the true lumen into the false lumen and then entered into the true lumen through the intimal tear near the emergence of the subclavian artery. In order to avoid such a complication a precise protocol with a stepwise approach should be implemented: the pigtail progression in the aorta should be followed and its position in the true lumen confirmed with an angiogram of the aortic arch. Additional information can be gained by transesophageal echography with a study of the direction flows in the true and false lumen in relation to the pigtail (opacified, if necessary, by a small amount of contrast media) and by intravascular ultrasound with direct visualization of the guide wire in the true lumen.

Once the event has occurred, if the false lumen does not rupture, an emergency fenestration of the aorta distal to the endograft could reperfuse the true lumen and save the patient’s life. We did not select this option because the patient was stable and asymptomatic when the diagnosis was made on control CT and, being a young subject with a long life expectancy, a more definitive procedure was desirable. As far as the surgical strategy is concerned, removal of the endoprosthesis through a left thoracotomy with axio-femoral bypass was not possible because clamping the aorta between the left carotid and the left subclavian artery would have also included the free-flow portion of the prostheses.

The alternative of hemiarch replacement through a left thoracotomy approach under deep hypothermic circulatory arrest was also considered [8]. However, given that both femoral arteries were involved by the dissection and the left subclavian artery was partially covered by the free-flow portion of the endograft, vascular access for arterial cannulation and perfusion of the true lumen would have been troublesome. Alternatively, direct cannulation of the ascending aorta through the apex of the left ventricle could have been employed, a technique not every cardiac surgeon is familiar with. Regardless, resection through left thoracotomy would have left the native ascending aorta and proximal arch intact with the possibility of future new dissection.

In conclusion, despite the occurrence of unwanted complications like the one just described, TEVAR procedure remains the therapy of choice for complicated type B dissections. It should, however, be carried out following a precise operative protocol preferably in institutions with transesophageal and intravascular ultrasound support and those familiar with all the options of conversion to open repair.

References


eComment: Advance of guidewire from the brachial artery to facilitate correct positioning of the stent graft during repair of type 3 aortic dissections.

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We read the article by Follis et al. in which they presented an interesting complication during endovascular treatment of type 3 aortic dissection: the positioning of the stent graft in the false lumen [1]. We believe the paper contains certain points to be stressed on.

First of all, it is very interesting that embolectomy and stenting of iliac artery were chosen as the initial treatment strategies in a 50-year-old male hypertensive patient who presented to the clinic with acute onset left lower extremity ischemia. This might have probably emerged due to improper history taking and/or radiological examinations. Any dissection leading to lower extremity ischemia should be related with infrarenal extent of the intimal flap to the aortic bifurcation or beyond. Such a pathology could easily be detected by abdominal ultrasonography and be managed accordingly. Both the patient and authors are lucky that the pathology was not resulting from type 1 aortic dissection, otherwise the delay might have resulted in death [2].

Indeed, it may sometimes be tricky to correctly position the stent graft during the endovascular repair of type 3 aortic dissections. The guidewire ascending from the femoral artery may unintentionally pass through the false lumen, especially when the false lumen is large and compresses the true lumen [1]. In order to facilitate the procedure we sometimes prefer the advance of a guidewire with fluoroscopic guidance from a brachial artery and to catch it from the femoral artery which is prepared for stent graft deployment [3, 4]. As a result, correct position of the guidewire and consecutively the stent graft in the true lumen may be guaranteed.

On the other hand, we congratulate the authors for the successful entire thoracic aortic replacement procedure that they performed to treat the complication of endovascular stent grafting in their patient. It is a major procedure and the patient could be discharged in good condition after all.

References


