Before stapling devices, arteriovenous fistulas would be sutured and resected. When staplers became available, I was able to isolate and resect the arteriovenous fistulas with good results. Arteriovenous fistulas the size of an apple or larger (7-8 cm) may be excised without the removal of normally functioning pulmonary tissue with this technique.

The lesions, which may be multiple and bilateral, are relatively easy to delineate and dissect in preparation for removal. I have not used anticoagulation and have not had any difficulty with embolism. Most such patient concerns have been suspected as a result of routine chest radiography and follow-up with computed tomography. The results of magnetic resonance imaging, as compared with contrast angiography, will be interesting in the future. Currently I first consider embolization, especially when the lesions are small, multiple, and bilateral. If the lesion is large or the catheter technique is not desired, I proceed to resection. I understand that in most cases embolic therapy is preferred at this time; however, there is still a place for primary resection of the large or coincidentally found lesion. Such a resection may be performed with a pulmonary-sparing technique.

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Aortic valve regurgitation associated with a fibrous band between the leaflet and the aortic wall

To the Editor:

We read with great interest the article of Nakajima and associates¹ in the October 2002 issue of the Journal, "Aortic Regurgitation Caused by Rupture of a Well-Balanced Fibrous Strand Suspending a Degenerative Tricuspid Aortic Valve." They showed a unique case with aortic valve regurgitation. The well-balanced aortic valvular apparatus shown in their case report has not been reported previously. They inferred the rupture of one the six fibrous strands between the three aortic leaflets and the ascending aorta as a cause of aortic valve incompetence, because the other two leaflets suspended by intact strands were expected to function well.

We have seen two cases of strands in bicuspid aortic valves. The patients were 25- and 45-year-old men. Preoperative echocardiographic study of both patients showed the

presence of strands, and the related leaflet was prolapsed toward the left ventricle in the second case. Unfortunately, we could not get a definite preoperative diagnosis of the presence of the strand in our first case, although we recognized it retrospectively. However, we were able to point out the presence in the second case before operating (Figure 1), and operative findings endorsed the preoperative study. The strands were not ruptured in both cases. The proximal ends of the strands were situated on the conjoined portion of the fused leaflets, and the distal ends were around the sinotubular junction of the ascending aorta. The left and right leaflets were fused in both cases. The patients underwent aortic valve replacement. The resected leaflets showed a mucinous degeneration without inflammation. Our operative and pathologic findings were similar to those in previous reports of such strands.

Embryologically, the aortic valve is formed through truncus ridge elaboration in the truncus arteriosus. We therefore hypothesize that these strands may be embryogenic remnants during the semilunar cusp formation process of the aortic valve.² Nakajima and associates¹ mentioned that rupture of a well-balanced fibrous strand suspending a degenerative tricuspid aortic valve was the cause of aortic regurgitation. They confirmed that the well-balanced fibrous strands existed between the intact leaflets and the ascending, suspending two leaflets with a good coaptation. They lik-

Figure 1. Preoperative echocardiography. A, Long-axis view of left ventricular outflow shows strand between leaflet and ascending aorta (arrows). B, Short-axis view of ascending aorta also shows strand as small high-echoic shadow in ascending aorta (wedges).

ened the strand development to a similar embryologic process in bicuspid aortic valve cases. The causes of such a strand formation may be more complicated than those of previously reported cases associated with bicuspid aortic valves. Ours and other cases had a strand between the fused valve and the aortic wall, whereas their case had three pairs of strands in three leaflets. It is not easy to explain these formations as embryogenic remnants. As Nakajima and associates¹ mentioned, however, their case may indicate another aspect for aortic valve surgery. Suspending a prolapsed aortic valve between its leaflets and the aortic sinotubular junction with a paired artificial strands may be an option for aortic valve repair. Additional case reports and hemodynamic and physiologic confirmation will be necessary.

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Do macrophages and monocytes impede regeneration of transplanted cardiomyocytes?

To the Editor:

I read with great interest the article of Tomita and colleagues¹ entitled “Improved Heart Function With Myogenesis and Angiogenesis After Autologous Porcine Bone Marrow Stromal Cell Transplantation” in a recent issue of the Journal. My research team has had similar results in both our animal and clinical experiences. In our animal experience, however, a lack of fibrous tissue in the infarcted region after cell patch cardiomyoplasty and omentopexy procedures prompts me to believe that macrophages and monocytes may contribute importantly to the disappearance of fi-

brotic tissue, thus preventing the regeneration of the myocytes from progressing. I therefore wonder whether similar findings were seen in Tomita and colleagues¹ cell transplant experiments. I would greatly appreciate a response to this inquiry.

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Problems in assessment of serum carcinoembryonic antigen levels in cancers

To the Editor:

In a recent issue, Saito and colleagues¹ reported on a multicenter retrospective review of surgery for pulmonary metastasis from colorectal cancer. They concluded that the status of the hilar or mediastinal lymph nodes and prethoracotomy carcinoembryonic antigen (CEA) level were significant independent prognostic factors. I believe these findings are useful in the follow-up of patients who have undergone resection of pulmonary metastasis of colorectal cancer. Prethoracotomy serum CEA levels are also a prognostic indicator in non-small cell lung cancer when the cutoff level is defined as 6.9 ng/dL on the basis of the 95% specificity level for benign lung disease.²

There are many kits to measure serum CEA levels. The antibodies used by the various methods vary. Thus there are some cross-reactive normal antigens that are calculated by some kits, and the maximum normal serum level of CEA ranges from 2.5 ng/dL to 6.9 ng/dL.³ In the study that Saito and colleagues¹ conducted, 10.0 ng/dL was used as a cutoff level that influenced the prognosis. This level is from 1.4 times to 4 times the upper limit of normal for serum CEA level.

In a multicenter study, the variable for serum CEA level should be considered normal or high according to a cutoff level established by each individual institution. Otherwise, the specification of a single type of kit to measure serum CEA levels is

needed when a specific serum CEA level is defined as the cutoff level. Either method, I believe, will make serum CEA levels a more significant prognostic indicator for patients with lung cancer or patients with pulmonary metastases from colorectal cancer.

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Reply to the Editor:

My coauthors and I appreciate the comments of Sawabata concerning our article. As he states, during the long term of our retrospective study, several methods, such as enzyme immunoassay and radioimmunoassay, were used to measure serum carcinoembryonic antigen (CEA) levels. Many kits to measure serum CEA levels are available in Japan, and results vary with each assay. This leads to confusion among physicians when evaluating serum values detected by the different assay kits. One does need to pay attention when evaluating such archival data stored in medical records.

In a multi-institutional study, ideally all data from various institutions would be measured by the same method with identical assay kits. However, it may be difficult to measure serum CEA with the same assay kit in each institution for various reasons, including cost considerations and available assay equipment. Moreover, the kits commonly used in Japan may be different from ones used in the United States or Europe, also making it difficult to compare the data among them. It may be necessary to set up an international committee to solve the is-