the aortic annulus into the aortoventricular junction and membranous septum. The RCA was surgically detached from the false lumen, along with 4 mm of tissue around its orifice. Cardioplegia was then administered directly into this vessel. An aortic valve-sparing operation was performed with the reimplantation technique. The annulus of the right cusp and the false aneurysm wall were sutured together into the tubular Dacron graft. The left coronary artery and RCA were reimplanted. All 3 cusps required repair because of fenestrations in the commissural areas and elongation of the free margins. Postoperative echocardiography disclosed trivial AI (Figure 1, C). The patient had an uncomplicated postoperative course and was discharged 4 days later.

Discussion

Interventricular septal dissection has been described after myocardial infarction. Such a dissection chamber is isolated within the interventricular septum.¹ Congenital aneurysm of the right sinus of Valsalva has been reported to rupture above the annulus, with a "wind-sock" dissection into the interventricular septum.² Ishibashi and colleagues³ reported a chronic dissection localized to the noncoronary sinus just above the annulus.

However, we could not find any reference for a case similar to ours. The dissection might have started in the right aortic sinus at the level of the RCA and extended downward, detaching the annulus, or it is also conceivable that it commenced in the sub-aortic fibrous tissues and extended upward, detaching the annulus of the right aortic cusp and the RCA. The ventricular pressure feeding the RCA probably led to the development of the large collaterals to the left anterior descending coronary artery.

A localized dissection involving the aortoventricular junction and the aortic annulus is very unusual.

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Emergency surgical intervention in a patient with delayed diagnosis of aortic dissection presenting with acute ischemic stroke and undergoing thrombolytic therapy

Chai-Hock Chua, MD,^a Li-Ming Lien, MD,^b Chia-Hsun Lin, MD,^a and Chi-Ren Hung, MD,^a Taipei, Taiwan

Chua, Lin, Hung, Lien (left to right)

We report a patient who initially presented as having a stroke and was later discovered to have aortic dissection. Although thrombolytic therapy was given, an emergency operation was performed, and the patient was salvaged with improved but residual neurological deficit.

Clinical Summary

A 44-year-old man without any medical history had sudden onset of left-sided weakness and slurred speech when he was drinking tea at 12:20 PM. He was sent to the emergency department at 12:40 PM. His vital signs were stable. The Glasgow Coma Scale was E3V5M6. Left central facial palsy was prominent, and left hemiplegia with reduced reflexes and positive Babinski sign were present. The National Institute of Health stroke score was 18. Head computed tomography (CT) without contrast showed no hemorrhage or hypodensity. Furthermore, transcranial color-coded duplex (TCD) scanning detected very slow flow of the right middle cerebral artery (MCA), which suggested right MCA occlusion. Therefore according to the inclusion and exclusion criteria of the thrombolytic therapy for ischemic stroke by the National Institute of Neurological Disorders and Stroke, the patient was considered eligible for intravenous recombinant tissue plasminogen activator (rt-PA). After the bolus dose of rt-PA was given at 1:30 PM for 5 minutes, the patient complained of severe left flank pain and back pain. Chest CT disclosed a Stanford type A aortic dissection extending from the ascending aorta to the common iliac arteries with involvement of the right innominate artery. Under the diag-

From the Division of Cardiovascular Surgery, Department of Surgery,^a and the Department of Neurology,^b Shin Kong Wu Ho-Su Memorial Hospital, College of Medicine, Fu Jen Catholic University, Hsinchuang, Taipei, Taiwan.

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Address for reprints: Chia-Hsun Lin, MD, Shin Kong Wu Ho-Su Memorial Hospital, Cardiovascular Surgery, 95, Wen Chang Rd, shih-lin 111, Taipei 111, Taiwan E-mail: m000678@ms.skh.org.tw

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nosis of acute type A aortic dissection (Figure 1) with right innominate artery compromise, an emergency operation was performed at 4:30 PM. During the operation, left axillary artery perfusion and deep hypothermic circulatory arrest with retrograde cerebral perfusion were used. The intimal tear was identified in the ascending aorta and located 1.5 cm above the aortic valve. The false lumen extended downward, with compression of the right innominate artery orifice. Therefore the intimal inlet was excised, and the false lumen was closed by means of graft replacement of the ascending aorta with a Dacron graft. The right innominate artery was preserved, and blood flow was restored after circulation was reestablished. The patient underwent 9 hours of prolonged operative time because of the development of severe coagulopathy. After the operation, the patient regained clear consciousness and recovered smoothly. The follow-up TCD measured normal blood flow of the right MCA, and neck duplex scanning, which was not examined in the emergency department, was used to detect noticeable dissecting intima in the right common carotid artery (CCA) with normal blood flow (Figure 2). The follow-up head CT scan showed limited infarction over the right MCA territory. One month postoperatively, the patient was discharged. Neurological function was improved, with no facial palsy or speech disturbance. Although the residual left hemiparesis persisted, he could walk with a crutch and has continued the rehabilitation program.

Discussion

Neurological deficits have been associated with 18% to 30% of cases of acute aortic dissection (AAD). Cerebral ischemic stroke is the most common neurological manifestation and has been reported to affect 5% to 10% of patients.¹ The National Institute of Neurological Disorders and Stroke Acute Ischemic Stroke Trial has established the guidelines of inclusive and exclusive criteria for safe thrombolytic treatment of ischemic stroke within the first 3 hours. Thus the cause of the stroke is often not definitely determined until well after the patient has received rt-PA.² The use of rt-PA to treat acute ischemic stroke resulting from aortic dissection will be catastrophic. Several cases have been reported about the use of rt-PA in patients with acute myocardial infarction and aortic dissection, and the outcome was extremely poor.³ In a review of the literature, a case of survival after administration of rt-PA to a patient with acute ischemic stroke caused by AAD has not been reported.² Although intentionally delayed surgical intervention after recovery of neurological condition is recommended,⁴ the delay of the operation could result in fatal consequences, with increased mortality rates by 1% to 3% per hour. More to the point, central aortic surgery soon after the aortic dissection might contribute to the recovery of neurological condition without further risk of subsequent death during the waiting period.⁵ Obviously, we surgeons were put in a very difficult position. To the best of our knowledge, the present case is the first salvaged patient with acute ischemic stroke caused by aortic dissection after the use of rt-PA.

In conclusion, it is strongly suggested that before using thrombolytic therapy for acute ischemic stroke, aortic dissection should be carefully considered as a cause, especially when the patient's consciousness or communication is impaired. In addition, rather than only detecting the abnormal flow of the

Figure 1. The chest CT showed Stanford type A aortic dissection, in which a false lumen was clearly seen.

Figure 2. The neck duplex showed a dissecting intima present in the right common carotid artery.

MCA with TCD, recognizing the pathologic structure of CCA by using neck duplex scanning should be more contributory to the early diagnosis of AAD. It should be recommended to rule out the possibility of AAD in the case of stroke because the examination time is brief and will pose no further delay. Finally, even with the misuse of rt-PA in such a patient, emergency aortic surgery should also be accomplished to provide the best chance for salvage and the improvement of neurological function.

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Combined surgical and endoprothetical approach to solve a thoracic aortic pseudoaneurysm 15 years after coarctation correction

Ramiro de la Llana, MD,^a Rafael Martínez-Sanz, MD,^a Francisco Díaz-Romero, MD,^b Ibrahim Nassar, MD,^a and Pilar Garrido, MD,^a Tenerife, Spain

**Additional material
is available online.**

Aortic pseudoaneurysms can appear many years after aortic coarctation correction and are not always caused by prosthetic fabric infection. Regardless of the cause, they are a challenging problem, and their correction requires individualized approaches to every patient. We report our experience in a patient with an aorto-aortic bypass as a previous step to obliterate the aortic segment with the pseudoaneurysm by means of endoprothetical device insertion.

Clinical Summary

A 31-year-old patient came to the hospital presenting with high fever and hemoptysis for the last 6 days. He followed a 7-day cycle of amoxicillin (INN: amoxicilline) ordered by his physician, but he felt worse and came to the hospital. When the patient was 16 years old, he had an aortic coarctation correction involving an aortoplasty with a Dacron fabric patch. On arrival, he was febrile, had a murmur audible along the whole chest and in the interscapular space, and complained of cough, dysphonia, and hemoptysis. The chest x-ray film showed a big mass occupying the whole top of the left hemithorax, which corresponded with an enormous aortic pseudoaneurysm arising after a hypoplastic aortic arch (Figure 1). Because contention was considered to be due to the adhesions from the preceding thoracotomy, an extra-anatomic bypass with

Figure 1. A, Chest x-ray film showing a big mass occupying most of the left upper hemithorax. B, Arteriography showing the mass as a big aortic pseudoaneurysm.

From the Departments of Cardiovascular Surgery and Interventional Radioangiography, Hospital Universitario de Canarias, Universidad de La Laguna, Tenerife, Spain.

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Address for reprints: Ramiro de la Llana, MD, Ave de la Asunción 2, 2^aA, 38006 Sta, Cruz de Tenerife, Spain (E-mail: rllana@comtf.es)

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