

Did the pathological specimen of the cyst do immunohistochemistry? And did it indicate the source of vascular adventitia?

Thank you for the careful review of the manuscript and your valuable comment. Histological results were not described because there was no separate section in the text structure. The following information has been added to the final diagnosis in the case presentation section.

After surgery, histological examination confirmed the presence of VACD. This examination revealed a cystic wall composed of fibrous tissue with increased proteoglycan levels and few elastic fibers. (page 5, lines 16-18)

Comment 1. The penultimate line of the imaging examinations section should be venous compression causing poor venous reflux rather than the femoral artery.

Thank you for your valuable comment. There was a typo previously. The femoral artery (FA) in Figure 1C has been revised to the femoral vein. (page 12, line 8)

Comment 2. Since the author considers that the great saphenous vein is the dominant vein, and the bovine pericardial slice is used to shape the right femoral vein, do you consider the risk of xenograft rejection thrombosis? Why did you not consider the left great saphenous vein as a donor?

Thank you for your valuable question.

We used Edwards bovine pericardial patch (Edwards Lifesciences Corp., Irvine, CA, USA) to reduce the requirement for additional incisions. Edwards bovine pericardial patch is a commonly used product for cardiovascular surgery. It has been in use for over 30 years and has been confirmed to be safe. For further details, please refer to the link below. In the main text, bovine pericardium has been revised to "Edwards bovine pericardial patch (Edwards Lifesciences Corp., Irvine, CA, USA)." (page 6, lines 1-2)

<https://www.edwards.com/healthcare-professionals/products-services/surgical-heart/bovine-pericardial-patch>

Comment 3. The filter was removed on 11 days after surgery and discharged on 12 days. Abisaban maintained anticoagulation for 6 months. Did the authors take into account the risk of thrombosis secondary due to the wound at the surgical site in the short term? (In fact, the temporary filter protection period is 4 weeks, and the permanent filter can be kept for 3 months or for life).

Thank you for your insightful comment.

According to the American Society of Hematology (ASH) 2020 guidelines, the use of direct oral anticoagulants (DOACs) is recommended as a first-line treatment for deep vein thrombosis and should be used for a period of 3-6 months.

In several studies, despite the availability of safe and effective anticoagulants, a small group of patients with acute VTE and absolute contraindication to anticoagulation may still necessitate the use of IVCs. However, for extended indications, there is insufficient evidence to support routine the use of IVCs. If IVCs are used, close follow-up is vital, with attention to resumption of anticoagulation when safe, along with monitoring for filter complications and IVC removal when no longer needed.

Inferior vena cava filters: a framework for evidence-based use. Amar H. Kelkar, Anita Rajasekhar. *Hematology Am Soc Hematol Educ Program* (2020) 2020 (1): 619–628.

American Society of Hematology 2020 Guidelines for Management of Venous Thromboembolism: Treatment of Deep Vein Thrombosis and Pulmonary Embolism. *Blood Adv* 2020;4:4693-4738.

Comment 4. Considering the risk of homology between the joint synovium and the adventitial cystic vein, the author especially emphasized the connection between the base of the vein and the joint capsule. In fact, the diameter of the cyst was about 1 cm, and CT did not find the synovial effusion of the joint. How to identify the joint synovium during the operation? Or is this needed in theory? Is it feasible to use artificial material or autologous muscle tissue interval for other tissues in the vein and femoral sheath?

Thank you for your insightful comments.

Due to our limited experience, we did not know the exact method, and we could not find any established technique mentioned in the available literature. The part connected to the cyst was excised, and given the possibility of an unidentified connection part, all surrounding tissues and veins were dissected. The collection of more cases is expected to provide evidence to support the hypothesis.

Comment 5. In the etiology hypothesis, is it too far-fetched to deny different locations and the pathogenesis of arterial adventitial cysts just because of the different male and female ratios? Is pathological immunohistochemistry required? Because the joint site is also a high incidence of synovial cysts.

Thank you for your valuable comments.

Because the cases published are limited, it is unknown which hypothesis is correct. The etiology of VACD remains unclear, and the etiology of arterial ACD and VACD may differ. Both diagnostic imaging and histological results will be helpful for diagnosis. Further research is needed to gain a comprehensive understanding.