

CASE REPORT

Prostatic blue nevus

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Abstract

We report the case of a 69-year-old patient with no significant personal urological history. The clinical and ultrasound examination revealed a prostatic gland with increased volume and homogenous appearance. After transurethral resection, multiple gray-brown-blackish prostatic chips were obtained, which could be confused with a malignant melanoma. The histological routine examination in conjunction with the histochemical (Fontana–Masson) and immunohistochemical (S100, HMB45) reactions established the diagnosis of prostatic blue nevus. The presence of melanin in prostatic tissue is an unusual aspect, being encountered three distinct lesions: blue nevus, melanosis and malignant melanoma. Recognition and correct classification of each of these three entities is fundamental, concerning the clinical and prognosis implications.

Keywords: blue nevus, Fontana–Masson, melanin, prostate, S100.

□ Introduction

Extracutaneous location of the blue nevus is an unusual phenomenon, until now being reported cases arising in the vagina, cervix, mouth, etc. Concerning the uro-genital area, the two most common affected organs are spermatic cord and prostate [1].

The first author who reported the prostatic blue nevus was Nigogosyan G in 1963 [2], but despite the interest shown by various authors, the incidence, etiology and pathogenesis of this injury is still uncertain and controversial. Prostatic blue nevus is a benign lesion characterized by the presence of melanin in the cytoplasm of the stromal cells. Its identification is always incidental, as it does not cause significant clinical symptoms [3].

This work presents a case of prostatic blue nevus, the only one encountered in our hospital over a period of eighteen years.

□ Patient, Methods and Results

We describe the case of a 69-year-old patient known with diabetes mellitus and ischemic heart disease, without urological history, who visited our Clinic for an episode of acute urine retention. Digital rectal exam detected the increase of prostatic volume, without clinical signs of malignancy. Ultrasound examination indicated a prostatic volume of 50 cc, uniform appearance and a post-urination bladder residue of 50 mL. Transurethral prostate resection was therefore performed, from which multiple chips were taken, with total weight of 45 g and dimensions of 3.5 / 3 / 2 cm, gray-brown color with blue areas, elastic texture, with visible micro-nodules (Figure 1).

Tissue specimens were processed according to routine histological techniques. Microscopic examination of the HE-stained slides highlighted nodular hyperplasia features. Bipolar dendritic cells devoid of atypical nuclei singly arranged or in small aggregates, were identified in the prostatic stroma. The presence of abundant intracytoplasmic dark brown granular pigment, melanin-like, sometimes causing attenuation of nuclear details, was also noted. Focally, the pigmented cells were also found near the prostatic epithelium, causing a slight diffusion of the pigment in the basal cell (Figure 2).

To establish an accurate diagnosis ancillary histochemical and immunohistochemical techniques were used. Positive Masson–Fontana stain proved the melanic nature of the cytoplasmic pigment (Figure 3).

Absence of Perls' reaction denied iron storage in the stromal cells. After previous depigmentation with potassium permanganate and oxalic acid, S100 (Figure 4) and HMB45-immunostaining confirmed the presence of melanin, with a cytoplasmic granular, intense, diffuse, homogeneous staining pattern in stromal and rare epithelial cells.

Also, CD68-immunostain was negative in target cells, excluding their phagocytic nature. The presence of basal cell layer highlighted with high molecular weight cytokeratin (HMWCK) showed the benign histological appearance of prostatic glands.

All together, highly suggestive morphological features and expression for melanocytic markers demonstrated the truly melanocytic nature of stromal dendritic cells and established the diagnosis of prostatic blue nevus.



Figure 1 – Gross examination of prostatic blue nevus shows multiple chips of gray-brown–blackish color.

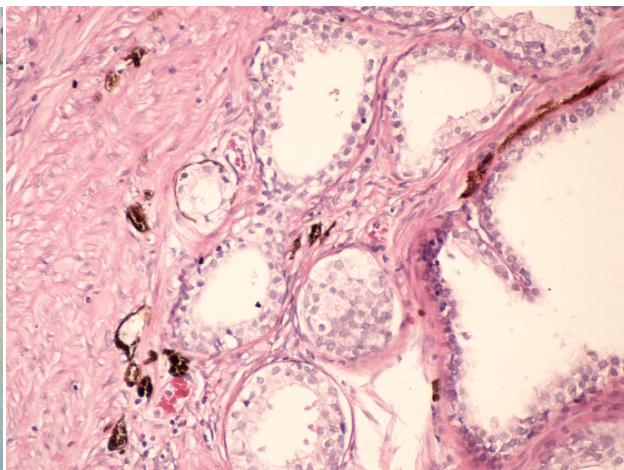


Figure 2 – Dendritic stromal cells loaded with brown, granular, abundant pigment (HE stain, $\times 200$).

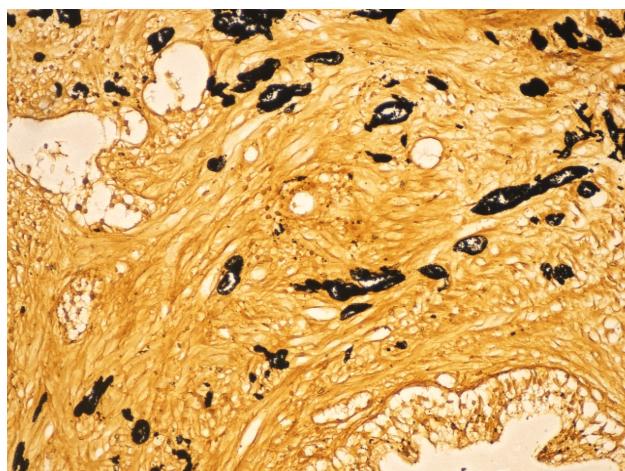


Figure 3 – Masson–Fontana reaction highlights stromal pigmented cells, confirming the presence of melanin ($\times 200$).

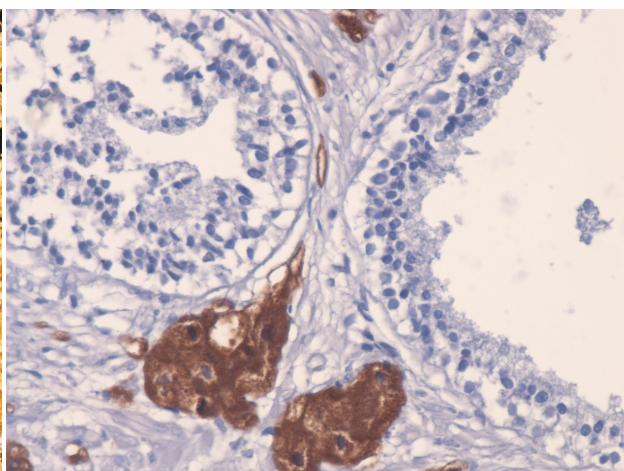


Figure 4 – S100-positive dendritic cells in the stromal compartment ($\times 400$).

Discussion

Melanin is an endogenous tyrosine-derived pigment with expression in various histological structures like skin, iris, retina, nervous system, but also in a few tumors such as nevi and malignant melanoma [4, 5].

The origin of ectopic melanocytes is still controversial [4, 6]. Reams WM suggests that melanoblasts, young cells derived from neural crests, migrate along mesoderm and differentiate to melanocytes into the stroma in terms of an auspicious microenvironment [6, 7]. A few years later, Nakai T and Rappaport H claim the melanocytic transformation of Schwann cells, at least partly explaining the development of cases of non-cutaneous melanoma [8].

The usual location of blue nevus is skin, where it presents as a benign intradermal proliferation of dendritic melanocytes with melanin rich cytoplasm.

Prostatic blue nevus is a rare lesion, histologically similar with his cutaneous counterpart and morphologically characterized by a proliferation of stromal bipolar melanocytes, often with dendritic extensions [9]. These cells produce and intracytoplasmic store the melanin as a dark-brown, abundant pigment, often diminishing the cellular details [9].

Currently there is still some controversy and even confusion regarding the terminology of prostatic pigmented lesions [3, 9]. The definition of “prostatic blue nevus” as the melanin presence in the cytoplasm of stromal dendritic cells is widely accepted, while the term “prostatic melanosis” refers to the presence of melanin mainly in the epithelial cells [3, 4]. It is estimated that melanin pigmentation of epithelium is also possible in prostatic blue nevus by passive diffusion of pigment from stromal cells, a finding of our case as well. However, there is a great variation regarding the classification of prostatic pigmented lesions, because many authors do not distinguish clearly between the two types of benign pigmented lesions, indiscriminately using both names indiscriminately, for involvement of stromal cells and the epithelium too [3].

Histochemically, the Fontana–Masson reaction specifically stains in black the stromal melanocytes, while Perls’ reaction remains negative [3, 4, 6].

Premelanosomes and melanosomes are ultrastructurally present in the cells of prostatic blue nevus indicating that they are melanocytes [10].

Pretreatment with potassium permanganate bleaches melanin, which otherwise obscures the tissue details [4].

The expression of S100, HMB45, and the absence of CD68 support the diagnosis of blue nevus [9, 10].

Except for the melanin, the prostatic tissue may often contain a golden brown, finely granular lipofuscinic pigment, similar to that encountered in seminal vesicles, which becomes more abundant with aging or aggressions (infection, bleeding, necrosis, etc.) [3, 5, 9]. Although the theory of oxidative stress having lipofuscinic pigment as a marker has not been convincingly yet, it might be premature to deny it [5]. Lipofuscin can be stored in histologically normal looking, hyperplastic or neoplastic prostatic tissue, in both stromal and epithelial compartments [9], leading to the reporting of many poorly documented cases, so-called "prostate melanosis". In a more rigorous approach, these cases should be labeled as "pseudomelanosis"/"lipofuscinosis" [3], idea supported by positive Ziehl–Nielsen, PAS-reaction and CD68-immunostaining in target cells.

Last, but not least, it is important to rule out the prostatic pigmentation through iron deposits occurring in hemochromatosis [3, 4, 10]. Negative Perls' reaction excluded the presence of ferric deposits in our case.

Malignant melanoma is exceptionally met in prostate, in primary or secondary form [3]. Although the malignant melanoma presents a joint immunophenotype with blue nevus: S100, HMB45-positive, it may be discriminated against its benign counterpart thanks to atypical and invasiveness features.

Conclusions

Prostatic blue nevus is a very rare, unusual, histologically benign lesion, with limited clinical significance and good prognosis. It is recommended, however, the surveillance of patients with such conditions.

Acknowledgements

This work was partially supported by Grant No.

42126/2008, National Program of Research, Development and Innovation – Partnerships, Direction 4. Health. Financing institution: National Center of Programs Management under the Ministry of Education and Research, Romania.

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Received: April 1st, 2010

Accepted: August 8th, 2010