

# Penile Metastasis from Anal Canal Carcinoma: A Case Report

António Modesto Pinheiro<sup>1</sup>, Filipa Pereira<sup>2</sup>, Sara Duarte<sup>1</sup>, Eduardo Felício<sup>1</sup>, Guilherme Bernardo<sup>1</sup>, Filipe Gaboleiro<sup>1</sup>, André Barcelos<sup>1</sup>, Sónia Ramos<sup>1</sup>, Alberto Silva<sup>1</sup>, Andrea Furtado<sup>1</sup>, Fernando Ribeiro<sup>1</sup>, Pepe Cardoso<sup>1</sup>, Fernando Ferrito<sup>1</sup>

<sup>1</sup>Hospital Professor Doctor Fernando Fonseca EPE Amadora, Department of Urology, Lisboa, Portugal

<sup>2</sup>Hospital Professor Doctor Fernando Fonseca EPE Amadora, Department of Pathology, Lisboa, Portugal

## Abstract

Penile metastases are exceptionally rare and are associated with poor prognosis. Herein, we report the case of a 74-year-old man with previously treated squamous cell carcinoma of the anal canal who was referred with a painless penile lump. Biopsy identified a similar squamous cell carcinoma. Imaging studies excluded other sites of metastases. It was considered a solitary metastasis, and a total penectomy was performed. The patient was free of metastasis for four years until the disease progressed, and she is currently under palliative chemotherapy with 5 years of follow-up. This is the second worldwide case of anal canal carcinoma with penile metastasis.

**Keywords:** Penile metastases, anal canal carcinoma, total penectomy

## Introduction

Penile metastases are rare and were first described by Eberth in 1870 (1,2). Since then, many reports have been made, with more than five hundred patients reported (2). The most common primary tumor origins are the bladder and prostate, with approximately 30% each, and 10-20% for rectosigmoid tumors (1-5). The most common clinical presentation is a painless penile mass; other symptoms include malignant priapism, pain, voiding symptoms, and hematuria (4-6). The prognosis is abysmal, irrespective of the treatment choice (1). We present a case of a patient with penile metastasis from an anal canal carcinoma treated surgically and briefly review the literature.

## Case Presentation

A 74-year-old man arrived at the outpatient clinic with a complaint of a penile lump.

The patient had a history of squamous cell carcinoma of the anal canal, classified as T4N0M0, two years ago. This tumor presented as an anal mass complicated with a perianal abscess. The perianal abscess was conservatively treated with antibiotics. Subsequently, chemoradiation (54 Gy/30 F on both

tumor and regional lymph nodes and two cycles of mitomycin C plus 5-fluorouracil) with curative intent was performed with complete response. No surgical approach was applied to this tumor. However, a small liquid collection remained (10x5 mm) with small fistulous tracts. No biopsy or treatment was performed on this collection or the fistulous tracts.

Upon physical examination, we palpated two painless, round, hard masses on both cavernous bodies from the glans to the shaft, without skin or glan invasion. We performed a core biopsy that revealed a squamous cell carcinoma with histological characteristics similar to those of the previous tumor. The patient was screened using computed tomography and magnetic resonance imaging and had no other primary site tumor, neither local nor distant recurrence (Figure 1).

A multidisciplinary team considered a solitary penile metastasis of the anal canal carcinoma and proposed a total penectomy with palliative intent. The procedure was performed, and the anal canal was biopsied to exclude local relapse. The pathology report identified a squamous cell carcinoma histologically similar to the previous anal canal tumor (Figure 2), and the biopsies were negative. The total penectomy specimen had a tumor of 16 cm distancing 2.5 cm from the base with negative surgical margins.

**Correspondence:** António Modesto Pinheiro MD, Hospital Professor Doctor Fernando Fonseca EPE Amadora, Department of Urology, Lisboa, Portugal

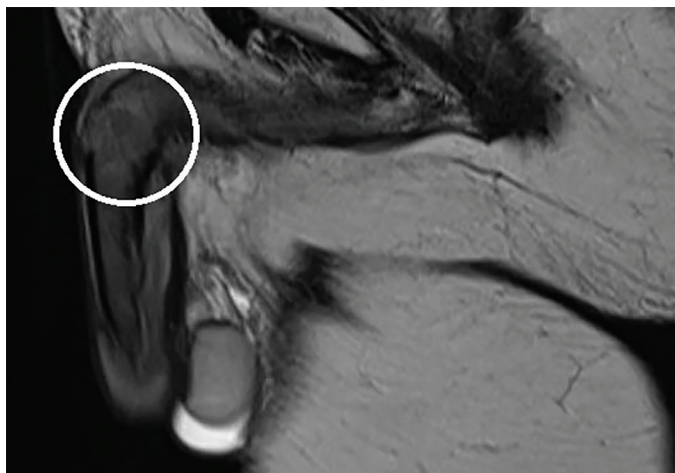
**E-mail:** antonio.modesto.pinheiro@gmail.com **ORCID-ID:** orcid.org/0000-0001-8087-4178

**Received:** 18.05.2023 **Accepted:** 08.01.2024

**Cite this article as:** Pinheiro AM, Pereira F, Duarte S, Felício E, Bernardo G, Gaboleiro F, Barcelos A, Ramos S, Silva A, Furtado A, Ribeiro F, Cardoso P, Ferrito F. Penile Metastasis from Anal Canal Carcinoma: A Case Report.

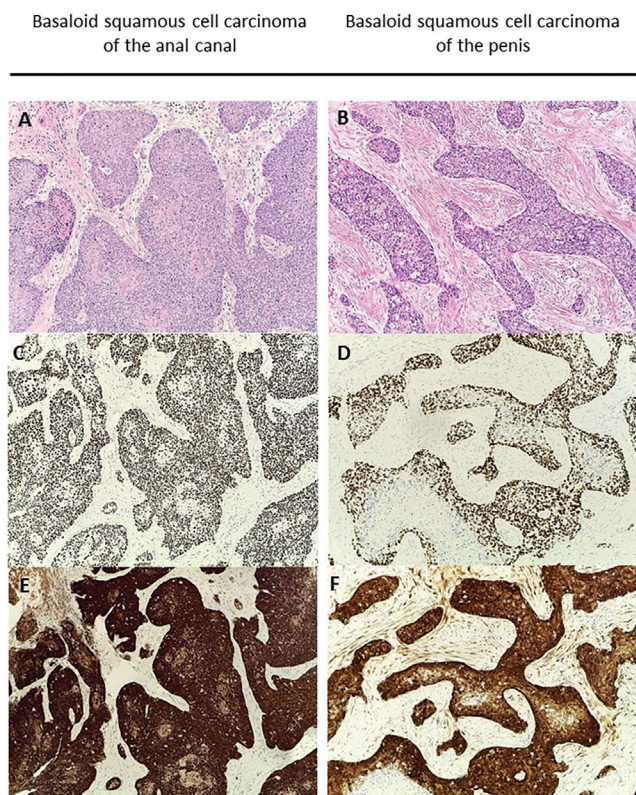


The patient remained on follow-up without complaints or evidence of recurrence for four years. Subsequently, the patient recurred with perineal cutaneous metastases, inguinal, iliac, and aortic lymph nodes, and pulmonary metastases. Palliative chemotherapy with paclitaxel and carboplatin was initiated.



**Figure 1.** MR image of the left cavernous body with a suspected lesion at referral (white circle)

MR: Magnetic resonance



**Figure 2.** Histological comparison of the squamous cell carcinoma of the anal canal to the squamous cell carcinoma of the penis. A and B. Hematoxylin and eosin stain, 100x; C and D. Immunohistochemistry study positive for p40, 100x; E and F - Immunohistochemistry study positive for p16, 100x

The patient is alive and has five years of follow-up with partial response to chemotherapy.

## Discussion

Secondary metastatic penile cancer is rare despite its rich and interconnected vasculature (1-4). The most common origins are the neighboring pelvic tumors: bladder, prostate, and rectosigmoid, with approximately 75% (1-5). Other tumor origins include the kidney, testis, and lungs, among others (1-5). There is only one report of an anal canal primary carcinoma (7). Therefore, to the best of our knowledge, this is the second report of penile metastasis of an anal canal carcinoma.

There is uncertainty regarding the metastatic mechanism, and several hypotheses have been proposed: the retrograde venous route, retrograde lymphatic route, arterial embolism, direct extension, and implantation secondary to instrumentation (1-5). The retrograde venous route is the most commonly acknowledged and results from refluxing cancer cells through the pelvic venous plexus to the penile dorsal vein (1-5). This route explains pelvic tumors' higher incidence of secondary malignancy (1-5). The retrograde lymphatic route results from the spread from the iliac to the inguinal nodes and then to the penis, explaining the involvement of the penile skin but not the corpora or glans (1,2,4,5). Direct extension results from highly locally invasive and aggressive tumors that invade the base and proximal shaft (1,2,4,5). Arterial embolism and implantation secondary to instrumentation are uncommon (1,2,4,5).

The two most probable hypotheses in our report are direct extension and retrograde venous spread. Direct extension relies on evidence of liquid perineal collection with fistulous tracts. However, to counter it, the tumor did not evolve to the base of the penis, and negative surgical margins were obtained. Hence, the most probable metastatic mechanism is the venous retrograde route.

The most common clinical presentation is a painless penile mass in 60-80% of cases, involving the corpora bilaterally in 60-70% (2-4). Isolated glans are less common, 10-24%, and skin and prepuce involvement are rare, 5-6% (2,4,5). Malignant priapism is a prominent feature present in up to 40% of patients (1-3,5) and portends a poor prognosis (6). Other clinical features include pain, hematuria, and voiding symptoms (1-3,5).

The diagnosis is made through a lesion biopsy or fine needle aspiration (1,5). The pathological examination confirms and excludes differential diagnoses such as other primary penile tumors, *Peyronie's* disease, tuberculosis, and other inflammatory and suppurative diseases of the penis (1,2,5).

Management varies according to the patient's general health status, primary tumor response to treatment, extent of

metastasis, and symptoms presented (1-3,6,8). Chemotherapy, radiotherapy, and surgical excision, including total penectomy, are all possible treatments (1,2,5,8). Most patients have disseminated systemic disease and poor performance status (1,2,4,5,7,8). The prognosis is abysmal irrespective of treatment options, and survival is usually less than one year (1,2,4). Surgical treatment with total penectomy is performed with palliative intent to alleviate intractable pain and voiding symptoms in patients with good general health (2,3,8). However, there are reports of prolonged survival in patients who underwent total penectomy with metastasis confined to the penis (7,8).

In our report, because it was a unique metastasis, a total penectomy was performed to prevent the symptom development and delay the metastatic spread. The patient was followed up for five years and asymptomatic until the fourth year, when recurrence was diagnosed. Although penectomy had no curative intent, this radical surgery successfully resulted in a significant survival benefit with preserved quality of life.

## Conclusion

The anal canal carcinoma as the primary tumor site and the significant delay and survival benefit obtained from the total penectomy contribute to the singularity of this case.

## Ethics

**Informed Consent:** Informed consent was obtained from the patient.

## Authorship Contributions

Surgical and Medical Practices: A.M.P., F.P., S.D., E.F., G.B., F.G., A.B., S.R., A.S., A.F., F.R., P.C., F.F., Concept: A.M.P., A.B., A.S., F.R., P.C., F.F., Design: A.M.P., A.B., S.R., A.S., A.F., F.R., P.C., F.F., Data

Collection or Processing: A.M.P., F.P., S.D., E.F., G.B., F.G., Analysis or Interpretation: A.M.P., F.P., S.D., E.F., G.B., F.G., S.R., A.S., A.F., P.C., Literature Search: A.M.P., S.D., E.F., G.B., F.G., A.B., F.R., P.C., Writing: A.M.P., F.P., S.D., E.F., G.B., F.G., S.R., A.F., F.R., P.C., F.F.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The author declared that this study received no financial support.

## References

1. Cherian J, Rajan S, Thwaini A, Elmasry Y, Shah T, Puri R. Secondary penile tumours revisited. *Int Semin Surg Oncol* 2006;3:33.
2. Mearini L, Colella R, Zucchi A, Nunzi E, Porrozzi C, Porena M. A review of penile metastasis. *Oncol Rev* 2012;6:e10.
3. Zhu YP, Yao XD, Zhang HL, Shen YJ, Huang D, Ye DW. Penile metastasis from primary bladder cancer: a study of 8 cases and review of the literature. *Onkologie* 2012;35:196-199.
4. Zhang K, Da J, Yao HJ, Zheng DC, Cai ZK, Jiang YQ, Xu MX, Wang Z. Metastatic tumors of the penis: a report of 8 cases and review of the literature. *Medicine (Baltimore)* 2015;94:e132.
5. Chaux A, Amin M, Cubilla AL, Young RH. Metastatic tumors to the penis: a report of 17 cases and review of the literature. *Int J Surg Pathol* 2011;19:597-606.
6. Cocci A, Hakenberg OW, Cai T, Nesi G, Livi L, Detti B, Minervini A, Morelli G, Carini M, Serni S, Gacci M. Prognosis of men with penile metastasis and malignant priapism: a systematic review. *Oncotarget* 2017;9:2923-2930.
7. Wani NA, Mohanty NK, Azfar M, Jan G M. Penile metastases from basaloid carcinoma of the anal canal. *British Journal of Urology* 1991;67:214-215.
8. Mukamel E, Farrer J, Smith RB, deKernion JB. Metastatic carcinoma to penis: when is total penectomy indicated? *Urology* 1987;29:15-18.