

Capillary hemangioma of the testis: A rare benign tumour

Nathan Colin Wong, MD;* Shawn Dason, MD;* Sergey Pozdnyakov, MD;† Iakovina Alexopoulou, MD, FRCPC;† Michael Greenspan, MD, FRCSC*

*Division of Urology, McMaster University, Hamilton, ON; †Department of Pathology and Molecular Medicine, Hamilton, ON

Cite as: *Can Urol Assoc J* 2015;9(3-4):133-5. <http://dx.doi.org/10.5489/cuaj.2318>
Published online April 13, 2015.

Abstract

Testicular capillary hemangioma is a rare benign vascular tumour. We report a case of a 66-year-old man who underwent an uncomplicated radical orchiectomy for a painless left testicular mass. Pathology showed capillary hemangioma of the testis. There are only 22 cases reported in the English literature, including the presented case. Appropriate intra-operative recognition of this entity is vital to assess for potential testicular-sparing surgery.

Case report

A healthy 66-year-old man presented with a painless palpable left testicular mass. Ultrasonography revealed a left testicular homogeneous hypoechoic nodule measuring 2.8 cm in size with colour Doppler interrogation showing increased vascular flow (Fig. 1). Serum tumour markers, including lactate dehydrogenase, β -human chorionic gonadotropin and α -fetoprotein, were normal. Given the suspicion of a testicular malignancy, the patient underwent an uncomplicated radical orchiectomy.

Gross pathology revealed a well-circumscribed tan-brown nodule measuring $2.8 \times 2.5 \times 2.2$ cm within the testicular parenchyma. There was no extension into the tunica albuginea. Microscopic examination showed groups of capillaries of varying sizes in a lobular arrangement with bland spindle-like endothelial cells lining these capillary structures (Fig. 2). The circumscribed vascular lesion was well-demarcated from the testicular parenchyma by a fibrous 0.1-cm pseudocapsule. The benign nature of this lesion was suggested by the lack of any mitotic activity, anaplasia, or dysplasia. Immunohistochemical staining was strongly positive for endothelial markers (CD31 and CD 34), and negative for mesothelial (Calretinin, WT1) and lymphatic

markers (D2-40), excluding an adenomatoid tumour. On the basis of these characteristic morphological and immunohistochemical findings, the diagnosis of testicular capillary hemangioma made. After 6 months of follow-up, the patient was well without any clinical evidence of recurrence.

Discussion

Hemangiomas of the testicle are a rare and benign vascular neoplasm. They can be classified as either epithelioid/histiocytoid, papillary endothelial hyperplasia, cavernous, or capillary. An English literature search revealed only 22 cases of testicular capillary hemangiomas.¹⁻²⁰ The mean age of these patients was 25.1 ± 22.7 years (range: 6 months to 80 years). Most occurred in children or young adults, with 59% of affected patients being under 19 years old.

The clinical presentation was a testicular mass in 80% of patients — 15% of which were painful. One patient was asymptomatic with the lesion found incidentally on ultrasound.¹⁸ Nine patients had the left testicle involved, 7 the right, and 5 were not reported. Serum tumour markers were normal in all cases. Testicular hemangiomas are often seen as hypoechoic (76%) and hypervascular (82%) lesions on ultrasonography. Magnetic resonance imaging was performed in 2 cases. Essig and colleagues reported that T1 post-contrast images showed intense heterogeneous contrast enhancement, while T2 demonstrated hypointensity of the lesion.⁶ Zaidi and Fathaddin reported a well-demarcated lobulated mass with similar magnetic resonance imaging signal intensity as seminomatous tumours.¹⁹ As they are typically poorly defined and indistinguishable from malignant tumours, it is difficult to determine preoperatively if lesions are benign or malignant. Hence, 65% of patients underwent radical orchiectomy, while only 35% had a partial orchiectomy after intraoperative frozen section showed capillary hemangioma of the testis.

Cut surfaces from gross pathology are reported to be tan-pink to red or blue in colour and homogeneous in nature.

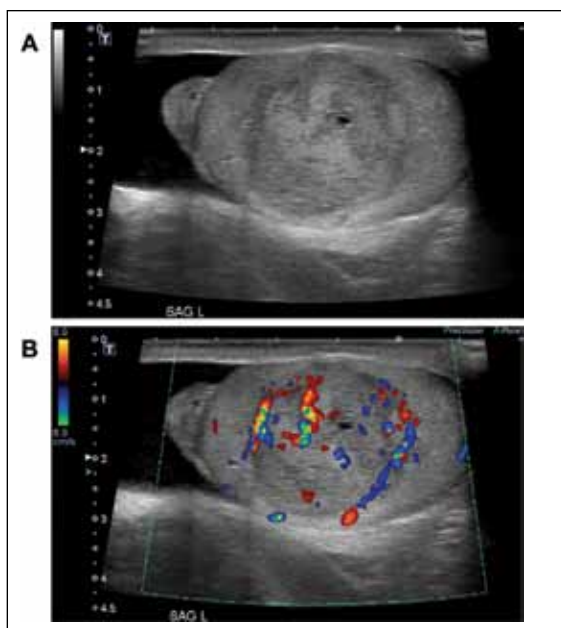


Fig. 1. A: Ultrasonography of the left testicle depicts a well-circumscribed hypoechoic nodule measuring 2.8 cm in maximum diameter. **B:** Colour Doppler interrogation demonstrated hypervascularity.

Histopathology shows a vascular tumour with well-formed capillary lumina. Lesions are made up of abundant vascular spaces and lobulated aggregates of closely packed capillaries lined by a flattened epithelium without anaplastic or mitotic features. Tumour markers, including endothelial (CD31, CD34, factor VIII-related antigen, vascular endothelial growth factor) or mesenchymal (vimentin) markers, have previously been reported as positive in capillary hemangioma of the testis. Positivity for mesothelial (Calretinin, WT1), lymphatic (D2-40), epithelial (AE1/3, CAM 5.2, epithelial membrane antigen), sex cord-stromal (inhibin), germ cell (α -fetoprotein, placental alkaline phosphatase), or hematopoietic (LCA) immunohistochemical markers would suggest an alternative diagnosis.¹⁻²⁰ To date, testicular hemangiomas, managed by either radical or partial orchiectomy, have not shown any malignant potential.

Conclusion

Albeit rare, it is important for both urologists and pathologists to be aware of testicular hemangiomas and other benign adult testicular tumours. While their rarity precludes significant changes in how we approach adult testicular masses, the possibility of a benign tumour should always be considered. This is particularly relevant when patients fall outside the typical age range for germ-cell tumours, and for patients with a solitary testicle.

In cases where a lesion is strongly suspected to be benign and serum tumour markers are normal, intraoperative frozen

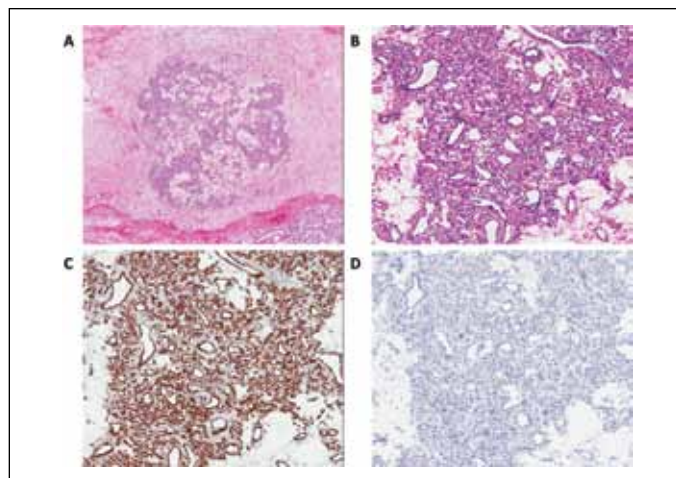


Fig. 2. Histology of capillary hemangioma of the testis. Hematoxylin and eosin stain at (A) 0.8 \times and (B) 10 \times magnification show a nodular lesion with lobular capillary proliferation lined by bland spindle-like endothelial cells. Immunohistochemistry staining for (C) CD34 highlighted the endothelial cells lining the vascular spaces. Negative staining for lymphatic marker, (D) D2-40, excluding an adenomatoid tumour of the testis.

sections may be requested. Partial orchiectomy may then be performed for histologically confirmed benign tumours, such as testicular capillary hemangioma.

Competing interests: Authors declare no competing financial or personal interests.

This paper has been peer-reviewed.

References

- Nistal M, Paniagua R, Regadera J, et al. Testicular capillary haemangioma. *Br J Urol* 1982;54:433. <http://dx.doi.org/10.1111/j.1464-410X.1982.tb08965.x>
- Kuraoka T, Taguchi K, Hosokawa S, et al. A case of capillary hemangioma of the testis in a child [in Japanese]. *Hinyokika kyo Acta urologica Japonica* 1994;40:361-3.
- MacLennan G, Quinonez G, Cooley M. Testicular juvenile capillary hemangioma: Conservative management with frozen-section examination. A case report. *Can J Surg* 1994;37:493-4.
- Hidalgo F, Vinas F, Garcia J, et al. Capillary testicular hemangioma: a case report [in Spanish]. *Cirugia Pediatrica* 1995;8:128-9.
- Nistal M, Garcia-Cardoso JV, Paniagua R. Testicular juvenile capillary hemangioma. *J Urol* 1996;156:1771. [http://dx.doi.org/10.1016/S0022-5347\(01\)65513-7](http://dx.doi.org/10.1016/S0022-5347(01)65513-7)
- Essig M, Knopp MV, Hawighorst H, et al. MRI of capillary hemangioma of the testis. *J Comput Assist Tomogr* 1997;21:402-4. <http://dx.doi.org/10.1097/00004728-199705000-00012>
- Stille JR, Nasrallah PF, McMahon DR. Testicular capillary hemangioma: An unusual diagnosis suggested by duplex color flow ultrasound findings. *J Urol* 1997;157:1458-9. [http://dx.doi.org/10.1016/S0022-5347\(01\)65022-5](http://dx.doi.org/10.1016/S0022-5347(01)65022-5)
- Uchida K, Takahashi A, Miyao N, et al. Juvenile hemangioma of the testis: Analysis of expression of angiogenic factors. *Urology* 1997;49:285-6. [http://dx.doi.org/10.1016/S0090-4295\(96\)00439-6](http://dx.doi.org/10.1016/S0090-4295(96)00439-6)
- Mazal P, Kratzik C, Kain R, et al. Capillary haemangioma of the testis. *J Clin Pathol* 2000;53:641-2. <http://dx.doi.org/10.1136/jcp.53.8.641>
- Atkin G, Miller M, Clarkson KS, et al. Testicular capillary haemangioma in a child. *J R Soc Med* 2001;94:638-40.
- Suriawinata A, Talermin A, Vapnek JM, et al. Hemangioma of the testis: Report of unusual occurrences of cavernous hemangioma in a fetus and capillary hemangioma in an older man. *Ann Diagn Pathol* 2001;5:80-3. <http://dx.doi.org/10.1053/adpa.2001.23022>

12. Hirata H, Ohmi C, Takai K, et al. Intrascrotal hemangioma in a child: A case report [in Japanese]. *Hinyokika kyo Acta urologica Japonica* 2002;48:491-3.
13. Bonetti L, Schirosi L, Sartori G, et al. Rapidly-growing hemangioma of the testicle clinically simulating an aggressive neoplasm. A case report. *Pathologica* 2009;101:123-5.
14. Mungan S, Turgutalp H, Ersoz S. A rare neoplasm of the testis: Capillary hemangioma. *Turk Patoloji Derg* 2011;27:80-3. <http://dx.doi.org/10.5146/tjpath.2011.01017>
15. Talmon GA, Stanley SM, Lager DJ. Capillary hemangioma of the testis. *Int J Surg Pathol* 2011;19:398-400. <http://dx.doi.org/10.1177/1066896908323416>. Epub 2009 January 14.
16. Antabak A, Jelašić D, Luetić T, et al. Testicular capillary hemangioma, report a twelve year patient [in Croatian]. *Liječnički vjesnik* 2012;134:316-8.
17. Rajpal S, Venugopal S, Inman R, et al. Testicular capillary haemangioma. *Br J Hosp Med* 2012;73:591.
18. Sheu GL, Hammer Y, Kirsch AJ. Testicular capillary hemangioma presenting as an incidental contralateral lesion in a child with cryptorchidism. *Urology* 2012;80:1135-7. <http://dx.doi.org/10.1016/j.urolgy.2012.07.026>
19. Zaidi SN, Fathaddin AA. Testicular capillary hemangioma-A case report of a rare tumor. *Indian J Pathol Microbiol* 2012;55:557. <http://dx.doi.org/10.4103/0377-4929.107815>
20. Kryvenko ON, Epstein JI. Testicular hemangioma: A series of 8 cases. *Am J Surg Pathol* 2013;37:860-6. <http://dx.doi.org/10.1097/PAS.0b013e318278817f>

Correspondence: Dr. Nathan Colin Wong, Division of Urology, McMaster University, Hamilton, ON, nathan.wong@medportal.ca