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Sirkumfleks arter kronik oklüzyona Perkutan radial arter girişiminde buddy wire tekniği ve GuideLiner destek kateri uygulanması

Sequential use of buddy wire and GuideLiner support catheter during percutaneous radial intervention to an occluded circumflex coronary artery

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Öz

Radial arterle yapılan koroner girişimler de bazen gayd kateter desteği balon ve stentin lezyondan geçmesi için yeterli olmayabilir. Özellikle kronik total oklüzyonlarda bu destek çok daha gereklidir. GuideLiner destek kateteri (Vascular Solutions, Inc.) teleskopik kateter sistemi olup, super selektif olarak arterlerin distaline kadar ilerletilebilir ve balon ve stentin lezyondan geçirilmesinde kolaylık sağlar. Bu vakamızda, radial arter den kullanılan gayd kateter desteğinin yatersizliğine rağmen GuideLiner kateteri ve buddy wire tekniğini kullanılmasının, kompleks bir lezyonda başarı şansını arttıracağı gösterilmiştir.

Anahtar kelimeler: Kronik total oklüzyon, GuideLiner kateteri

Abstract

Radial artery access is more commonly used for coronary interventions. GuideLiner support catheter (Vascular Solutions, Inc.) is a telescopic catheter system; It can be advanced selectively to distal coronary artery inside the guiding catheter and it does substantially increase backup support to deliver balloons and stents. Herein we discuss successful use of Guideliner catheter and buddy wire to cross the chronic total occlusion during complex intervention via radial artery access with poor guiding catheter support.

Keywords: Chronic total occlusion, radial access, GuideLiner catheter

Introduction

GuideLiner support catheter (Vascular Solutions, Inc.) has been used for successful percutaneous intervention (PCI) of very tortuous or rigid (owing to prior stenting or extensive calcification) coronary arteries, mainly for distal delivery of balloons or stents (1), or for an intervention through anomalous left main coronary artery (2) or right coronary artery with anterior take off (3). We wanted to report a case where we had very poor back up support from Judkins left GC during PCI of a chronic total occlusion (CTO) of circumflex (LCX) coronary artery via radial approach and used GuideLiner support catheter and a buddy wire which enabled us to complete the case successfully without a need for femoral access.

Case description

64 year old black male with past medical history of peripheral arterial disease,
hypertension has been having fatigue and dyspnea with minimal exertion and referred for a nuclear stress test which showed large size perfusion defect consistent with ischemia in the inferolateral wall and was referred for coronary angiogram (CA). CA done by radial approach and revealed CTO of mid LCX which was filled by collaterals from right coronary artery (RCA) (Figure 1, 2). RCA was non dominant with mid 60-70% lesion. Left anterior

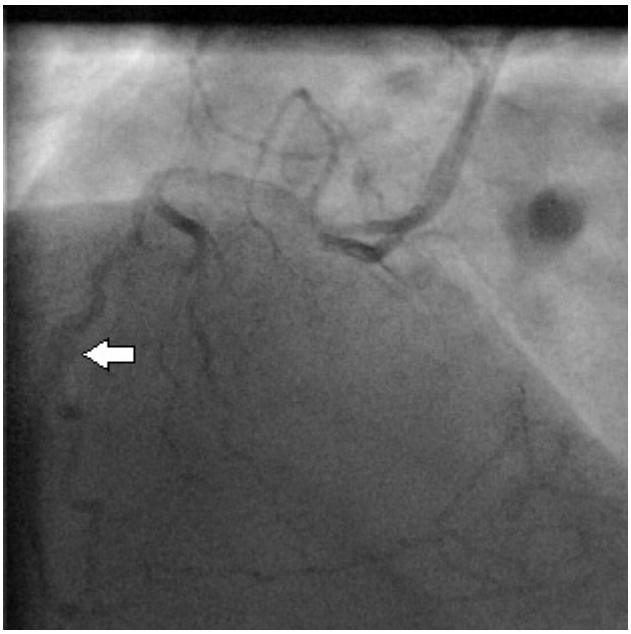

Figure 1: Angiogram of non-dominant right coronary artery (Small arrow) showing filling of distal left circumflex artery (Big arrow) by collaterals.

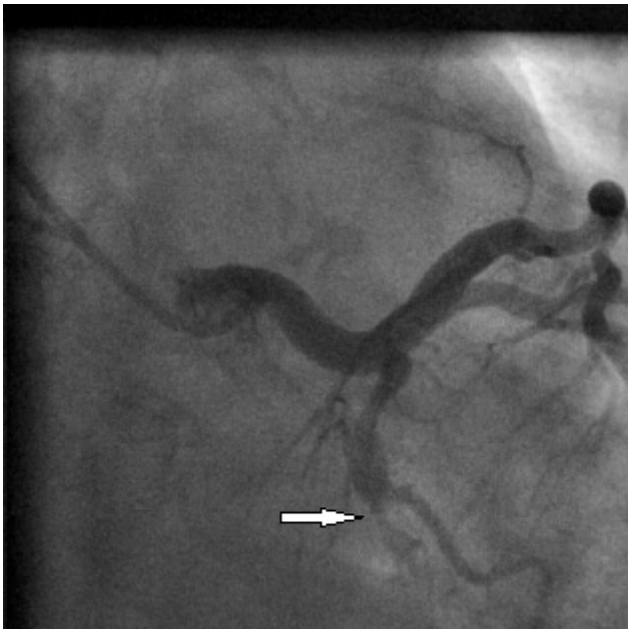

Figure 2: Angiogram of left coronary artery showing chronic total occlusion of left circumflex artery (arrow).

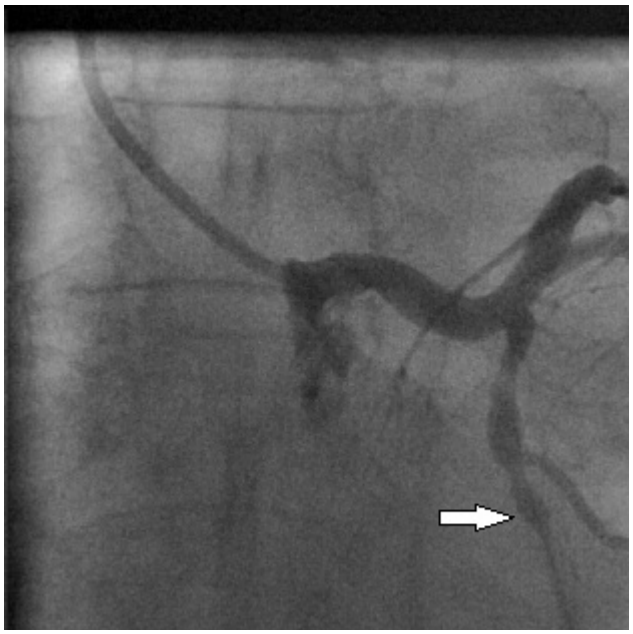

Figure 3: Angiogram showing antegrade flow in circumflex with significant residual disease (arrow).

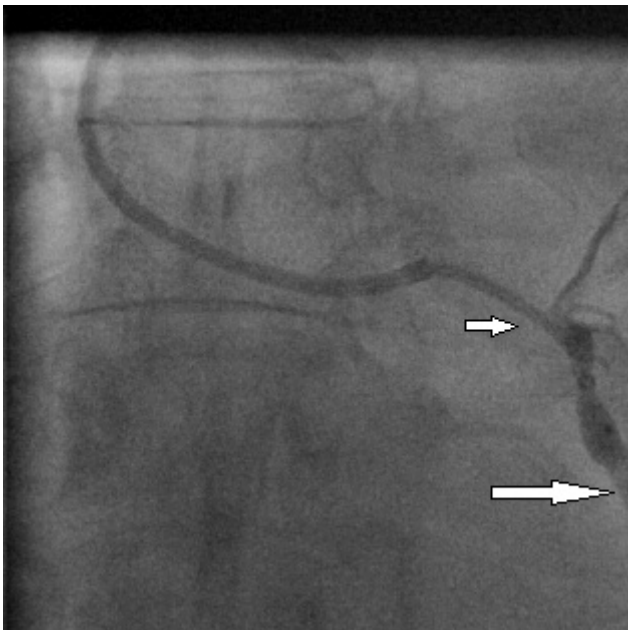

Figure 5: Angiogram showing stent placement in mid-circumflex (big arrow) with GuideLiner support catheter (small arrow).

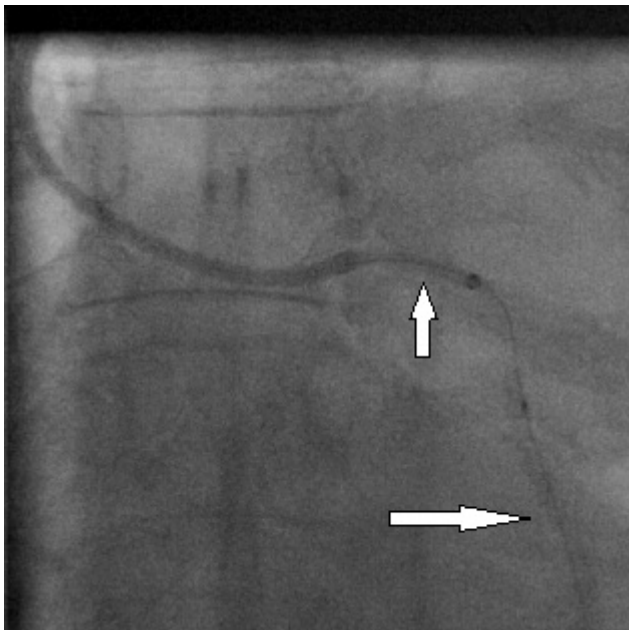

Figure 4: Angiogram showing balloon inflation in occluded mid-circumflex (big arrow) with GuideLiner support catheter in proximal circumflex (small arrow).

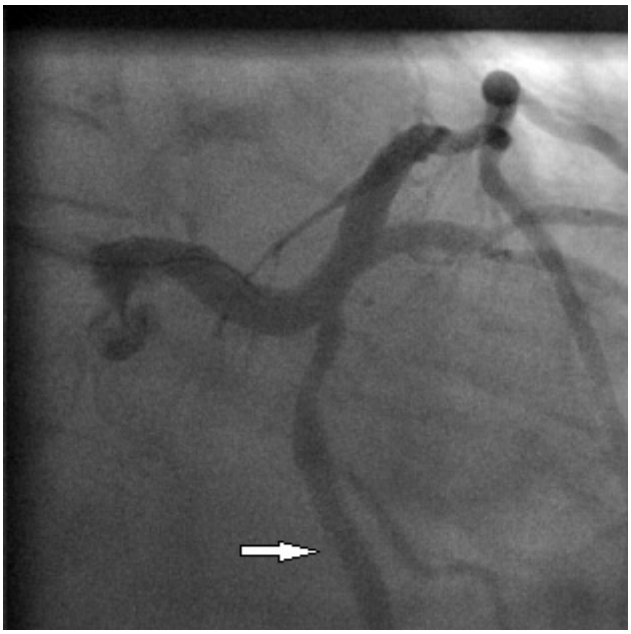

Figure 6: Angiogram of circumflex after stenting (arrow).

descending artery had mid 50% lesion. Then we decided to proceed with PCI of LCX CTO due to large size ischemia and symptoms. Initially we tried to engage left main with XB 3 (Cordis), EBU 3.5 GC (Medtronic) with no success due to
short, small aortic root and high level take off the left main artery. Then Judkins left GC was used to engage the left main. The lesion was crossed with cross it 100 (Abbott Vascular) wire, a 1.5x8 mm apex balloon Boston Scientific) would not cross the lesion. Then 1.25mm x6 mm balloon was used and balloon angioplasty done at 10 ATM, then the same 1.5x8 mm balloon was advanced which would not crossed the lesion , a PT2 (Boston Scientific) wire was advanced as a buddy wire and finally the 1.5mm balloon would cross the lesion. BA was done at 10 ATM, a 2x20mm apex balloon (Boston Scientific) used at 14 ATM to further dilate the lesion with establishment of flow (Figure
3). Then 2.5x32 mm and 2.5 x18mm promus stents (Boston Scientific) were advanced for stenting of CTO but these would not make the turn from left main to LCX despite the use of buddy wire. The buddy wire was taken out and GuideLiner support catheter was positioned in proximal LCX without difficulty (Figure 4). The lesion dilated again with a 2.5x20mm apex balloon and 2x15x18mm and 3.0x18mm promus stents were deployed at 18 ATM overlapping with each other and proximal part of the stent was post dilated with 3.5x8mm NC quantum balloon (Boston Scientific) with no residual (Figure 5, 6). IV Heparin was used during the procedure. There were no complications and the patientwas symptom free in the follow up.

Discussion

The GuideLiner support catheter (Vascular Solutions, Inc.) is a flexible coaxial catheter
that is used within any standard guide catheter (GC) and it can be advanced inside the
proximal- middle part of coronary vessels that are greater than 2.5mm as a “mother and
child” system. It provides additional back-up support and coaxial alignment to access discrete regions of coronary vasculature and to facilitate delivery of devices. There are reports of successful use of GuideLiner support catheter via radial approach to deliver stents (4). During right radial approach GC support could be suboptimal especially in the left coronary system when extra back up guiding catheters could not be used due to difficult subclavian artery, aortic arch and root anatomy. Although it might be easier to engage left main with Judkins left GC some of these cases, it might not provide good back up support during PCI especially when deep intubation is not possible.Complications related to use of the GuideLiner catheter have also been reported, such as dissection of the target vessel during engagement/ advancement by GuideLiner, especially if it was not advanced over an angioplasty balloon (4). Deformation and tear of a stent balloon while retracting or advancing the stent in the metal transition zone “collar” of the GuideLiner catheter have been seen especially with Amplatz guiding catheters which have secondary bend. Damage to the GuideLiner catheter or distal radiopaque ring of the guiding catheters resulting in dehiscence can also occur in cases with excessive manipulations of the Guideliner catheter.

Conclusion

Guideliner catheter is an available tool especially during radial interventions for extra back up support if buddy wire technique does not provide enough support. Caution is necessary while using it with an Amplatz guide or when excessive manipulations are needed. Advancing the device over a balloon catheter will also potentially will keep the device in the middle of arterial lumen and may minimize risk of associated dissections.

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