



Images in Pathology

Capillary hemangioma in the right atrium after aortic valve replacement

Akira Tsuneto^a, Hiroaki Kawano^{a,*}, Naoe Kinoshita^b, Kiyoyuki Eishi^c, Koji Maemura^a

^a Department of Cardiovascular Medicine, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan

^b Department of Pathology, Saiseikai Nagasaki Hospital, Japan

^c Department of Cardiovascular Surgery, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan

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A 59 year-old-Japanese man was admitted with an intracardiac mass that had not been evident when he had undergone an aortic valve replacement (AVR) for aortic stenosis due to bicuspid aortic valve one year previously. Routine echocardiography revealed a round mass with a 15-mm diameter near the sinus of Valsalva in the right atrium (Fig. 1A, B) that did not affect functioning of the artificial aortic valve. The mass was luminal but did not infiltrate the wall. Thus, the mass was resected without difficulties, and it was dark-red, round soft tumor (Fig. 1C, D).

Pathological examination showed small-capillary proliferation in myxoid substrate with slight mast cell infiltration without atypical cells (Figs. 2–4). These findings that were different from cardiac myxoma indicated a diagnosis of capillary hemangioma (or pyogenic granuloma). The pyogenic granuloma is a polypoid form of capillary hemangioma that is made up of a large vessels, often with a muscular wall and surrounded by congeries of small capillaries [1]. Most lesions are

altered by secondary inflammatory change and they have been likened to granulation tissue [1]. Those features are compatible to the present patient. This type of hemangioma can occur anywhere in the body, but cardiac hemangiomas are rare vascular tumors of unknown etiology that account for < 5% of benign primary cardiac neoplasms. As far as we can ascertain, capillary hemangioma (or pyogenic granuloma) after AVR has never been reported. Godfraind et al. [2] advocated that capillary hemangioma may be due to reactive lesion resulting from tissue injury followed by impaired wound healing. Thus, cardiac surgery may induce capillary hemangioma.

Patient Consent statement

The patient signed an informed consent form.

* Corresponding author at: Department of Cardiovascular Medicine, Nagasaki University Graduate School of Biomedical Sciences, 1-7-1 Sakamoto, Nagasaki 852-8501, Japan.

E-mail address: hkawano@nagasaki-u.ac.jp (H. Kawano).

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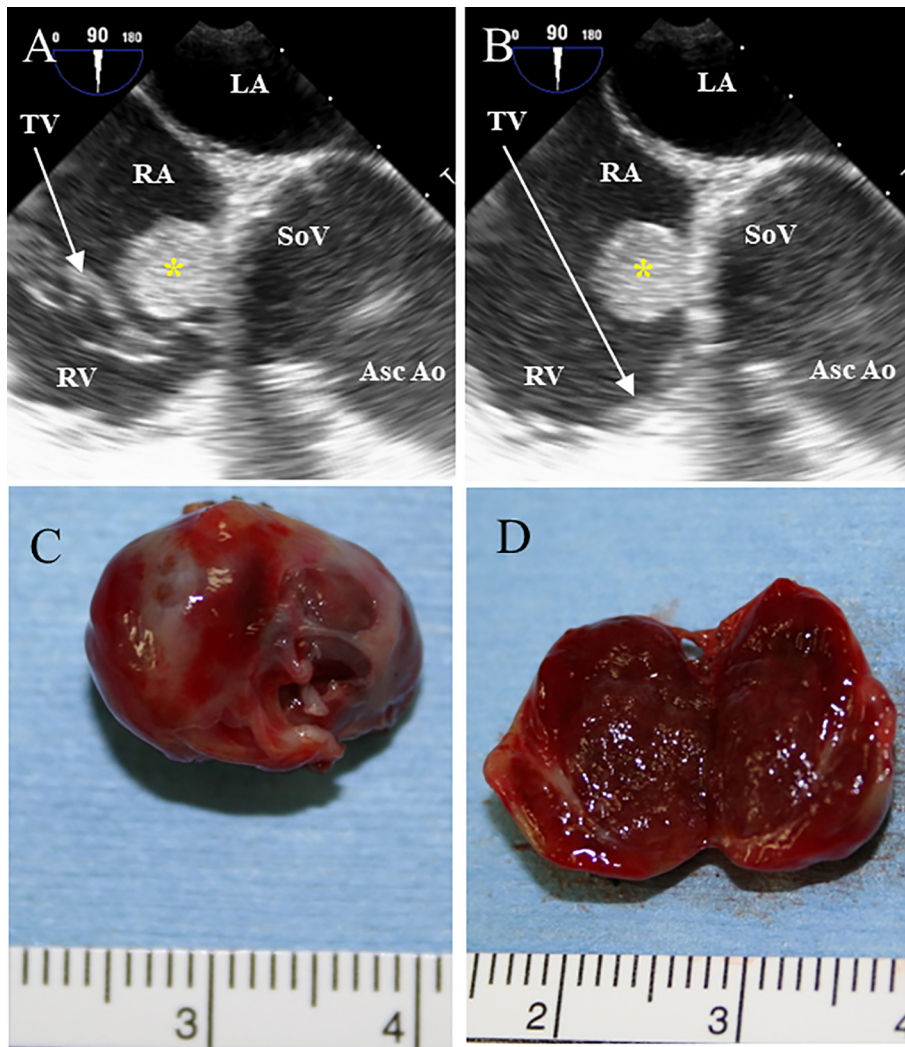


Fig. 1. Transesophageal echocardiography (A, systolic phase) and (B, diastolic phase) showed a round mass near the Valsalva sinus in the right atrium (*). (Asc Ao, ascending aorta; LA, left atrium; RA, right atrium; RV, right ventricle; SoV, sinus of Valsalva; TV, tricuspid valve). The resected mass was round, dark-red, soft tissue (C, external surface; D, cut surface). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

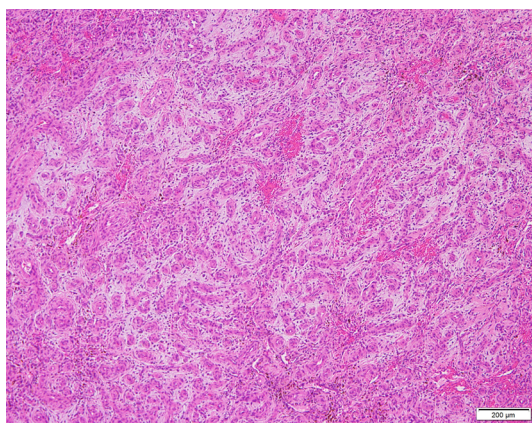


Fig. 2. Histological section demonstrated small-capillary proliferation in myxoid matrix (hematoxylin and eosin, x20).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

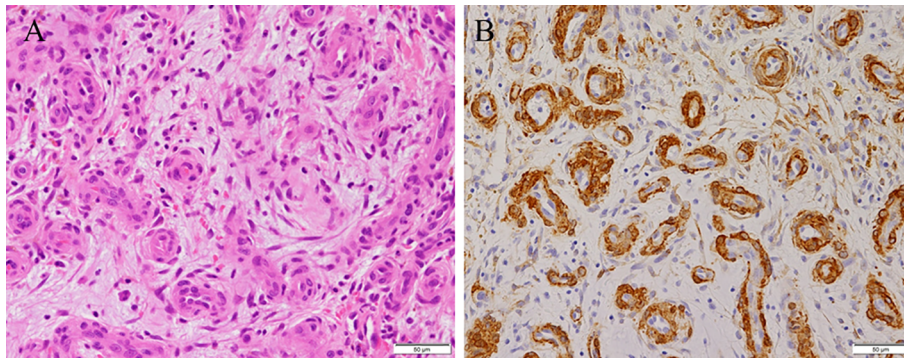


Fig. 3. Those small-capillary proliferations (A, hematoxylin and eosin, x200) were positive for anti- α smooth muscle antibody (B, Immunohistochemistry, x200).

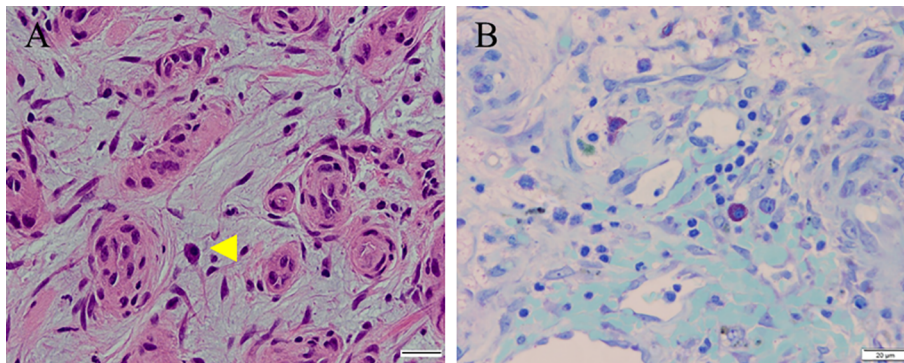


Fig. 4. A few mast cells were seen in the interstitium (arrow heads) (A, hematoxylin and eosin, x 400; B, toluidine blue staining, x 400). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

References

[1] Chapter 21. Benign vascular tumors and malformations, in: J.R. Goldblum, A.L. Folpe, S.H. Weiss (Eds.), *Enzinger and Weiss's SOFT TISSUE TUMORS*, 6th edition.

Elsevier: Saunders; 2014, pp. 644–647.
[2] C. Godfraind, M.L. Calicchio, H. Kozakewich, Pyogenic granuloma, an impaired wound healing process, linked to vascular growth driven by FLT4 and the nitric oxide pathway, *Mod. Pathol.* 26 (2013) 247–255.