Management of the Limitations in Low-Speed Rotational Transluminal Angioplasty: Technical Note

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Abstract. The low-speed rotational transluminal angioplasty catheter system (ROTACS) is a recently available device for recanalization of occlusions prior to balloon angioplasty. The presence of large collaterals originating just proximal to the occlusion with an acute angle, and insufficient space between the puncture site and the occlusion for placing an introducer sheath are reported to be limitations for ROTACS. To avoid the rotating catheter entering the collateral, we propose a technique to create a pilot inlet on the proximal aspect of the occlusion. This technique was applied successfully in 4 patients. A contralateral approach was used in 3 patients, in whom an ipsilateral access was not possible because of the insufficient space to place an introducer sheath.

Key words: Rotational angioplasty—Iliac—Femoral—Popliteal—Limitations

Material and Methods

The low-speed rotational transluminal angioplasty catheter system (ROTACS) has been described as an alternative technique for recanalization of chronic peripheral artery occlusions [1, 2]. Although it is successful in most of the occlusions, ROTACS also has some reported limitations such as calcified occlusions, insufficient space for the introducer sheath between the puncture site and the lesion, and the presence of large collaterals originating just proximal to the occlusion [3]. We describe two approaches to overcoming some of these limitations.

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Fig. 1. Digital subtraction angiogram shows 7 cm-long occlusion in the left superficial femoral artery and acute angled large collaterals originating just proximal to the occlusion (A). The lesion was recanalized following the creation of an inlet (B).

Fig. 2. In a 7 cm-long left external iliac artery occlusion that had insufficient space to place an introducer sheath ipsilaterally, contralateral antegrade approach was used for recanalization (A). After the successful recanalization and the balloon angioplasty minimal irregularities were observed, to prevent reclosure, two intravascular stents were implanted in an overlapping fashion. Follow-up angiographic examination in the third month control showed patency of the vessel (B). The patient is still asymptomatic after 7 months.