Case Report

Epithelioid hemangioma of penis mimicking malignancy: A rare case

Manjari Kishore, Minakshi Bhardwaj, Arvind Ahuja

Department of Pathology, Post Graduate Institute of Medical Education and Research, Dr. Ram Manohar Lohia Hospital, New Delhi, India

Abstract

Penile epithelioid hemangioma (EH) is a rare vascular neoplasm with no definite etiology. Herein, we report a case of EH of the penis in a 64-year-old man presenting with painless, bleeding mass on the glans penis. The patient underwent local excision, and on histopathological examination, a diagnosis of EH was made. Immunohistochemistry revealed positivity for CD31, smooth muscle antigen, and negative expression of cytokeratin. The present case highlights the importance of histopathology in conjunction with immunohistochemistry to reach a definitive diagnosis of this rare benign entity and differentiating it from the close malignant mimics, thereby avoiding aggressive management of the patients.

Keywords: Hemangioma, immunohistochemistry, malignancy, penile mass

Address for correspondence: Dr. Manjari Kishore, A-1, 1/10 A, Rajender Nagar, Sahibabad, Ghaziabad - 201 005, Uttar Pradesh, India.
E-mail: drmanjarik@gmail.com
Received: 19.03.2017, **Accepted:** 04.09.2017

INTRODUCTION

Epithelioid hemangioma (EH) is an uncommon benign vascular tumor. Histologically, it is characterized by capillary vessels lined by epithelioid endothelial cells along with inflammatory cell infiltrate. It was first described by Wells and Whimster in 1969.[1] Various terminologies used in the past include atypical/pseudopyogenic granuloma, inflammatory angiomatous nodules, and angiolymphoid hyperplasia with eosinophilia.[2] EH can be easily misdiagnosed as penile carcinoma or other vascular malignancies. We present a case of EH in a 64-year-old man who presented with bleeding penile mass mimicking carcinoma.

CASE REPORT

A 64-year-old man presented in the urology outpatient department hospital with painless swelling on the glans penis for the past 2 months along with bleeding from the mass. There was no history of urethral discharge or any urinary complaints. The patient was a chronic smoker and had undergone angiography for coronary artery disease 1 month back. However, there was no history of any local trauma or other comorbidities.

Local examination of the penile lesion revealed a lesion arising out of the meatus, at the tip of the glans, measuring 3 cm × 2 cm [Figure 1a]. The meatus was visualized and partially obliterated and bled on touch. There was no induration beyond the lesion. The penile shaft was normal. Multiple bilateral inguinal lymph nodes were palpable each measuring <1 cm in size, firm in consistency, and mobile. The provisional diagnosis of carcinoma penis was made.

Complete blood count and biochemical investigations were within the normal limits, except for eosinophilia (13%).

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/UA.UA_40_17

How to cite this article: Kishore M, Bhardwaj M, Ahuja A. Epithelioid hemangioma of penis mimicking malignancy: A rare case. Urol Ann 2017;9:397-9.

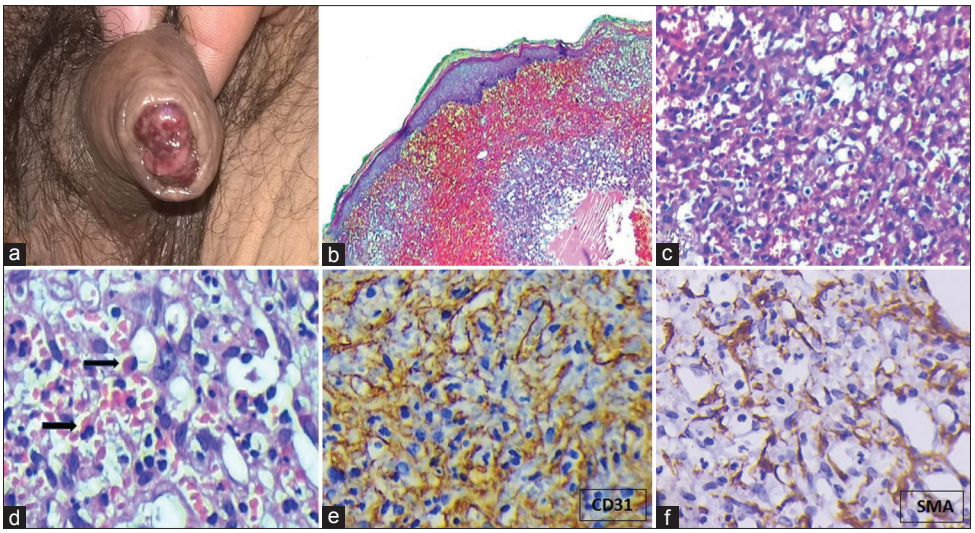

Figure 1: (a) Photograph of the lesion noted at the tip of the meatus, measuring approximately 3 cm × 2 cm. (b) Low-power view of the lesion showing an unencapsulated subcutaneous vascular lesion (H and E, ×10). (c) Section showing plump endothelial cells with abundant eosinophilic cytoplasm (H and E, ×20). (d) Image showing epithelioid endothelial cells with moderate eosinophilic cytoplasm along with scattered lymphocytes and eosinophils (marked with black arrow) (H and E, ×40). (e and f) Photomicrograph showing positive immunohistochemistry for CD31 (in epithelioid endothelial cells) and smooth muscle antigen (in myopericyte) (immunohistochemistry, ×40)

The patient's serum was nonreactive for HIV and hepatitis B surface antigen. The routine urine examination showed field full of red blood cells and 2–4 pus cells. On contrast-enhanced computed tomography abdomen, a simple cortical cyst in the right kidney was noted; otherwise, no renal or bladder mass was seen.

Wedge biopsy of the penile lesion was taken under aseptic conditions. Histopathology showed partly ulcerated keratinized stratified squamous epithelium covered by dense fibrinous exudates and subepithelium showed a proliferation of endothelial cells with mild-to-moderate nuclear enlargement and having a moderate amount of eosinophilic cytoplasm [Figure 1b and c]. Occasional mitotic figure (<1/10 high power field) was noted; however, no atypical mitosis was found. There was mild-to-moderate inflammatory infiltrate composed of eosinophils, lymphocytes, and neutrophils [Figure 1d]. Few areas also showed interconnecting vascular channels; however, those were lined by endothelial cells with the same morphology as described above. The immunohistochemical examination showed immunoreactivity for CD31 in epithelioid endothelial cells and smooth muscle antigen (SMA) (in myopericytes) [Figure 1e and f]. The histopathological features in combination with immunohistochemical markers were those of EH of the penis.

DISCUSSION

EH is a rare vascular tumor characterized by capillary vessels lined by epithelioid endothelial cells along with inflammatory cell infiltrate rich in eosinophils. The exact pathogenesis is not known; however, it can be considered as a reactive response to any previous trauma or benign vascular neoplasm. The tumor is slow growing and is usually noted in the 3rd–4th decade of life.[3] The common sites where these tumors have been documented are the head, neck, and distal extremities and very rarely involve the penis. Only 29 cases of penile hemangioma have been reported in the literature.[2-5]

Macroscopically, EH forms an inflammatory red-to-brown nodule. In the present case, the lesion was seen in the glans penis as a small painless proliferating mass. Fetsch *et al.* reviewed 19 cases of penile EH, out of which only 3 cases involved the glans penis.[3] In rest of the cases, the sites involved were shaft of penis in 11 cases, base in 2 cases, and in 3 cases, the exact location was not mentioned.

Microscopically, endothelial cells are arranged in nests surrounded by immature vessels and eosinophil infiltration. Endothelial cells appear epithelioid with large nuclei, prominent nucleoli, and abundant eosinophilic cytoplasm. No nuclear atypia or brisk mitosis is seen. Histologically, EH shows two patterns. The typical form shows mature fully canalized capillary vessels with a defined smooth muscle cell layer. The atypical, exuberant form comprises of an aggregate of epithelioid endothelial cells with indeterminate growth pattern and immature vessels. The atypical variant is histologically similar to malignant vascular tumors such as epithelioid hemangioendothelioma (EHE) and epithelioid angiosarcoma (EAS).[4] Fetsch *et al.* noted,

in their case series, that most of the cases with atypical variant morphology were initially diagnosed as a malignant vascular tumor on histopathology.[3]

Immunohistochemically, EH shows decreased keratin reactivity and the presence of CD31 and factor VIII-related antigen. These immunohistochemical findings are important to reach a correct diagnosis, thereby avoiding more aggressive treatment which is required for malignant vascular tumors. In a study by Fetsch *et al.,* all cases were immunoreactive for CD31, factor VIIIrAg, and muscle-specific actin (highlighting myopericytic cells associated with epithelioid endothelial cells).[3,4] CD34 expression was noted in fewer cases in peripherally located epithelioid endothelial cells. CD34 highlighted more of the new vessels which were not lined by epithelioid endothelial cells, and hence not considered in the diagnosis of the lesion. In the present case, there was a strong expression of CD31and SMA (in the myopericytic cells) along with a negative reactivity for cytokeratin and CD34.

The differential diagnoses which should be kept in mind and carefully ruled out are Kimura's disease, bacillary angiomatosis, EHE, and EAS.[4-7]

Bacillary angiomatosis is a vascular lesion seen in an immunocompromised patient and is caused by *Bartonella henselae* bacteria. It is characterized by proliferation of blood vessels in a myxoid/hyaline matrix and dense inflammatory infiltrate comprising predominantly of neutrophils not eosinophils. In addition, Warthin–Starry stain may reveal bacilli in the tissue and helps in differentiating it from EH.[4-6] Kimura's disease presents as a solitary or subcutaneous nodules and is associated with lymphadenopathy and blood eosinophilia. However, lymphoid follicles with prominent germinal centers and a salient eosinophilic infiltrate are distinctive features of this disease.[5,7] EHE is borderline or low-grade malignant tumor with a tendency to recur and metastasize. It is characterized by cords and nests of epithelioid endothelial cells embedded in hyaline connective tissue matrix with marked nuclear atypia, cytoplasmic vacuoles, and absence of eosinophils.[3-5] EAS is a malignant vascular tumor which shows solid areas, prominent nuclear atypia, high mitotic index, and necrosis along with high metastatic potential and increased mortality rate.[3-5] Both EHE and EAS are much rarer in comparison to EH and histologically show more pronounced nuclear atypia, infiltrative and destructive growth pattern, and minimal inflammatory reaction.

Complete local excision of the lesion with close follow-up is the preferred management.[3-4,7] It is very essential to distinguish these lesions from EHE and EAS to avoid unnecessary aggressive management. In the present case, the patient was managed with wide local excision of the tumor. The patient is still under close follow-up and presently doing well with no recurrence.

CONCLUSION

Penile EH is a rare vascular tumor. The present case highlights the importance of an integrated diagnostic approach, emphasizing on histomorphological features and immunohistochemistry in making a correct diagnosis of EH and thereby avoiding misdiagnosis of penile carcinoma.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Wells GC, Whimster IW. Subcutaneous angiolymphoid hyperplasia with eosinophilia. Br J Dermatol 1969;81:1-4.
2. Rajender A, Phillips E, Munarriz R. Penile epithelioid hemangioma: A case report. J Integr Nephrol Androl 2015;2:38-40.
3. Fetsch JF, Sesterhenn IA, Miettinen M, Davis CJ Jr. Epithelioid hemangioma of the penis: A clinicopathologic and immunohistochemical analysis of 19 cases, with special reference to exuberant examples often confused with epithelioid hemangioendothelioma and epithelioid angiosarcoma. Am J Surg Pathol 2004;28:523-33.
4. Ismail M, Damato S, Freeman A, Nigam R. Epithelioid hemangioma of the penis: Case report and review of literature. J Med Case Rep 2011;5:260.
5. Natali A, Nesi G, Vittori G, Minervini A, Franchi A, Agostini S, *et al.* Rare case of atypical epitelioid hemangioma of penis initially misdiagnosed as Peyronie's disease: Report with clinical, radiologic, and immunohistochemical analysis. Urology 2009;73:210.e7-10.
6. Lange D, Oeder C, Waltermann K, Mueller A, Oehme A, Rohrberg R, *et al.* Bacillary angiomatosis. J Dtsch Dermatol Ges 2009;7:767-69.
7. Urabe A, Tsuneyoshi M, Enjoji M. Epithelioid hemangioma versus Kimura's disease. A comparative clinicopathologic study. Am J Surg Pathol 1987;11:758-66.