Cardiovascular Intervention and Therapeutics (2019) 34:74–75
https://doi.org/10.1007/s12928-018-0513-1

IMAGES IN CARDIOVASCULAR INTERVENTION

The PICKING technique for self-expanding nitinol stent expansion of an extremely calcified lesion in the femoropopliteal artery: the tail makes the difference

Sayaka Funabashi[1] · Osami Kawarada[1] · Takeshi Yagyu[1] · Teruo Noguchi[1] · Satoshi Yasuda[1]

Received: 26 December 2017 / Accepted: 27 January 2018 / Published online: 9 February 2018

Keywords Calcification · Crack · Tail · Guidewire · Technique

Percutaneous intravascular cracking with a guidewire tail (PICKING) is a novel technique that was initially reported to facilitate balloon catheter passage for the treatment of severely calcified lesions in the infrainguinal artery [1]. This technique might be applied to prevent vessel recoil associated with calcified lesions.

An 81-year-old woman with a history of contralateral major amputation was referred to our institution for the treatment of an ischemic non-healing ulcer in the left foot. Diagnostic angiography revealed subtotal occlusion with eccentric severe calcification in the left femoropopliteal artery (Fig. 1a). Although the lesion was well dilated at 14 atmospheres with a 3.0 × 40 mm semi-compliant balloon following advancement of a 0.014-inch hydrophilic guidewire (Fig. 1b), the calcified lesion eventually caused balloon rupture and significant recoil (Fig. 1c). Thus, we decided to employ the PICKING technique. Following delivery of a 5-Fr JR catheter along the 0.014-inch guidewire just before the calcification, we advanced the tail of a 0.025-inch guidewire into the 5-Fr JR catheter. Then, using the parallel-wire method, we longitudinally cracked the underlying calcification with the tail of the 0.025-inch guidewire in a straight configuration, while leaving the initial 0.014-inch guidewire in place as an anchor (Fig. 1d). Since significantly decreased recoil was apparent following balloon angioplasty with a 4.0 × 40 mm balloon (Fig. 1e, f), we implanted a 6.0 × 40 mm nitinol self-expanding stent. Following post-dilatation with 4.0 × 40 mm balloon, final angiography revealed excellent recanalization without residual stenosis (Fig. 1g). The dorsalis pedis artery became pulsatile following anterior tibial artery balloon angioplasty performed immediately after the procedure. The skin perfusion pressure in the left foot (dorsum/plantar) increased from 27/29 to 108/81 mmHg, suggesting a high likelihood of wound healing [2].

The PICKING technique could facilitate self-expanding nitinol stent expansion for the treatment of extremely calcified lesions in the femoropopliteal artery under the operators' responsibility.

✉ Osami Kawarada
kawarada.osami.hp@ncvc.go.jp

[1] Department of Cardiovascular Medicine, National Cerebral and Cardiovascular Center, 5-7-1 Fujishiro-dai, Suita, Osaka 565-8565, Japan

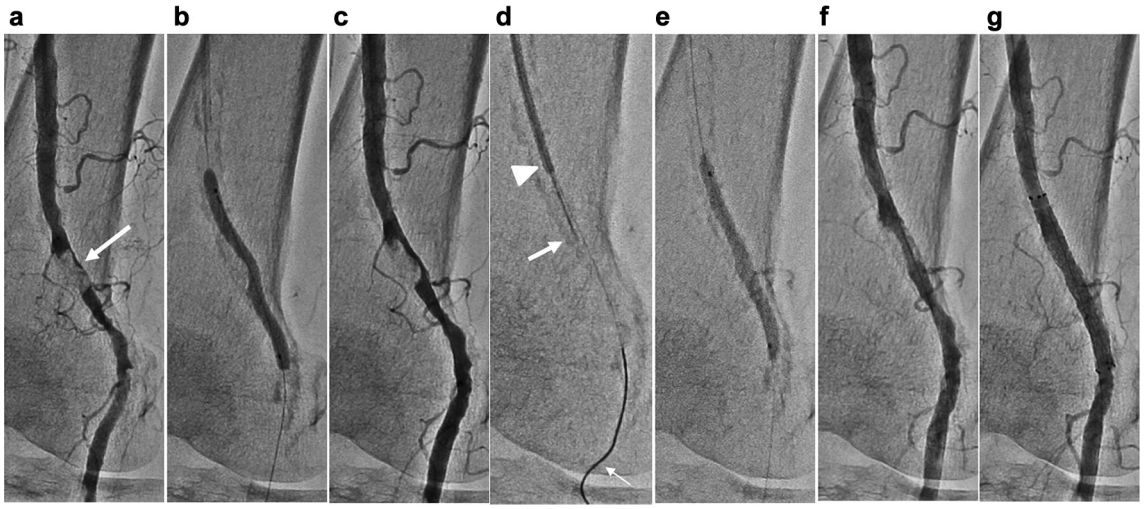

Fig. 1 **a** Diagnostic angiography showing subtotal occlusion with severe underlying eccentric calcification in the femoropopliteal artery (arrow). **b** Following advancement of a 0.014-inch hydrophilic guidewire, the lesion was well dilated at 14 atmospheres with a 3.0 × 40 mm semi-compliant balloon. **c** The underlying calcified lesion eventually caused balloon rupture and significant recoil. **d** The PICKING technique. Using the parallel-wire method, the calcified lesion was cracked longitudinally with the tail of a 0.025-inch guidewire (thick arrow) in a straight configuration supported by a 5-Fr JR catheter (arrowhead), with the initial 0.014-inch guidewire left in place as an anchor (thin arrow). **e** Balloon angioplasty with a 4.0 × 40 mm balloon. **f** A significant decrease in the initially significant recoil. **g** Final angiography showing excellent revascularization

Compliance with ethical standards

Conflict of interest We have no conflicts of interest.

References

1. Kawarada O, Noguchi T, Yasuda S. Longitudinal cracking with a guidewire tail for extremely calcified lesions in infrainguinal arteries: PICKING technique. Cardiovasc Interv Radiol. 2018;41:313–6.
2. Castronuovo JJ Jr, Adera HM, Smiell JM, Price RM. Skin perfusion pressure measurement is valuable in the diagnosis of critical limb ischemia. J Vasc Surg. 1997;26:629–37.