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The Right Ventricular Myxoma Which Attached to the Tricuspid Valve: Sliding Tricuspid Valvuloplasty

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We report a rare case of an extremely large right ventricular myxoma involving the ventricular side of the tricuspid valve. The tumor was excised along with the entire posterior leaflet and part of the anterior leaflet. The tricuspid valve was repaired by sliding valvuloplasty combined with ring annuloplasty.

Key words: 1. Myxoma
2. Heart ventricles

CASE REPORT

Myxomas are the most common benign cardiac tumors, typically originating from the left atrium. The right atrium is the second most common site where myxomas originate, accounting for 7%–12% of cases [1]. Only a few cases of myxomas arising from the right ventricle have been reported. In these cases, myxomas originating from the right ventricle usually obstruct the right ventricular outflow tract, which may cause pulmonary embolism, syncope, and sudden death. In the present case, a myxoma was found to originate from the right ventricular inlet and showed dense adhesion to the anterior and posterior tricuspid leaflets.

A 59-year-old man was admitted to the hospital with a three-month history of chest discomfort. An initial laboratory work-up, including complete blood count, electrolyte level, and cardiac enzyme level, revealed all results to be within normal ranges. Transthoracic echocardiography revealed a large ovoid-shaped mass in the right ventricle, approximately 4.7×3.3 cm in size. The mass was attached to the inlet portion of the right ventricular free wall and to the anterior leaflet of the tricuspid valve (Fig. 1A). However, no tricuspid insufficiency or stenosis was observed, and the right ventricular systolic pressure was 21 mmHg. The patient was referred to the department of thoracic and cardiovascular Surgery for surgical management. A median sternotomy was performed and conventional cardiopulmonary bypass was instituted with moderate hypothermia. After right atriotomy, an extremely large right ventricular mass was found. The mass was attached both to the ventricular surface of the tricuspid valve, along the entire posterior leaflet and one third of the anterior leaflet, and to the right ventricular free wall (Fig. 1B). The mass was removed, and the posterior leaflet and one third of the anterior leaflet were excised as well. An incision was made along the annulus of the tricuspid valve that anchored the remaining anterior leaflet (Fig. 2A). Several compression sutures were inserted to reduce the annulus for sliding annuloplasty, and sutures were placed for ring annuloplasty. The base of the anterior leaflet was attached to the annulus with 5-0 prolene sutures and a tricuspid annuloplasty ring was placed (Fig. 2B).

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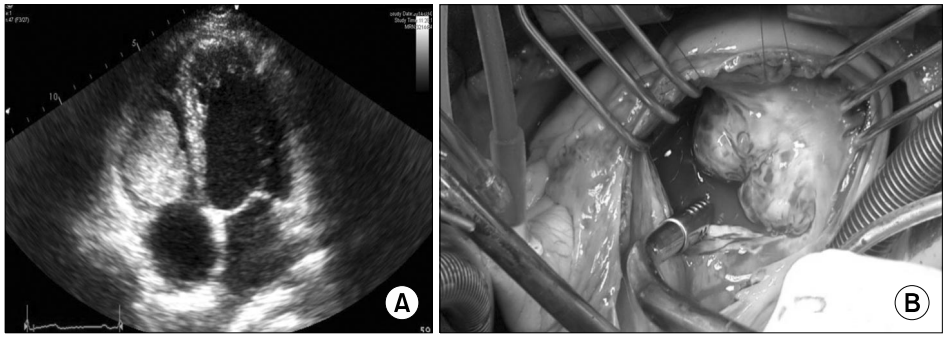

Fig. 1. Preoperative echocardiography and intraoperative findings. (A) A transthoracic long axis view shows a mass in the right ventricle attached to the tricuspid valve. (B) Intraoperative aspect of the tumor adherent to the right ventricular free wall. The mass was attached to the ventricular surface of the tricuspid valve along the entire posterior leaflet and to one third of the anterior leaflet.

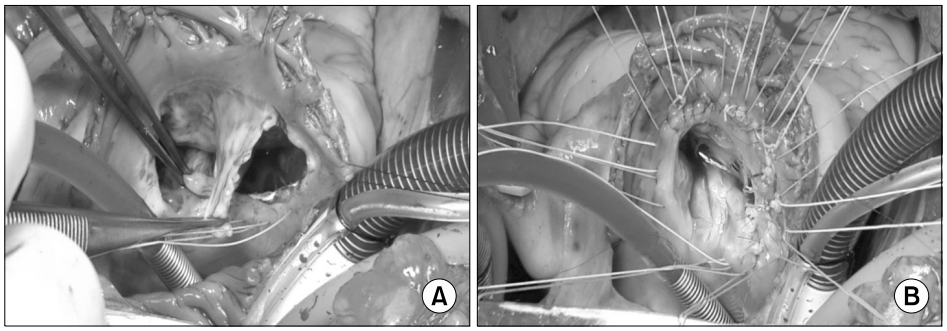

Fig. 2. Operative procedures. (A) An incision was made along the annulus of the tricuspid valve that anchored the remaining anterior leaflet. Several compression sutures were inserted to reduce the annulus in order to perform sliding annuloplasty. (B) The base of the anterior leaflet was attached to the annulus with 5-0 prolene sutures, and sutures were placed for ring annuloplasty.

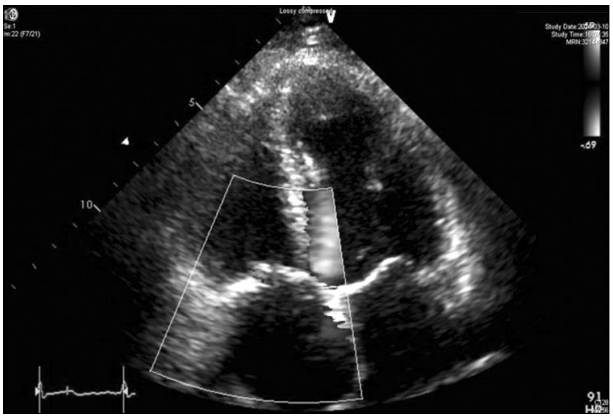

Fig. 3. Postoperative echocardiography. Postoperative echocardiography reveals minimal tricuspid regurgitation and no residual mass.

Intraoperative transesophageal echocardiography revealed no remaining tumor and no evidence of tricuspid regurgitation (Fig. 3). The patient was discharged without complications.

DISCUSSION

Myxomas arising from the right ventricle are extremely rare, and usually cause symptoms that result from obstructing the right ventricular outflow tract (RVOT). Obstruction of the RVOT and the main pulmonary trunk may cause complications such as syncope, pulmonary embolism, and sudden death [2-4]. Several previous reports have described right ventricular myxomas obstructing the RVOT. However, in our case, an extremely large myxoma was located in the inlet portion of the right ventricle, with a dense adhesion to the anterior and posterior leaflets of the tricuspid valve. It is thought that this dense adhesion to the tricuspid valve and the location of the myxoma in the inlet restricted the mobility of the mass and helped to avoid RVOT obstruction. Similarly, Hirota et al. [5] described a case of right ventricular myxoma that injured the tricuspid valve, leading to

massive tricuspid regurgitation. Unlike atrial myxoma, ventricular myxoma occasionally involves the valvular or subvalvular apparatus, which makes surgery more complex. We had three surgical options for managing a myxoma that involved the tricuspid valve: tricuspid valvectomy without prosthetic valve replacement, tricuspid valvuloplasty with partial excision of the tricuspid valve, and tricuspid valvectomy with prosthetic valve replacement. Arbulu and Asfaw [6] reported excellent results after using tricuspid valvectomy alone to treat tricuspid endocarditis, although 10%−30% of patients subsequently required tricuspid valve replacement. We decided to perform tricuspid valvuloplasty because the remaining valve leaflet was sufficient for repair and the patient wanted a procedure involving repair of the valve leaflet in order to avoid anticoagulation therapy. In the present case, the entire posterior leaflet and one third of the anterior leaflet was attached to the mass, and we performed sliding valvuloplasty to excise the mass and surrounding tissue. Two-dimensional echocardiography is useful in the diagnosis of myxoma and in determining the site, size, mobility, and attachment of masses. The treatment of choice for myxomas is surgical excision and the reported recurrence rate is 1%−3%. In conclusion, this case study reports our surgical experience treating a rare type of right ventricular myxoma.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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