A Rare Case of Prostatic Malakoplakia Associated with Prostate Adenocarcinoma: A Case Report and Review of Literature

Orlando T. Rances[1,], Jeffrey S. So[2]*

[1]Pathology Resident, St. Luke's Medical Center - Global City, Taguig, Philippines.
[2]St. Luke's Medical Center - Global City, Taguig, Philippines.

Corresponding Author:
Orlando T. Rances, MD. St. Luke's Medical Center - Global City, Taguig, Philippines. Email: o.rances@gmail.com

ABSTRACT

Malakoplakia is a chronic granulomatous condition that has been rarely seen affecting the prostate. Isolated malakoplakia of the prostate occurring together with prostatic adenocarcinoma is rarer still with only 9 previously recorded cases. We present a case diagnosed through needle biopsy with prostatic adenocarcinoma and then on subsequent prostatectomy was diagnosed with extensive malakoplakia occurring with the carcinoma. Patient was noted to have a urinary tract infection (UTI) 2 weeks after needle biopsy and notably, 4 of the 9 previously reported cases also presented with UTI following their biopsies. The theory that prostatic malakoplakia may be a complication of the prostate needle biopsy is logically possible, but due to the paucity in cases, it is difficult to infer causality.

Keywords*: Prostatic malakoplakia, Adenocarcinoma*

INTRODUCTION

Documented cases of prostatic malakoplakia (PM) are relatively scarce in literature.[1] Rarer still is the occurrence of isolated malakoplakia of the prostate occurring in conjunction with prostatic adenocarcinoma (PCa). In a multi-institutional study by Acosta et al, they gathered 49 cases of PM and within that pool a total of 15 cases had a synchronous prostate cancer diagnosis.[2] In addition, prior to the aforementioned study, only a total of 9 cases have been described in literature.[3-6]

In this report we present a case of a 69-year-old man diagnosed with prostatic adenocarcinoma via ultrasound-guided transrectal prostate biopsy and eventually underwent robot assisted laparoscopic radical prostatectomy approximately nine (9) weeks later. The histopathology of the specimen confirmed PCa and an incidental finding of malakoplakia was also identified.

CASE ILLUSTRATION

On routine check-up, a 69-year-old man was found to have an elevated prostatic specific antigen (PSA) of 6.11 ng/mL. An MRI of the prostate was done which showed an approximately 68-gram prostate with hypointense nodules seen in the right and left posterior mid gland near the apex and was assigned a score of PI-RADS.[3] Four weeks later he underwent an ultrasound-guided transrectal prostate biopsy which showed prostatic adenocarcinoma, Gleason score 3 + 3 = 6 involving 10% of the 3 tissue cores from the right mid prostate (other locations sampled showed benign prostatic tissues). The diagnosis of PCa was confirmed via immunohistochemistry with the PIN4 stain.

Two weeks after the biopsy, the patient's labs showed elevated WBC on urinalysis, although it is unknown whether he was symptomatic or was given antibiotics for it. Four weeks after the biopsy, a staging MRI showed an interval increase in size of the prostate which now had an approximate volume of 118 grams (from the previous 68 grams). A heterogenous lobulated focus involving the left central gland and peripheral zones was now also noted.

13 weeks after the diagnostic biopsy the patient had a radical prostatectomy. The grossly 89.8-gram prostate gland showed prostatic adenocarcinoma, Gleason 3+4=7 (**Figure 1**) moderately involving the right lobe's anterior and posterior base, and posterior midgland, and the left lobe's anterior base, posterior midgland, and posterior apex. Histopathology also showed an extensive inflammatory process involving all areas of both lobes showing the typical morphology of malakoplakia. The inflammation was mostly histiocytic and composed of cells showing granular to foamy eosinophilic cytoplasm, with associated giant cells, lymphocytes, plasma cells, and neutrophils. Michaelis-Guttman (M-G) bodies (**Figure 2**), the pathognomonic feature of malakoplakia, were also identified.

Three years after the prostatectomy, the patient is still doing well on follow up with a PSA of 0.3 ng/ml, and without any biochemical or clinical recurrence of the carcinoma.

DISCUSSION

Malakoplakia is a rare chronic granulomatous condition. It was first described by Michaelis and Gutmann in 1902 and later named by Von Hansseman.[7] Generally, it is associated with an infectious process coupled with a defective immune response.[7] It has been found in many sites including the bladder, skin, bone, uterus, and lungs, but it is more common in the

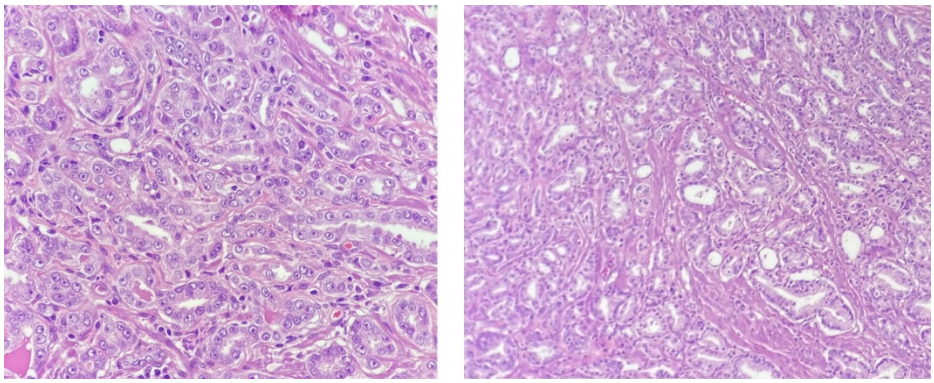

Figure 1. Neoplastic glands showing prostatic adenocarcinoma.

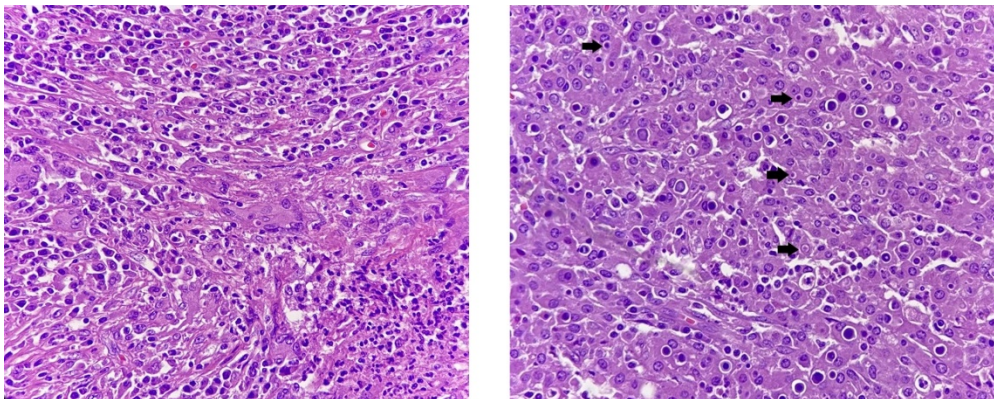

Figure 2. Malakoplakia consists mostly of eosinophilic foamy histiocytes variably mixed with mononuclear cells, neutrophils, and sometimes, multinucleated giant cells. The commonly seen Michaelis-Guttman (M-G) bodies (arrow).

genitourinary tract where it is mostly associated with urinary tract infection.[8] Although its clear etiology is still unknown, occurrences in other organs[1] showing the same pathologic finding support the possibility of it having a common pathogenesis.[6] The typical microscopic findings are sheets of large eosinophilic histiocytes called Hasemann's cells and cytoplasmic inclusions with a targetoid appearance called M-G bodies.[6] (**Figure 2**).

Isolated prostatic malakoplakia is an exceedingly rare form of prostatitis with only approximately 99 cases documented in literature, usually affecting men within the age range of 38 to 85 years.[2,4] The population most at risk for this are patients with primary or acquired immunodeficiency, with prostatic malakoplakia being found more often in patients with diabetes, HIV/AIDS, or malignancy.[2,9]

In the study by Acosta et al, they defined the clinicopathologic features of PM in 49 patients. In comparison with the current case presented, the notable items that matched were the patient's age of 69 years old (38-77 years, median 67 years), and elevated PSA level at 6.11 ng/mL (0.7-49 ng/ml, median 7.5ng/ml).[2] Prostatic malakoplakia can be difficult to diagnose because it can mimic prostatic carcinoma clinically with gland enlargement, bladder outlet obstruction, hard nodules on digital rectal exam, and elevated PSA.[1,2,4]

Coexisting prostatic adenocarcinoma and malakoplakia is rarer still with only 9 cases reported in literature[3-6] before the multi-institutional study by Acosta et al. which documented 15 such cases[2] adding the total to 24 cases at present.

Prostatic malakoplakia can be a diagnostic pitfall because it can mimic prostatic carcinoma radiologically. In imaging studies, it may present as hypointense lesions on T2-weighted imaging, as hyperintense lesions on high *b*-value diffusion-weighted imaging, and hypointense lesions on the apparent diffusion coefficient map, all of which are suggestive of malignancy.[10] As in one reviewed case,[3] PM occurring simultaneously with PCa lead to a false diagnosis of a locally advanced disease by imaging. Such occurrences may lead to unnecessary radical therapies.

Of the 24 previously reported cases, 4 showed no progression of the cancer after prostatectomy, 1 showed progression 3 years later despite prostatectomy,1 showed progression without prostatectomy, and 18 had no data regarding disease progression. With the current data it may be too early to infer a relationship between PM and the progression and prognosis of PCa, However, in the case we presented, 3 years after the prostatectomy, the patient is still well with no signs of recurrence.

Notably, 3 of the 8 cases reviewed and reported by Medlicott *et al.*[4] had demonstrated newly developed urinary tract infections in the interval between the biopsy and the prostatectomy while the rest were either diagnosed with both malakoplakia and prostate adenocarcinoma in their initial biopsy. In the case reported by *Dale et al.*[3] the patient had an initial prostate biopsy that showed 3+4 adenocarcinoma with no note of inflammation, but subsequently developed urinary retention and UTI. After radical prostatectomy, he was diagnosed with prostatic adenocarcinoma with mixed-pattern prostatitis with malakoplakia extending into extraprostatic tissue. And lastly, in the case presented in this report, it also followed the same pattern of a urinary tract infection following a prostate biopsy and eventual diagnosis of malakoplakia associated with prostate cancer on radical prostatectomy. One notable event in this case was the interval increase in volume of the prostate on MRI done 8 weeks apart, from approximately 68 grams to 118 grams with the biopsy taking place 4 weeks after the first MRI. In these 5 cases, one may theorize that the malakoplakia developed as a rare complication of the needle biopsy, and this idea was also put forward by Medlicott *et al.*[4] and Guner *et al.*[11] in their reports.

CONCLUSION

Isolated malakoplakia of the prostate associated with prostatic adenocarcinoma is extremely rare with only 25 reported cases, including the one in this report. This highlights that these two are not exclusive diagnoses, a fact which is important to know because malakoplakia can mimic prostate carcinoma

clinically and radiologically and therefore can become a pitfall in diagnosis and staging. There is currently not enough evidence that will support a relationship between prostatic adenocarcinoma prognosis and prostatic malakoplakia. The theory that prostatic malakoplakia may be a complication of the prostate needle biopsy is logically possible based on the 5 cases discussed. However due to the paucity in cases, it is difficult to infer causality especially since prostate adenocarcinoma is a commonly occurring malignancy, and coincidental occurrence may still be a more prudent assumption.

ACKNOWLEDGMENTS

None.

COMPETING INTERESTS

The authors have no competing interests to declare.

REFERENCES

1. Görgel S, Balcı U, Sarı A, Ermete M, Girgin C, Dincel Ç. Malakoplakia of the prostate diagnosed by elevated PSA level and transrectal prostate biopsy. The Kaohsiung Journal of Medical Sciences. 2011;: 163-5.
2. Acosta AM, Sangoi AR, Maclean F, et al. Prostatic malakoplakia: clinicopathological assessment of a. Histopathology. 2022;81(4):520–8.
3. Dale R, Metcalfe M, Chang S, Jones E, Black P. Malakoplakia of the prostate masquerading as locally advanced prostate cancer on mpMRI. Canadian Urological Association Journal. 2015:11-2.
4. Medlicott S, Magi-Galluzzi C, Jimenez R, Trpkov K. Malakoplakia associated with prostatic adenocarcinoma Report of 4 cases and literature review. Anals of Diagnostic Pathology. 2016;22:33-7.
5. Sujka S, Malin B, Asirwatham J. Prostatic malakoplakia associated with prostatic adenocarcinoma and multiple prostatic abscesses. Urology. 1989;34:159-61.
6. Répássy D, Iványi A, Csata S, Tamás G. Combined occurrence of prostate carcinoma and malacoplakia. Pathology & Oncology Research. 2002;8:201-3.
7. Dasgupta P, Womack C, Turner A, Blackford H. Malacoplakia: von Hansemann's disease. BJU Int. 1999;464-9.
8. Velasquez M, Smith P, Prakash N, et al. Malakoplakia of the prostate diagnosed on multiparametric-MRI ultrasound fusion guided biopsy: A case report and review of the literature. Urology Case Reports. 2018; 94-6.
9. Ho M, Wu J, Skinnider B, Kavanagh A. Prostatic malakoplakia: a case report with review. Journal of Surgical Case Reports. 2018;3:1-3.
10. Heah N, Tan T, Tan Y. Malakoplakia of the prostate as a mimicker of prostate cancer on prostate health index and magnetic resonance imaging–fusion prostate biopsy: A case report. Journal of Endourology Case Reports. 2017;74-7.
11. Guner G, Akdogan B, Baydar E. Malakoplakia of prostate as a complication of transrectal needle biopsy. The Canadian Journal of Urology. 2012;19(1):6124-7.