

Manual straightening of a brachial loop — a potential solution for challenging anatomies

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DOI: 10.33963/KPa2022.0074

Received:

January 4, 2022

Accepted:

March 22, 2022

Early publication date:

March 22, 2022

Radial access is a gold standard for percutaneous coronary interventions (PCI) associated with a lower risk of access site complications and improved clinical outcomes compared to femoral access [1]. Importantly, anatomical circumstances may be encountered requiring cross-over to the contralateral radial artery or femoral artery, and arterial loops are one of the reasons for the potential need for access site conversions [2–4]. Herein we present a patient with a brachial loop successfully straightened by simple manual maneuvers which allowed for completing the procedure from the initially chosen radial route.

A 63-year-old male patient presenting with unstable angina was admitted for an urgent coronary angiography. Based on the patient's medical history, he had undergone PCI 1 year before the present admission. The previous procedure had been performed *via* the femoral artery, but the patient did not recall any specific reason for this approach. It cannot be ruled out that at that point in time, the brachial loop had resulted in obtaining femoral access; however, this is largely a speculative notion.

The present procedure was performed *via* left radial access. During a standard 0.035 in. J-tip wire advancement, resistance was met at the level of the mid portion of the patient's arm. Immediate brachial angiography was performed which revealed a loop in the patient's brachial artery (Figure 1A). It was impossible to cross the loop with a standard 0.035 in. J-tip wire. Subsequently, a successful attempt to cross the loop with a 0.014 in. coronary guidewire (BMW Universal II, Abbott Vascular, Santa Clara, CA, US) was undertaken (Figure 1B). Then, the loop was crossed with a 5 F Judkins right diagnostic catheter.

Unfortunately, further advancement of the latter was not possible since it was causing severe pain in the patient's arm secondary to the tension applied by the catheter on the brachial loop (Figure 1C).

The decision was made to overcome the obstacle by straightening the loop manually. This was successfully achieved by fluoroscopy-assisted external manual compression of the loop by the operator's left hand with a simultaneous pulling back the catheter with the right hand (Figures 1D–E, Supplementary material, Video S1). The loop was straightened, and right coronary angiography was performed. Then, diagnostic catheter exchange was made over the standard 0.035 in. J-tip wire to keep the loop straightened and to facilitate left coronary angiography. Furthermore, following the diagnostic catheterization, ad hoc PCI of the left circumflex artery was performed using a 6 F EBU guiding catheter. The procedure was successfully completed without any resistance or pain, and the further hospital stay was uneventful.

This is the first reported case demonstrating that manual straightening of a brachial loop — an anomaly for which prevalence data are scarce and estimated to be present in 0.2% of patients — might be a feasible method of dealing with this anatomical obstacle, particularly for loops which preclude completing the procedure despite being crossed with a catheter [2]. The maneuver can be also used in radial loops as suggested by anecdotal and unpublished data. Due to its simplicity, the technique should be considered among others in the armamentarium of interventional cardiologists negotiating with these anatomical obstacles [5].

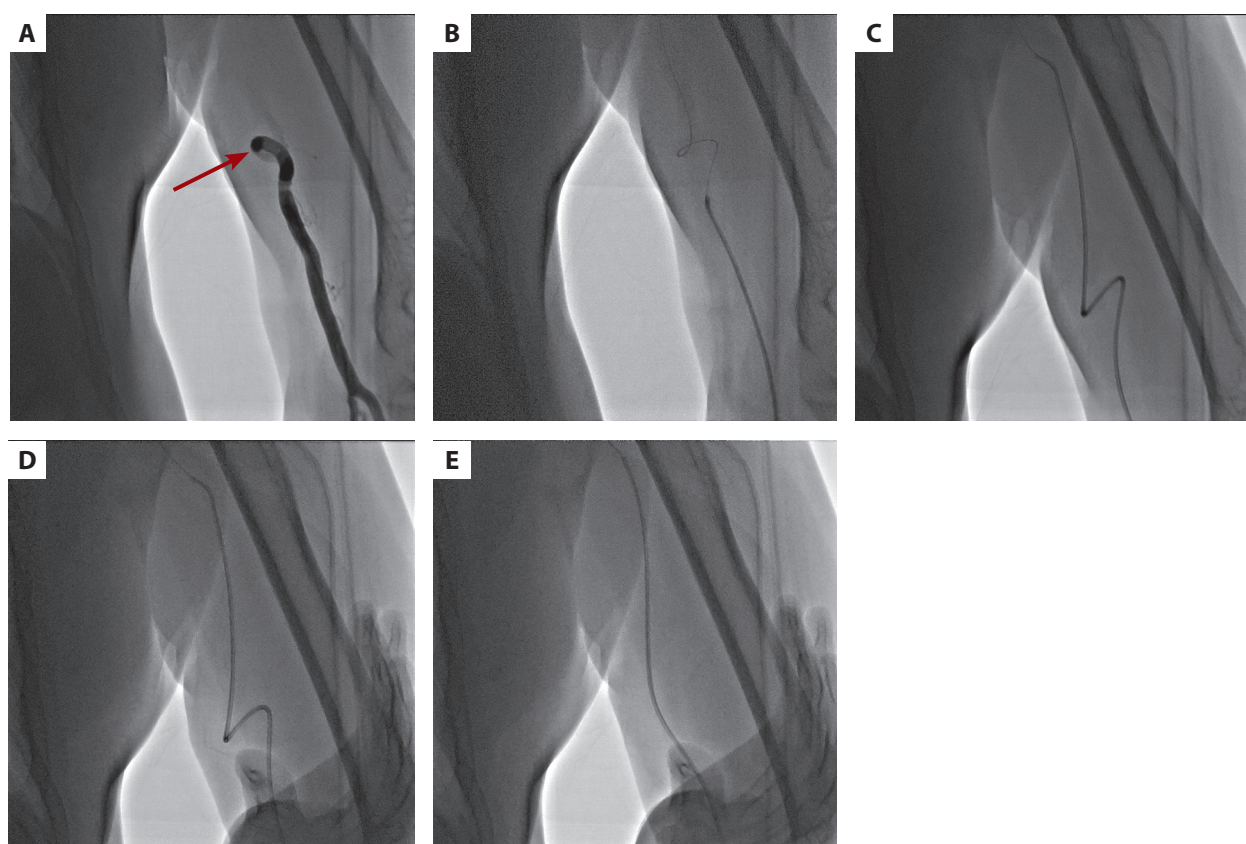


Figure 1. **A.** Brachial angiography demonstrating a loop in the mid portion of the vessel (the arrow). **B.** The brachial loop crossed with a coronary guidewire. **C.** The brachial loop crossed with a 5 F Judkins right diagnostic catheter. **D, E.** Straightening of the brachial loop by manual compression of the latter with simultaneous pulling back of the catheter

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

Article information

Conflict of interest: None declared.

Funding: None.

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