

Functional medicine

## Penile metastasis of colon carcinoma: A rare case report

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### ABSTRACT

Despite being one of the most common primary tumors in the world, colon cancer only metastasizes to the penis in singular cases.

We report the case of a 53 year-old male presenting with hematuria, pain and induration of the penis 2 and half years after the diagnosis of left colon cancer. CT scan demonstrated involvement of the corpus spongiosum and corpora cavernosa with enlarged external inguinal lymph nodes and asymptomatic metastasis in the liver and lungs.

The finding of a penile lesion in a cancer patient is an alarming sign and should indicate a disseminated disease. The prognosis of penile metastasis is poor.

### Introduction

Colon carcinoma is one of the most common cancers around the world. The main sites of metastasis are the liver, lungs and peritoneum. The extension to male external genital organs has only been reported in few cases.

In 1870 Eberth described the first case of a rectal cancer metastasizing to erectile tissue.<sup>1</sup> Since this date, a few cases of penile metastasis originate from gastro-intestinal tract was reported. The differential diagnosis includes primary malignant lesions, infectious affections and benign tumors.<sup>2</sup>

We report an unusual case of secondary penile metastasis from left colon adenocarcinoma.

### Case presentation

We report a case of a 53 year-old male who was diagnosed with tumor of the left colic flexure. The extension assessment did not show a secondary location. He underwent a left colectomy. Examination of surgical specimen showed a moderately well differentiated Liberkuhnian adenocarcinoma which invaded the entire intestinal wall, with presence of lymph node invasion. The cancer was staged as T4N1M0 according the TNM classification. So, the patient received adjuvant chemotherapy by FOLFOX regimen. The subsequent patient follow up was uneventful until 2 years later. The patient presented to the urology clinics complaining from clotting hematuria, pain and induration of the penis. Physical examination showed subcutaneous nodules on the corona of glans penis measuring 5mm as well as cervical and inguinal lymphadenopathies (Fig. 1).

On CT scan, the penis was the seat of hypodense lesions involving the corpus spongiosum and corpora cavernosa (Fig. 2). Senile malignancy was suspected, and a biopsy of the penile nodules was performed. Histological examination concluded to infiltration of the penis by an adenocarcinoma. Immunohistochemistry highlighted a positive staining for cytokeratin 20, an expression of CDX2, and an absence of the marking by anti P63 antibody (Fig. 3).

### Discussion

Metastatic colon cancer to the penis is a rare entity. Despite having a dense network of blood and lymphatic vessels, the penis is an exceptional site for secondary tumors and does not provide the perfect environment for neoplastic seeding. This could be explained by the rapid flow of blood within the organ and the multiple arterio-venous shunts at the physiological state. The spread route of penile metastasis is still in controversy. The development of pelvic mass would slow down blood

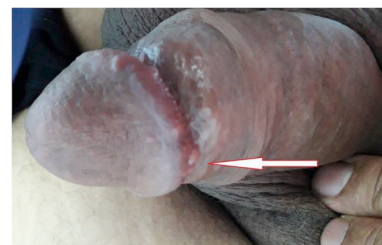


Fig. 1. Subcutaneous nodules on the corona of glans penis measuring 5mm.

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Fig. 2. Hypodense lesions involving the corpus spongiosum and corpora cavernosa.

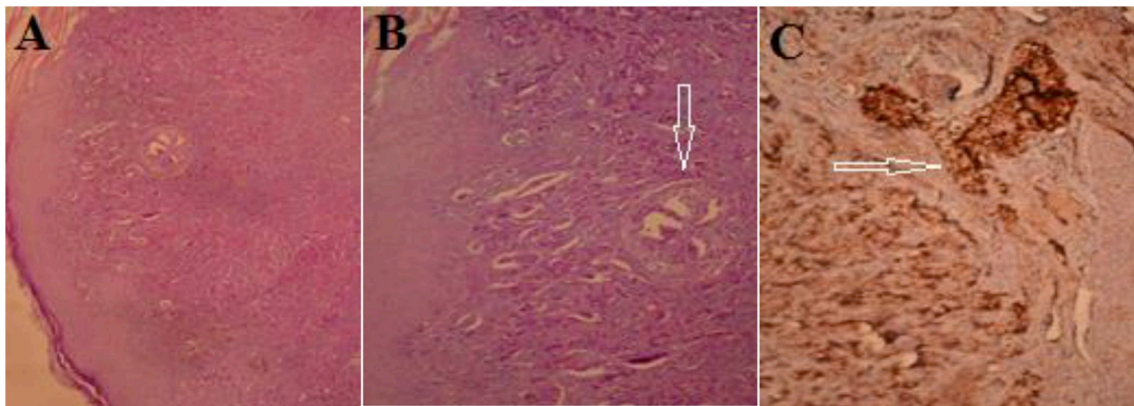


Fig. 3. Biopsy from a nodule of glans penis showing metastatic adenocarcinoma. A (magnification 10) and B (magnification 25): coloration with hematoxylin and eosin staining showing tumor tissue (arrow). C (magnification 40): immunohistochemistry CK7 fixation.

and lymph circulation in the penis creating a more favorable environment for the anchoring of metastatic cells. In our case, the finding of peritoneal carcinomatosis in the pelvis could be the direct origin of penile lesions.

However, when the outflow is impaired by venous or lymphatic occlusion, such as in the presence of tumor in the neighboring genitourinary organs or in massive pelvic disease, the process of seeding could be facilitated. A retrograde lymphatic dissemination is the most likely route here as for the presence of palpable superficial inguinal lymph nodes and the finding of subcutaneous nodules on the corona of the glans penis.<sup>2</sup> The metastatic nature of the lesion can be proven by IHC staining: cytokeratin 20+ /cytokeratin 7- and expression of CDX2.<sup>3</sup>

Penile metastasis often indicates a poor prognosis. It is a sign of an extensively disseminated disease. The overall survival is nearly 10 months after diagnosis.<sup>4</sup>

Therapeutic options are mainly palliative. They include chemotherapy, radiation, surgical debridement, and symptomatic treatment. Surgical excision is controversial and some teams have adopted a more radical approach by performing a total penectomy when the metastasis is limited to the penis.<sup>5</sup> In this case the patient had a second line chemotherapy and symptomatic management.

## Conclusion

Penile metastasis arising from lower GI tumors is exceptional, and its pathophysiology is not fully understood. The presence of a penile lesion in a cancer patient is an alarming sign as it indicates an underlying disseminated disease. Optimal management of metastatic colon adenocarcinoma to the penis has yet to be standardized, and treatment aims are often palliative.

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