CASE REPORT

Rectal adenocarcinoma infiltrating the bulbar urethra and metastasising to the penis

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SUMMARY

Secondary penile tumours from rectal carcinoma is a known clinical entity but can be missed unless carefully evaluated. We report a case of rectal adenocarcinoma with synchronous painless penile nodules. A patient presented with constipation and rectal bleeding. He had an anorectal growth as well as palpable nodules on his penis. Rectal biopsy yielded adenocarcinoma. Imaging revealed direct infiltration of tumour into the bulb of the penis as well as distal shaft lesions. Fine-needle aspiration cytology of the penile nodule showed metastatic adenocarcinoma. Diversion colostomy was performed and the patient referred for chemoradiation. Since he did not have any urinary symptoms, the penile lesions were left unaltered. Repeat imaging after concurrent chemoradiotherapy showed no response. The prognosis was explained and the patient was given palliative clinic care.

BACKGROUND

There are numerous sites of metastasis in rectal carcinoma rectum but metastasis to the penis is rare. This is a medical paradox since the penis has a rich blood and lymphatic supply and is in close proximity to the rectum. Though a rare clinical entity, it is not unknown. More than 480 cases of penile secondaries have been reported in the literature, of which 78 cases were metastases of rectal carcinoma.¹ Even with many published case reports, clinicians often tend to ignore this rare metastatic site, which necessitates a gentle reminder to the clinical community.

CASE PRESENTATION

A 47-year-old man presented to our clinic, with symptoms of straining at defaecation and

occasional bleeding per rectum for 1 year. He gave a history of a growth in the anal canal and penile thickening over a period of 6 months, with associated weight loss. There were no comorbidities, but he had a history of high alcohol consumption and smoking. Clinical examination revealed an ulceroproliferative growth in the anorectum, fixed to the lateral wall (extending from 10 cm proximal to the anal verge and pouting out through the anal canal for a length of 1 cm) (figure 1A). He had penile lesions, two nodular swellings in the glans penis and a circumferential thickening of the middle of the penile shaft (figure 1B).

INVESTIGATIONS

The patient's blood investigations were within normal limits. HIV and hepatitis B virus surface antigen serology were negative. His serum carcino embryonic antigen was elevated (29.3 ng/mL) and serum prostate-specific antigen was within normal range (1.69 ng/mL).

The biopsy showed a well differentiated adenocarcinoma in the rectal growth (figure 2A).

FNAC from the penile lesion showed features suggestive of adenocarcinoma (figure 2B, C).

Contrast-enhanced CT (CECT) of the abdomen and pelvis showed a growth in the rectum and anal canal, infiltrating into the posterior wall of the urinary bladder, prostate, seminal vesicle and the bulb of the penis. It also revealed soft tissue lesions in the corporae and glans (figure 3A, B).

CECT showed sclerotic lesions in lumbar vertebrae, but bone scan was negative with no other sites of metastasis seen in the imaging.

Figure 1 (A) Anorectal growth pouting out of the anal canal. (B) Two nodular lesions in the glans penis.

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Figure 2 (A) Biopsy of the anorectal growth, showing a prominent glandular pattern. (B) Tumour cells arranged in a glandular pattern; the cells are tall and columnar, with nuclear stratification, and the lumen shows mucinous material (May Grunwald-Giemsa, $\times 40$). (C) Tall, columnar tumour cells with a mucin vacuole (MGG, $\times 40$).

TREATMENT

Diversion colostomy was performed to relieve the impending obstruction. Since the patient was asymptomatic and the penile lesion was infiltrating the bulbar urethra, prostate and bladder, it was left unaltered and the patient was referred to the cancer centre for initiation of chemoradiation. He received 50.4 Gy of radiation in 28 fractions of 1.8 Gy each with concurrent oral capecitabine capsules for 5 weeks.

OUTCOME AND FOLLOW-UP

After chemo radiation, the patient was assessed for response. Repeat CECT did not show any significant change in the size or extent of the tumour (figure 3C, D), and the patient was

offered palliative radiation, which he deferred. Hence the prognosis was explained and he was given analgesics for palliation of pain.

DISCUSSION

Even though rare in occurrence, cases of penile metastasis have been reported as early as 1870 by Eberth.² A higher incidence is probably missed as silent metastases are not recognised and unusual clinical findings are less reported.³ The recent literature search by Zhang *et al* reveals that primaries arising from the bladder (29.8%), prostate (29.8%) and colorectum (17.3%) account for the majority of cases. Seventy-eight cases with rectal primary have been identified in the literature so far. Other sites

Figure 3 (A and B) Prechemotherapy status of the growth infiltrating the bladder, prostate, seminal vesicles and bulb of the penis. Post-chemotherapy images (C and D) do not show any significant response to treatment.

of primary lesions include the kidney, testis, bowel, lung, bone, etc.¹

Rectal lesions spread by a retrograde venous route, retrograde lymphatic route, arterial spread or direct extension. Although direct extension has been proposed as a route of spread mainly for prostatic and bladder lesions in view of their close proximity, studies suggest it as an infrequent mechanism.⁴ In a detailed explanation of metastatic mechanisms, Cherian *et al*⁵ describe the possibility of an aggressive low-lying rectal malignancy spreading to the base of the penis along the ischioanal fossa, but the authors add that this could explain more proximal lesions rather than distal shaft lesions.

Unlike previous reports that identified malignant priapism as the most common presentation,⁶ a painless nodule was the predominant presenting complaint in recent reports,⁴ as in our patient. Other common symptoms and signs are urinary retention, ulceration, perineal pain, oedema, generalised swelling, broad infiltrative enlargement, dysuria and haematuria.⁶ Eighty-seven per cent of the metastases are identified in the shaft, and only 12% in the glans penis.⁴ Approximately two-thirds of all penile metastases were detected at a mean of 18 months after the detection of the primary tumour, and the remaining one-third presented at the same time as the primary tumour.⁵

The differential diagnosis includes idiopathic priapism; venereal or other infectious ulcerations; tuberculosis; Peyronie plaque; and primary, benign or malignant tumours.⁵ These clinical conditions should also be considered in the differential diagnosis in any patient presenting with a penile lesion or priapism in the setting of a disseminated malignancy.

The diagnosis is confirmed with biopsy or FNAC. Further evaluation of the extent of disease is carried out preferably with non-invasive imaging modalities such as colour-coded duplex ultrasonography, CT or MRI.

The subjective nature of ultrasound and single plane imaging of CT limits their usefulness. With its multiplane imaging and superior soft tissue contrast, MRI is a reliable alternative for diagnosing and confirming the disease. Recently, the role of positron emission tomography in identifying clinically silent metastasis has been identified⁴ and was emphasised by Ozturk⁷ in evaluating the response to treatment.⁸

Penile metastasis depicts a grave prognosis. Hence the choice of treatment depends on the general condition of the patient, site of primary, extent of metastasis and severity of symptoms. Treatment options in these patients are local excision, partial or complete penectomy, external beam radiation therapy and chemotherapy. Total penectomy or dorsal nerve section may be indicated for intractable pain. An aggressive surgical approach appears to offer the best chance for quality survival and possible cure, and seems to give the best results in limited penile lesions. Short-term remission using chemotherapy and radiotherapy could be achieved.⁹

Despite these alternatives, prognosis is usually poor. Except for a few patients with small isolated lesions, which might respond to wide excision or penectomy, the majority succumb to the disease process within a year of presentation. Recent studies, however, have reported survival for 2 years after the diagnosis.⁴

Learning points

- ▶ Penile metastasis is a rare but known complication of rectal carcinoma.
- ▶ A careful evaluation of the history and systemic examination are needed to rule it out.
- ▶ Imaging with contrast-enhanced CT and cytology can confirm the diagnosis.
- ▶ A careful selection of the treatment modality after thorough evaluation of the patient condition and disease status is needed.
- ▶ Penile metastasis heralds a poor prognosis with survival of less than a year.

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