


CASE REPORT

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Melanocytic lesions of the prostate

Maria Estela Pompeu do Amaral¹ and Daniel Abensur Athanzio^{1,2*} 



Abstract

Background: Benign melanocytic lesions of the prostate are rare and classified as blue nevus or melanosis. Both lesions have about 30 cases each reported in English literature.

Case presentation: We report here two illustrative cases, both incidental findings: a blue nevus at transurethral resection specimen and melanosis in needle biopsy. The second case was of a patient who underwent prostate biopsy due to a PI-RADS 5 finding in multiparametric MRI. Although no cancer was detected, findings suggestive of nodular hyperplasia and diagnostic of melanosis were observed.

Conclusion: Benign melanocytic lesions of the prostate are rare incidental findings with no clinical or prognostic relevance. Additional reports are warranted to evaluate whether such lesions may be associated with suspicious findings in imaging exams.

Keywords: Prostate, Nevus, Melanosis

Background

Benign melanocytic lesions of the prostate are rare and classified as blue nevus (melanin restricted to dendritic melanocytes within prostatic stroma) or melanosis (melanin recognized in both stromal and epithelial cells). Both lesions are rare with about 30 cases each reported in English literature (Paner, Aron, Hansel, and Amin, 2012). Melanoma is exceedingly rare and distinguished from benign proliferations due to obvious architectural and cytological atypia. We report here two illustrative cases, both incidental findings: a blue nevus at transurethral resection specimen and melanosis in needle biopsy.

Case presentation

Case 1

A 60-year old patient underwent a transurethral resection of the prostate due to clinical diagnosis of nodular hyperplasia. Fragments showed multifocal aggregation of dendritic melanocytes with dense deposits of brown pigment that stained strongly with Fontana-Masson stain,

and were negative for iron stain (Perls). There was no pigment observed within glandular epithelium (Fig. 1). The patient recovered without recurrence of symptoms of urinary obstruction after 18 months of follow up.

Case 2

A 67-year old patient with serum PSA levels of 11.99 ng/mL underwent a multiparametric MRI with finding of PI-RADS 5 lesion in anterior and median third of the left lobe. The patients underwent 27 prostate needle biopsy (combined target and systematic sampling). No cancer was detected. Target biopsies showed only foci of glandular atrophy and basal cell hyperplasia. The left base posterolateral fragment showed bland fusiform proliferation consistent with nodular hyperplasia. An incidental finding was the present of melanosis in right apex posteromedial and left mid posterolateral (adjacent to target PIRADS 5 area). Fragments showed accumulation of brown pigment in stromal cells and within acinar epithelium which stained strongly by Fontana-Masson stain, and were negative for iron stain (Perls) (Fig. 2). Patient was kept in clinical observation.

* Correspondence: dathanazio@gmail.com

¹Imagepat, Laboratory of Pathology, Salvador, Brazil

²Hospital Universitário Professor Edgard Santos / Federal University of Bahia, Salvador, Brazil



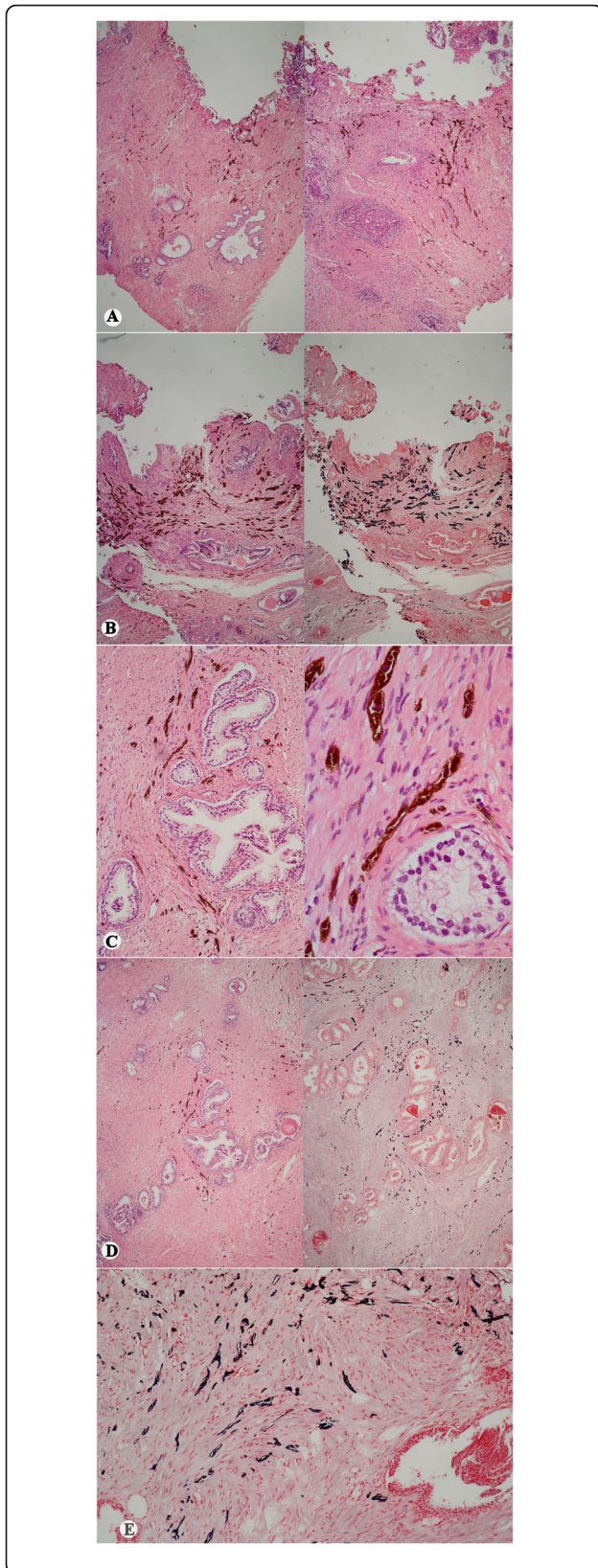


Fig. 1 A prostatic blue nevus in transurethral resection specimen. **a** Two photomicrographs of the prostate with stromal dendritic melanocytes with dense brown deposits of melanin, intermixed between benign glands (HE, 40x). **b** Comparison of the same area with HE and Fontana-Masson (40x). **c** Details of dendritic melanocytes in HE (100x and 400x). **d** Comparison of other area with HE and Fontana-Masson (40x). **e** Detail of dendritic melanocytes stained with Fontana-Masson (400x)

Discussion

Lesions containing melanin in the prostate are classified as melanosis, blue nevus, and primary/metastatic malignant melanoma. The presence of heavily pigmented dendritic melanocytes characterizes blue nevus. The term melanosis implies that melanin pigment is observed in the glandular cells and in the stroma. They are almost always an incidental finding of transurethral resection specimens or biopsies (Paner, Aron, Hansel, and Amin, 2012; Gucer and Bagci, 2014). In some cases, these lesions may lead to gross black appearance of the prostate (Farran, Kerr, Kosarek, Sonstein, and Eyzaguirre, 2018).

Differential diagnosis with melanoma relies in the presence of obvious hypercellularity, cytologic atypia and mitotic activity in the latter. No features of malignancy were seen the present cases.

Of notice, the second case description was of a patient who underwent prostate biopsy due to a PI-RADS 5 finding in multiparametric MRI. Although no cancer was detected, findings suggestive of nodular hyperplasia and diagnostic of melanosis were observed. Stromal changes of nodular hyperplasia are well recognized findings in false negative PI-RADS 5 lesions (Hupe et al., 2020). Target biopsy of PI-RADS 5 lesion in left mid zone showed basal cell hyperplasia, a feature commonly associated with nodular hyperplasia and described in false positive PI-RADS 5 lesions (Hupe et al., 2020). In contrast, to date, there are no reports of suspicious findings at MRI due to benign melanocytic lesions of the prostate.

Melanin should be distinguished from other pigments that occur more commonly in the prostate. Lipofuscin is yellow to brown, finely granular, and commonly associated with the epithelia of ejaculatory ducts and seminal vesicles (Paner, Aron, Hansel, and Amin, 2012). However, it is associated with aging tissues and can be seen in many prostatic tissues including adenocarcinoma (Srigley, 2004). Hemosiderin is golden brown, coarsely granular, and is usually restricted to stromal macrophages. It stains for iron (e.g. Perls' Prussian Blue). Immunohistochemistry is usually not required or recommended for this distinction.

There is no clear explanation for the presence of melanocytic lesions in the prostate. Probably, they derive from ectopically entrapped melanoblasts during their migration from the neural crest (Paner, Aron, Hansel, and Amin, 2012).

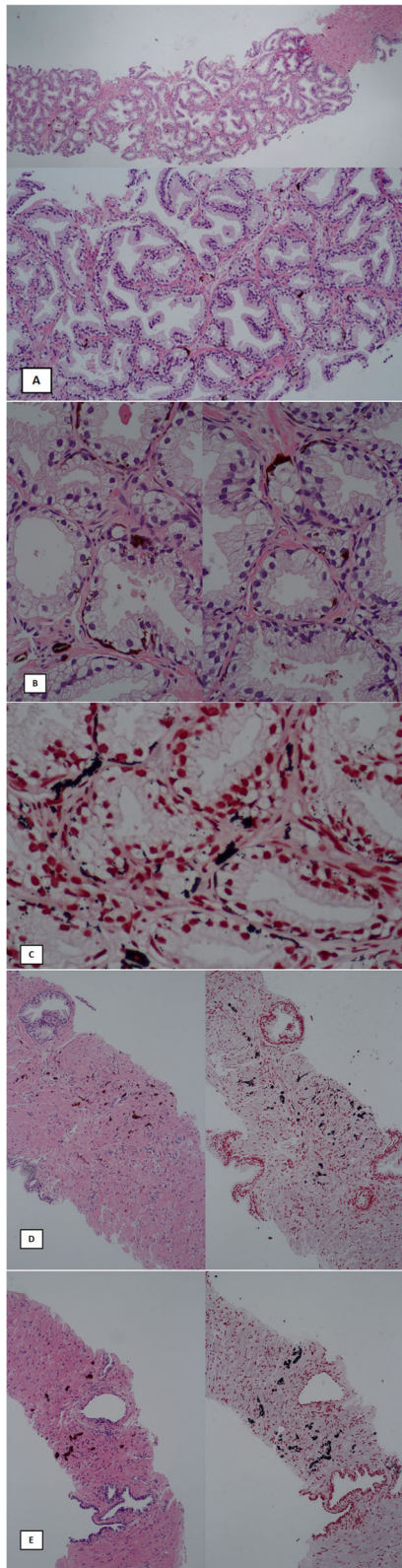


Fig. 2 Prostatic melanosis at needle biopsy. **a** right apex posteromedial – stromal cells with melanin at 40x and 100x magnification (HE). **b** right apex posteromedial – melanin deposits are seen in stromal cells and within glandular epithelium (HE, 400x) **c** right apex posteromedial – melanin deposits in stromal cells and within glandular epithelium stained with Fontana-Masson (400x). **d** Left mid posterolateral – stromal cells containing melanin; comparison of the same area with HE and Fontana-Masson (100x). **e** Left mid posterolateral – stromal cells containing melanin; comparison of the same area with HE and Fontana-Masson (100x)

Conclusion

Benign melanocytic lesions of the prostate are rare incidental findings with no clinical or prognostic relevance. Additional reports are warranted to evaluate whether such lesions may be associated with suspicious findings in imaging exams.

Abbreviations

HE: Hematoxylin and eosin stain; MRI: Magnetic resonance imaging; PI-RADS: Prostate imaging reporting and data system

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Not applicable.

Authors' contributions

DAA conceived the idea. MEPA was the major contributor to the writing of the manuscript. DAA and MEPA diagnosed the case. DAA was a major contributor for critically revising the manuscript for important intellectual content. The authors read and approved the final manuscript.

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Consent for publication

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Competing interests

The authors declare that they have no competing interests.

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