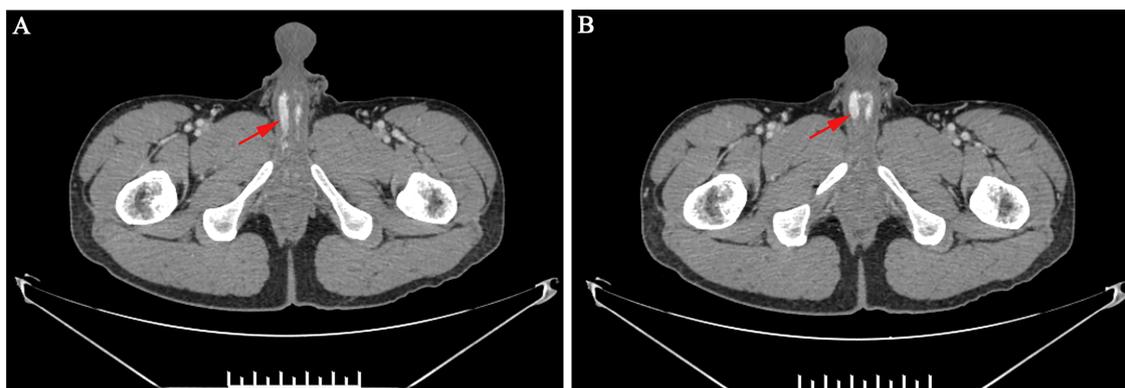
The patient did not have a history of perineal trauma, nervous system disease, or hematological system disease. Physical examination showed obvious swelling of the penis, with a hard texture, poor elasticity, slightly higher skin temperature, and ruddy color, with moderate to severe tenderness. Two painless nodules with obscure boundaries of approximately 0.5 cm × 0.5 cm were found at the root of the penis.

Abdominopelvic computed tomography (CT) enhancement images showed a localized irregular shape and high-density imaging of the root of the corpus cavernosum (Fig. 2A,B); penile Doppler ultrasound showed no obvious blood flow signal; and penile arterial blood gas parameters were pH of 7.01, partial pressure of oxygen (PO<sub>2</sub>) of 26 mmHg and partial pressure of carbon dioxide (PCO<sub>2</sub>) of 71 mmHg. Transurethral cystoscopy was performed under combined spinal and epidural analgesia (CSEA), and an extensive cauliflower-like neof ormation, covering the posterior urethra and prostate, with massive tortuous blood vessels attached, was observed (Fig. 3A,B). Histopathological examination of the neoplasm showed nests of acinar-like cells with cytological atypia (Fig. 1B), consistent with the primary colon adenocarcinoma.





**Fig. 1. Histopathological results.** (A) Pathological analysis of the primary colon tumor showed a low to moderately differentiated adenocarcinoma that infiltrated the whole colon wall, along with 4 lymphatic metastases (hematoxylin and eosin stain, original magnification 400×). (B) Transurethral cystoscopy biopsy showed nests of acinar-like cells with cytological atypia, consistent with metastatic adenocarcinoma (hematoxylin and eosin stain, original magnification 200×).



**Fig. 2. Abdominopelvic computed tomography results.** (A,B) Abdominopelvic computed tomography enhancement images showed a localized irregular shape and high-density imaging of the root of the corpus cavernosum (indicated by arrows).

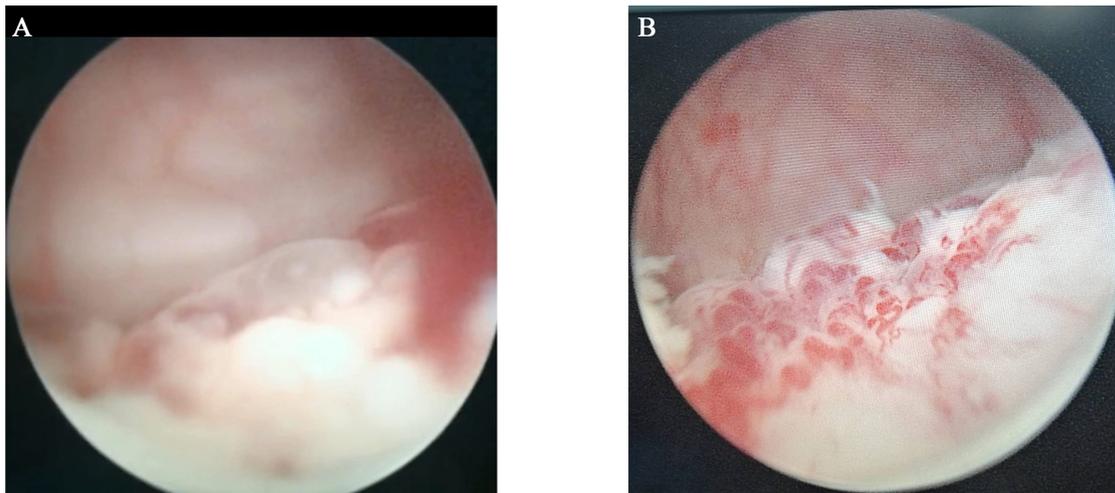
Despite the administration of ibuprofen codeine-sustained tablets and intramuscular injection of tramadol hydrochloride for analgesia, as well as the oral administration of Progynova tablets to decrease the erection, there was no significant improvement in the state of pain of the penis or the persistent erection. The patient and his family refused cavernous shunt or palliative partial or total penectomy; thus, superselective embolization of the internal pudendal artery was performed (Fig. 4A,B). The penile texture was improved, and penile tenderness was slightly relieved after the therapy. Despite our treatment, the patient passed away because of cachexia 2 months after being discharged from the hospital.

### 3. Discussion

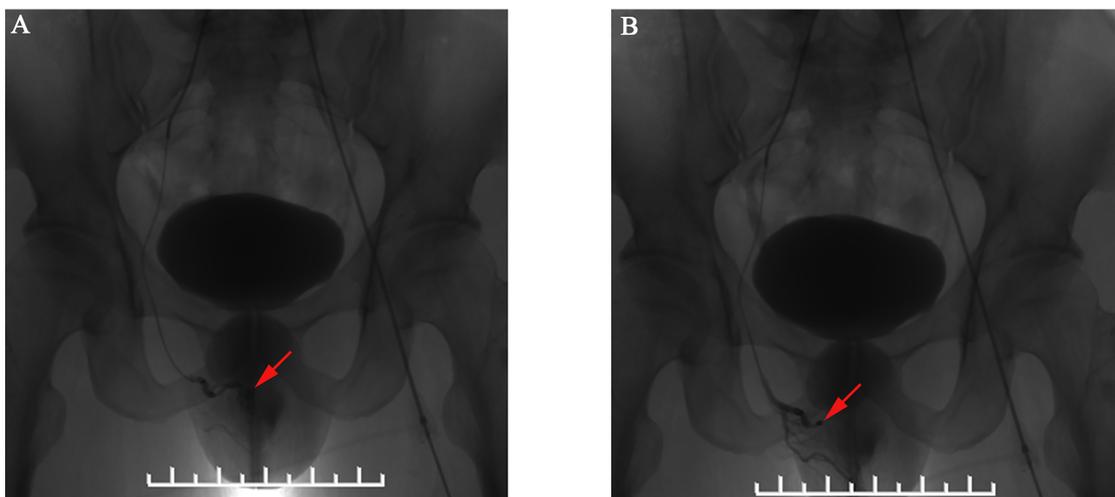
Penile metastatic cancer is relatively rare and usually occurs in the context of more widespread disseminated dis-

ease [5]. Penile metastases arise more frequently from genitourinary cancers, mostly from bladder or prostate cancer [4,6]. However, penile metastasis from colon adenocarcinoma occurs less often and has a poor prognosis [7]. Penile metastases have mostly been reported in case reports or small case series [5,8,9], which makes clinical doctors less familiar with these metastases.

Priapism can be classified into three main subtypes: ischemic (low-flow), nonischemic (high-flow), and stuttering priapism [6]. Ischemic priapism is a persistent penile erection lasting more than 4 h, and marked by rigidity of the corpora cavernosa with little or no cavernous arterial inflow and blood gas analysis parameters of  $PO_2 < 30$  mmHg,  $PCO_2 > 60$  mmHg, and  $pH < 7.25$  [10]. This type of priapism often leads to erectile dysfunction if not treated on time. Nonischemic priapism is a constant erection caused by unregulated cavernous arterial inflow and



**Fig. 3. Transurethral cystoscopy.** (A,B) Transurethral cystoscopy showed an extensive cauliflower-like neoplasm covering the posterior urethra and prostate with massive tortuous blood vessels attached.



**Fig. 4. Superselective embolization of the internal pudendal artery.** (A) Selective arteriography of the internal pudendal artery showed abnormal blood perfusion and local aggregation of contrast medium (indicated by arrow). (B) After superselective embolization of the internal pudendal artery with polyvinyl alcohol particles (indicated by arrow), the abnormal blood perfusion had disappeared.

seldom presents with haphalgnesia [11]. Stuttering priapism is characterized by periodic self-limited erection with obvious pain, and the erection time is usually <4 h, but it can develop into ischemic priapism if not treated on time [12].

In this case, this patient was considered to have ischemic priapism as evidenced by the clinical findings. Because the ischemic time was more than 48 h, fibrillation of the corpus cavernosum occurred [6] and fibrillation were exacerbated as the ischemic time increased. Due to diverse treatment modalities and prognostic factors [2,13], it is important to consider differential diagnosis among the three types of priapism. In most patients, the symptoms determine the diagnosis [2]. These situations impair the effectiveness of treatment to a certain degree; therefore, we strongly recommend early diagnosis and noninvasive treat-

ment.

Prattley *et al.* [14] reported the use of superselective embolization with Microcoil and Gelfoam for non-ischemic priapism, achieving positive outcomes that effectively alleviated priapism without causing erectile dysfunction. In our case, after the use of superselective embolization of the internal pudendal artery, better results were achieved compared to Prognovna tablets. This is the first report of superselective embolization to treat ischemic priapism secondary to metastatic colon adenocarcinoma, providing clinicians evidence of the utilization of non-invasive treatment.

#### 4. Conclusions

Priapism secondary to metastatic colon adenocarcinoma is very rare and usually indicates dissemination of

primary tumor to multiple organs, which is mostly found in aged patients. The main symptoms may be penile nodule, malignant priapism, penile pain and swelling, and difficulty in urination [1,15]. Patients with metastatic penile cancer have already developed systemic dissemination, which has a poor prognosis and a median survival time of usually less than 6 months [8]. It requires timely detection, precise diagnosis, and non-invasive treatment to improve the quality of life.

### Author contributions

Conceptualization—CGG. Data curation—SDW, CGG and JYZ. Investigation—SDW. Methodology—JYZ. Resources—CGG. Writing—original draft—SDW. Writing—review & editing—CGG and JYZ.

### Ethics approval and consent to participate

Informed consent was obtained from the patient's son for publication of this case report and any accompanying images. The written consent was obtained from the patient's son because the patient died when this report been written.

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### Conflict of interest

The authors declare no conflict of interest.

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