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Testicular recurrence of oligometastatic prostatic adenocarcinoma after 22 years of androgen deprivation therapy

Alexa Fortier [a,*,1], Seif Mokadem [a,1], Emlyn Cornet [b], Jean-Nicolas Cornu [a], Jean-Christophe Sabourin [b], Christian Pfister [a]

[a] Urology Department, Rouen University Hospital, 1 Rue de Germont, 76031, Rouen Cedex, France
[b] Department of Anatomopathology, Rouen University Hospital, 1 Rue de Germont, 76031, Rouen Cedex, France

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ABSTRACT

Testicular metastasis of carcinoma is a rare condition. We report a rare case of right testicular metastasis of prostatic adenocarcinoma in an 84 years old patient, after more than 20 years of controlled disease under androgen deprivation therapy. Follow-up consisted in PSA monitoring, clinical examination, CT and bone scan. Biological recurrence, right testicular mass and finally right total orchiectomy allowed the diagnosis of a right testicular metastasis. PSA monitoring and clinical surveillance are important tools for diagnosing metastatic localisations.

1. Introduction

Testicular metastasis of carcinoma is a rare condition with approximately 200 cases reported in literature.[1] In fact, a review of 24 000 autopsies revealed only 15 cases of testicular metastasis. The most common primary site was pulmonary (47%), followed by malignant melanoma, pancreatic and prostatic carcinomas.[2] However, the majority of testicular metastasis from prostatic adenocarcinoma are discovered incidentally after bilateral orchiectomy for surgical hormonal management.[2] Clinical recurrence revealed by an isolated testicular mass is extremely rare.[1]

We report a rare case of isolated testicular metastasis from prostate cancer after more than 20 years of controlled disease.

2. Case presentation

In 1999, a 64 years old man was diagnosed with prostatic carcinoma. Transrectal ultrasound-guided biopsies showed a ductal prostatic adenocarcinoma, characterized by pseudostratified columnar epithelium, arranged in papillary or with a cribriform pattern (Fig. 1). Initial PSA levels were 150 ng/mL. A thoraco-abdominopelvic CT and a bone scan found a single asymptomatic metastatic location to the iliac bone. In this context, the treatment consisted mainly in an androgen deprivation therapy (Fig. 2). The patient underwent prostatic irradiation in 2015 for biological recurrence allocated to local progression (Fig. 2). The situation remained stable until 2019 with PSA levels increasing up to 40 ng/mL in 2020, and testosterone levels always under the threshold of 50 ng/dL. Further imaging (CT and bone scan) didn't show any recurrence. The patient then was referred for a non-painful induration of right testis confirmed by examination in september 2020. The left testicle was atrophic. Ultrasound showed two suspicious centimetric calcified nodules. Testicular tumor markers were negative. The patient underwent a right inguinal total orchiectomy in october 2020 at the age of 84 years old. On macroscopic examination, the right testis tumor was multinodulary, of whitish color and measured 18 mm in diameter (Fig. 3a). On microscopic examination, the tumor consisted of atypical cells, cylindrical or cuboidal, organized in papillae or with a cribriform pattern. This testicular tumor corresponded to a metastasis of the pre-

* Corresponding author.
E-mail addresses: fortieralexa@orange.fr (A. Fortier), mokadem.seif@gmail.com (S. Mokadem), emlyn.cornet@chu-rouen.fr (E. Cornet), jean-nicolas.cornu@chu-rouen.fr (J.-N. Cornu), jean-christophe.sabourin@chu-rouen.fr (J.-C. Sabourin), christian.pfister@chu-rouen.fr (C. Pfister).
[1] Authors equally contributed to this work.

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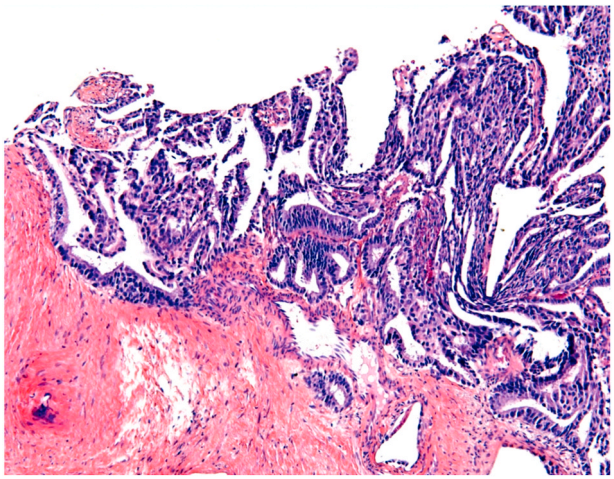

Fig. 1. Histological appearance of prostate biopsy, H & E X 100.

viously diagnosed prostatic adenocarcinoma. (Fig. 3b). Tumor cells strongly expressed prostatic specific antigen (PSA) on immunohistochemistry (IHC) (Fig. 3c). The patient remained under androgen deprivation therapy after orchiectomy. Twelve months after orchiectomy, PSA was still undetectable.

3. Discussion

Testicular metastasis of carcinoma is a rare condition.[1] In fact, a review of 24 000 autopsies revealed only 15 cases of testicular metastasis. The most common primary site was pulmonary (47%), followed by malignant melanoma, pancreatic and prostatic carcinomas.[2] The majority of testicular metastasis from prostatic adenocarcinoma are discovered incidentally after bilateral orchiectomy for surgical hormonal management.[2]

Our patient was diagnosed in 1999 with a single bone metastatic Gleason 6 adenocarcinoma of the prostate. He has been treated by androgen deprivation therapy since then. The patient underwent prostatic irradiation in 2015 for biological recurrence allocated to local progression. He underwent a right inguinal total orchiectomy when a right testicular tumor was diagnosed. The pathology examination confirmed testicular metastasis from prostate cancer primary.

Testicular metastases in prostatic adenocarcinoma are associated with poor prognosis and rapid disease progression. Survival is usually less than one year in these cases.[3] Maibom et al. reported two cases of isolated testicular metastasis after a curatively intended treatment, and in both cases they obtained a decrease of PSA levels after surgical management.[4] Like ours, both patients underwent CT and bone scans that showed no sign of recurrence. This emphasizes the importance of a systematic clinical examination in the follow up of our patients, especially when facing a biological recurrence.

Nowadays, prostate-specific membrane antigen (PSMA) positron-emission tomography (PET)/CT is becoming a rising tool in the prostatic cancer staging workup. Thus, more and more teams, such as Manoj Gupta et al., diagnose testicular metastasis of prostatic carcinomas on PSMA PET/CT.[5]

4. Conclusion

After more than 20 years of androgen deprivation therapy and follow-up for oligometastatic prostate adenocarcinoma, biological recurrence, clinical examination and finally surgical management allowed the diagnosis of a right testicular metastasis. PSA monitoring is a key stone to the follow-up in prostatic adenocarcinoma. It may lead to further investigations such as CT and bone scan, or even PET/CT. Nonetheless, clinical surveillance remains an important tool for diagnosing metastatic localisations.

Consent

Consent was obtained from the patient.

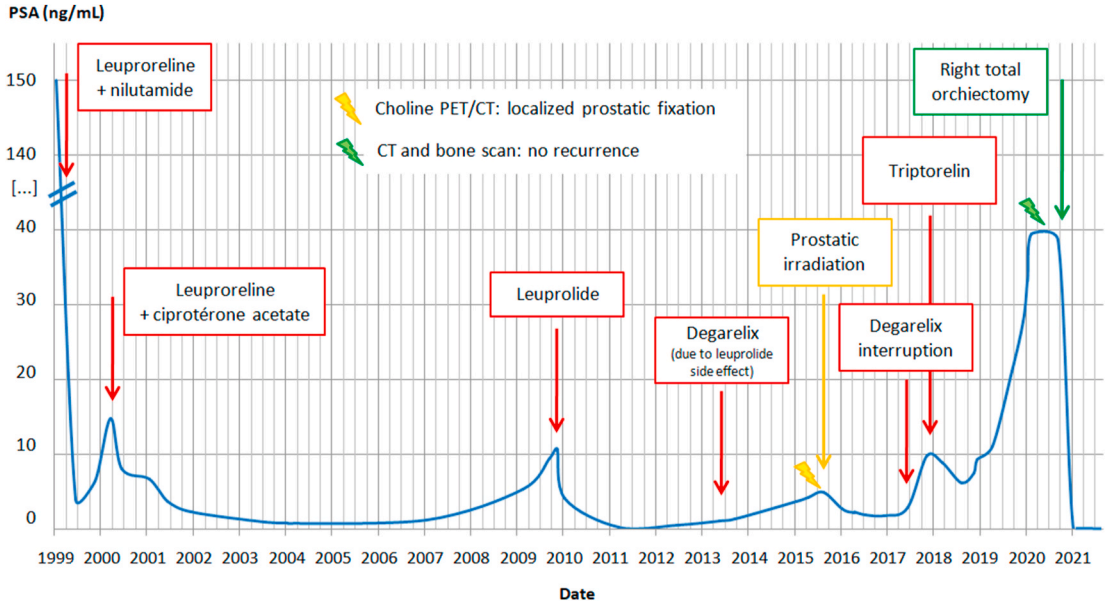

Fig. 2. PSA level evolution and therapeutic events.

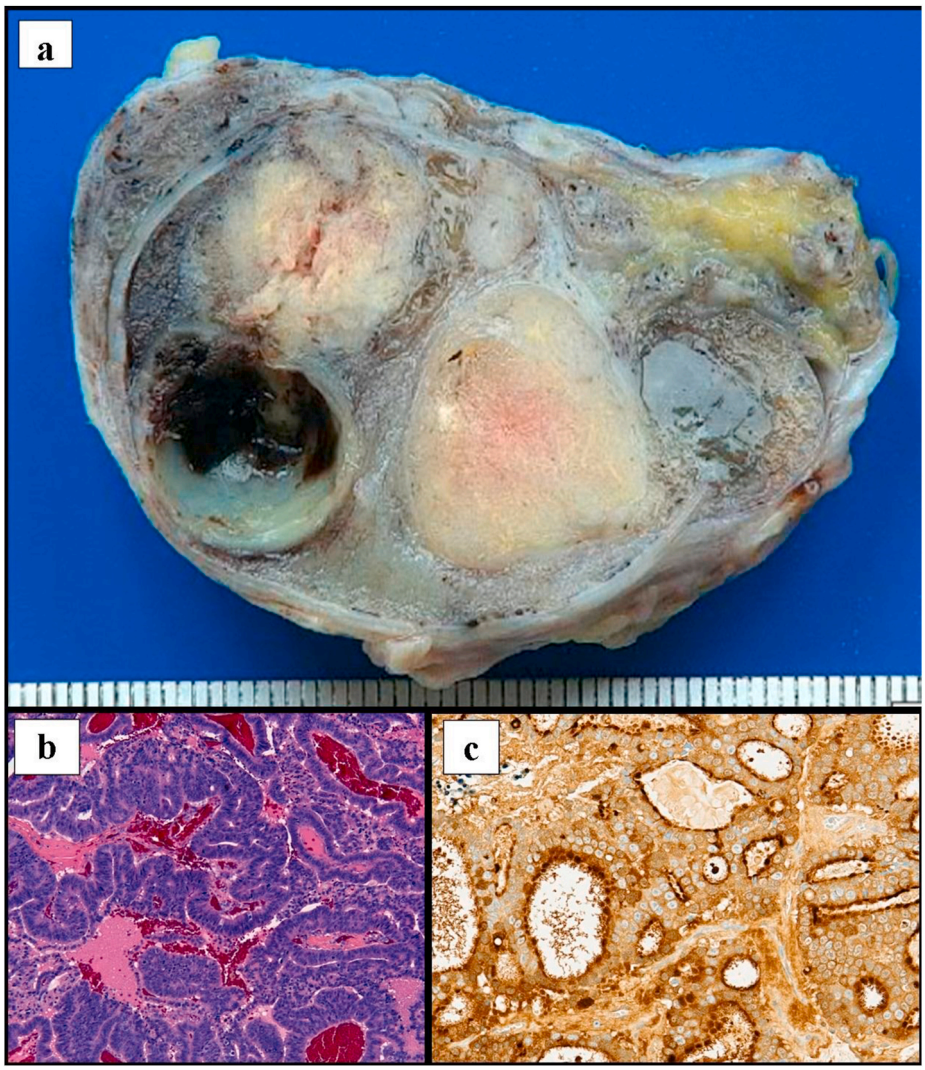

Fig. 3. Testicular tumor: (a) Gross appearance; (b) Histologic aspect HES X 100; (c) IHC PSA expression, IHC X 100.

Declaration of competing interest

The authors have no conflict of interest to declare.

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