A 61-year-old man who underwent a coronary artery bypass grafting 16 years previously (left internal mammary artery [LIMA] to left anterior descending artery and saphenous vein graft to right coronary artery) was admitted for a coronary angiogram because of recurrent chest pain. The coronary angiogram showed a significant stenosis of the anastomosis of the LIMA to the left anterior descending artery. Ad hoc percutaneous treatment of the lesion was elected. The LIMA was engaged with a 6 French internal mammary guiding catheter (Medtronic Launcher, Medtronic Inc, Minneapolis, Minn), a whisper guidewire 0.014 (Guidant, Indianapolis, Ind) was used to cross the lesion and finally a 3/18-mm stent (Biotronik Pro-Kinetic, Biotronik Inc, Lake Oswego, Ore) was implanted at the anastomosis of the LIMA to the left anterior descending artery. A dissection of the proximal part of the LIMA was then diagnosed and another 3/22-mm stent (Biotronik Pro-Kinetic) was implanted at the dissection site. After the second stent implantation, a complex stenosis was observed between the 2 stents. Administration of intracoronary glyceryl trinitrate had no effect. Because this lesion appeared when the LIMA was straightened by the guidewire, it was assumed to be a pseudo lesion (Figure 1). The pseudo lesion disappeared after the guidewire in the guiding catheter was pulled back (Figure 2).

The withdrawal of the wire was filmed for the educational purpose of unraveling the pathophysiology of the accordion phenomenon (see online-only Data Supplement Movie). The straightening of the artery can be seen to cause the compression of the wall of the vessel, which is resolved after the removal of the guidewire.

New lesions that appear during coronary intervention are always a challenge for interventional cardiologists. The accordion phenomenon or pseudo lesion refers to mechanical distortion of tortuous arteries caused by any material that stretches the artery and often simulates dissection, spasm, or thrombus formation.² Stretching a naturally tortuous artery in turn induces folds of the vessel wall. These protruding folds might induce several consecutive tight stenoses (Figure 3). It is very important to recognize such pseudo lesions in order to avoid inappropriate interventions.³ A number of factors may contribute to the appearance of this phenomenon, such as tortuous vessels, the choice of the guidewire (even soft shaft wire may cause the accordion phenomenon, as in the current case), and the small number of side branches.³ In order to differentiate an accordion phenomenon from a dissection, it is recommended that the floppy part of the wire be kept in position before the removal.⁴

Disclosures

None.

References


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The online-only Data Supplement is available with this article at http://circ.ahajournals.org/cgi/content/full/118/18/e677/DC1.

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e677
Figure 2. Removal of the guidewire from the LIMA.

Figure 3. Schema of the accordion phenomenon. A tortuous artery is stretched by the guidewire, inducing folds of the vessel wall. These protruding folds induce several consecutive tight stenoses.
The Accordion Phenomenon: Lesson from a Movie
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