

Functional medicine

Melanosis of bladder: A rare entity

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ARTICLE INFO

Keywords:

Melanosis

Urinary bladder diverticulae

ABSTRACT

Melanosis of the bladder, also known as melanosis vesicae, refers to presence of pigment in bladder mucosa. A rare phenomenon, however, it can be confused with the primary or metastatic melanoma of the bladder. Therefore, knowledge of the entity can prevent over diagnosis of this benign entity.

We are reporting a case of melanosis of bladder in a 69 year old male with prolonged history of LUTS and bladder diverticulae. Cystoscopic examination showed black patches and biopsy revealed pigmentation in the epithelium and underlying lamina propria. Special stains identified the pigment to be melanin. No malignant cells were identified.

Introduction

Melanosis is “excessive pigmentation of a part of the body owing to disturbance in melanin production”. Melanosis usually refers to the various conditions in skin causing hyperpigmentation and the occasionally encountered melanosis coli, a laxative induced condition associated with pigment laden macrophages in lamina propria. Melanosis of the bladder, or the alternate term melanosis vesicae, is on the other hand a very infrequent finding that hasn't made its way in the text books yet, and is only known by the handful case reports on Pubmed. Here we are reporting another case of Melanosis vesicae.

Case report

Clinical presentation

69 year old gentleman presented with history of foul smelling urine. The patient had an extensive urological past history. He first presented at the age of 24 years with symptoms of prostatism and recurrent UTI's. Subsequently, he was diagnosed with a large bladder diverticulum and was treated by open diverticulectomy in 2006. A JJ stent was inserted, which was removed later. The cystoscopy at that time showed normal bladder mucosa. Patient still suffered from large post void residuals of 600ml and was advised to self-catheterize.

Through 2009 to 2011 he was treated for Peyroines disease by Extra Corporeal Shock Wave Treatment (ESWL). In 2013 patient underwent hernia repair. Significantly the patient had no history of melanoma.

Presently patient still had Lower urinary tract symptoms (LUTS) and was on CISC (Clean intermittent self catheterisation). He was investigated with Video Urodynamics, which showed mild detrusor activity. CT Abdomen and pelvis were normal.

Flexible cystoscopy (Fig. 1) showed white debris, and black patches

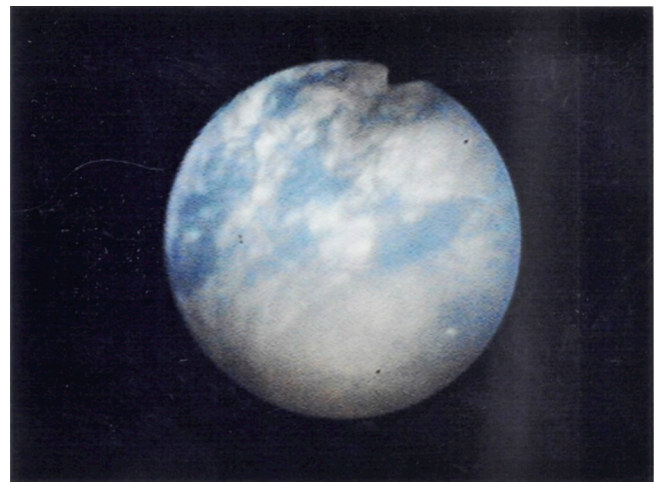


Fig. 1. Cystoscopic image of the patient showing white debris and black patches.

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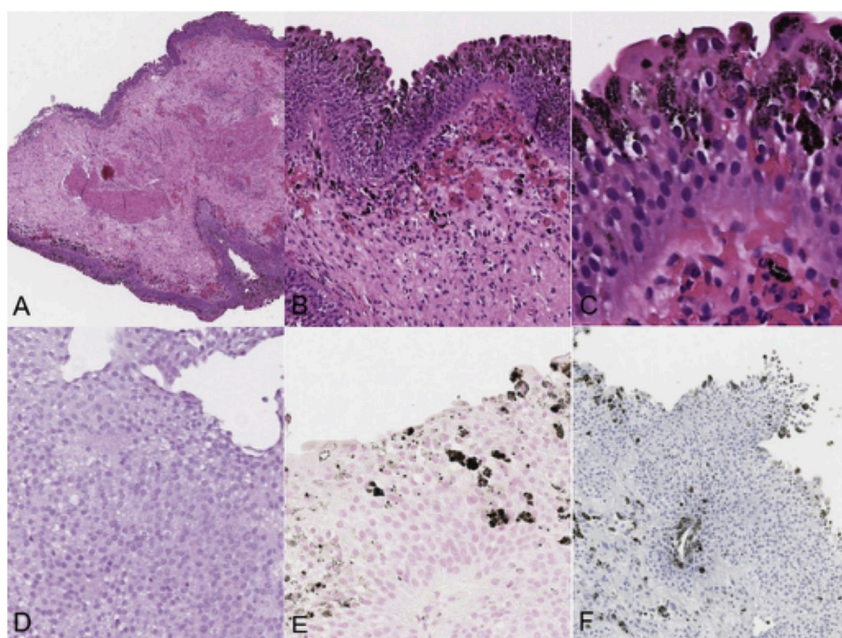


Fig. 2. A. Low power view of biopsy showing urothelium, lamina propria and detrusor muscle. B. Epithelium and histiocytes in underlying lamina propria showing melanocytes. Few dilated blood vessels are seen. C. High power view showing black melanin granules in cytoplasm in all layers of epithelium. D. Photomicrograph showing bleached pigment. E. Fontana-Masson after bleached section. F. S100 IHC stain is negative for melanocytes.

present all over the bladder mucosa. There was evidence of cysto-colic fistulae, however, opening was not identified. Biopsy was taken for histopathology. While urine culture showed infection with *Aerococcus* urinae.

Histopathological examination

Three levels of the biopsy were examined. The transitional epithelium showed normal architecture with intact superficial umbrella cell layer. Black coloured cytoplasmic pigmented granules were identified in all the layers of epithelium and also in the stromal cells in the lamina propria and histiocytes (Fig. 2). No significant cystitis was seen associated with this finding. There was no evidence of granulomatous inflammation, dysplasia or malignancy.

Ancillary tests were performed to determine the nature of pigmentation. The sections were washed out with Picric acid to rule out formalin pigmentation. However, the pigment was still not removed. The sections were then bleached and stained with Fontana Masson which confirmed the pigment to be Melanin. Perl stain highlighted the presence of focal Iron. S100 Immunostain was performed to search for any melanocytes in the area. However, it was completely negative. The findings were consistent with Melanosis vesicae.

Discussion

There have been less than 20 reported cases of bladder melanosis. Although it is entirely possible that most cases go under reported as this is a benign lesion without much clinical importance attached to it. However, presence of pigmentation can lead the pathologist to make a diagnosis of metastatic melanoma, if not investigated properly. Therefore, reporting such cases can help other pathologists from making this mistake.

The reported cases have a wide age range (43–84 years) with no sex predilection. A wide range of clinical symptoms have been reported including hematuria, cysturia, incontinence, dysuria, abdominal discomfort and bladder outflow obstruction. Cystoscopic findings usually include dark brown to black multifocal pigmentation anywhere in the

bladder. The pigmentation can be due to melanin, hemosiderin or lipochrome pigmentation and can be only separated histologically.¹

Histological examination usually shows dark brown to black cytoplasmic pigmentation in the urothelium and histiocytes in the lamina propria. Special stains are used to identify the pigmentation. Melanin pigment is usually identified by bleaching the section and applying Fontana-Masson stain. The ammonia-silver nitrate in Fontana Masson is reduced by the melanin granules turning black. Simultaneously, it is necessary to rule out other aetiologies for black pigmentation. Hemosiderin can be detected by Perl Iron; lipofuscin pigment stains with PAS; while Picric acid can be used to remove artefactual pigments. External pigments like those of Carbon are not removed by bleaching.²

Melanoma is the most important differential in case of melanosis. Metastatic melanoma is a rare finding in bladder with up to 23 cases reported cases.³ Similarly, there are about 20 reported cases of primary bladder tumour. Although differentiation can be done in most cases by using H&E. However, stains like S100 and HMB-45 can help in difficult cases. Melanosis can also be rarely associated with Melanoma.⁴

Only a single case of urothelial carcinoma has been described with concurrent melanosis and it seems as there is no real relationship between the two lesions. Follow up of the cases of melanosis have shown that many cases resolve spontaneously. Even the ones that do not resolve have not shown any signs of developing malignancy.^{1,2}

The current case is unique in a sense that the patient presents with a long history of multiple urological problems and self-catheterisation. There is also a large diverticulum associated with the melanosis along with UTI. Only one other case report was found in our search which showed a concurrent UTI and diverticulum associated with melanosis vesicae.⁵

Conclusion

Melanosis vesicae is a rare and benign lesion. It frequently resolves on its own. However, it can be mistaken for primary or metastatic melanoma of the bladder wall. Therefore, correct diagnosis of the lesion can save the patient from potential over-treatment.⁵

References

1. Pandian SS, Rix GH, Jayasooriya N, Conn P, Diaz-Cano. Melanosis of the urinary bladder – a case report and review of the literature. *Urol Nephrol Open Access J.* 2016;3(5):00093.
2. Yau SE, Singer EJ, Sun Y, Johnson MH. Bladder melanosis with concurrent urothelial carcinoma. *Urology Case Reports.* 2017 Nov;15:30.
3. Meunier R, Pareek G, Amin A. *Metastasis of Malignant Melanoma to Urinary Bladder: A Case Report and Review of the Literature.* *Case Reports in Pathology.* 2015; 2015.
4. Pacella M, Gallo F, Gastaldi C, Ambruosi C, Carmignani G. Primary malignant melanoma of the bladder. *Int J Urol.* 2006 May;13(5):635–637.
5. Lightowlers S. A case of bladder melanosis associated with recurrent urinary tract infections. *UroToday Int J.* 2011 Dec;4(6):73<https://doi.org/10.3834/uj.1944-5784.2011.12.06>.