Giant cavernous hemangioma in the aortic root and right atrioventricular groove

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A giant cardiac mass in the aortic root, enclosing the right coronary artery.

Central Message

An asymptomatic giant cavernous hemangioma that was incidentally detected at the aortic root and the right atrioventricular groove in a 32-year-old man was resected extensively.

Video clip is available online.

A 32-year-old man was referred to our hospital after the incidental detection of a cardiac tumor by echocardiography during a routine medical checkup. Echocardiography showed a large extramyocardial mass (measuring 7.7×6.7 cm) attached to the aortic root

and the right atrioventricular groove and enclosing the right coronary artery (Figure 1, A and B). This finding was confirmed by means of contrast-enhanced computed tomography (CT) (Figure 2, A and B; Video 1, A).

FIGURE 1. Intraoperative transesophageal echocardiographic images showing a large extramyocardial mass attached to the aortic root and the right atrioventricular groove. A and B, Preoperative echocardiographic images. A, A large extramyocardial mass attached to the aortic root (white arrow) encloses the right coronary artery (red arrow). B, A large extramyocardial mass attached to the right atrioventricular groove (white arrow) encloses the right coronary artery (red arrow). C and D, Postoperative echocardiographic images showing no residual tumor.

FIGURE 2. Contrast-enhanced computed tomographic images showing a large extramyocardial mass attached to the aortic root and enclosing the right coronary artery. A and B, Preoperative contrast-enhanced computed tomographic images. A, A large extramyocardial mass attached to the aortic root (*white arrow*). B, A large extramyocardial mass enclosing the right coronary artery (*red arrow*). C and D, Postoperative contrast-enhanced computed tomographic images showing no residual tumor and no right coronary artery injury.

We created a median incision and performed extensive tumor resection. Macroscopically, the tumor surface (measuring 10.0 cm × 6.7 cm) appeared dark red and was rooted in the aortic root and the right atrioventricular groove, showing expansive growth (Figure 3, A). After tumor removal (Figure 3, B), transesophageal echocardiography showed no residual tumor, and no right atrial or right ventricular compression (Figure 1, C and D).

Contrast-enhanced computed tomography did not show a residual tumor, and right coronary artery injury was not observed (Figure 2, C and D; Video 1, B). Pathologic examination showed that the tumor was mainly composed of large, thin-walled vessels with cystic dilatation and also showed that abundant red blood cells were present in the vascular lumen (Figure 3, C and D). Immunohistochemical staining showed that the tumor was positive for CD31 and negative for CD34, gut-1, and CAMTA1. Cardiac

cavernous hemangioma was therefore pathologically diagnosed (Figure 3, E and F). The clinical course of a giant cavernous hemangioma in the aortic root

VIDEO 1. Contrast-enhanced computed tomography showing a large extramyocardial mass attached to the aortic root and enclosing the right coronary artery. A, Video of preoperative contrast-enhanced computed tomography. B, Video of postoperative contrast-enhanced computed tomography. Videos available at: [https://www.jtcvs.org/article/S0022-5223\(19\)30915-8/fulltext](https://www.jtcvs.org/article/S0022-5223(19)30915-8/fulltext).

FIGURE 3. Intraoperative and pathologic analysis of the tumor. A, Intraoperative gross image of the tumor. B, Intraoperative image after tumor resection shows the right coronary artery. C and D, Hematoxylin and eosin staining images showing that the tumor was a cardiac cavernous hemangioma of the tumor. C, Magnification 100 $\times$. D, Magnification 200 $\times$. E and F, Immunohistochemical staining images of the tumor for detecting CD31. E, Magnification 100 $\times$. F, Magnification 200 $\times$.

and the right atrioventricular groove is unpredictable, and surgical excision is considered both diagnostic and curative.¹

Reference

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