Case report

Collateral arterial formation in a severed brachial artery causing difficult transradial access during percutaneous transluminal coronary angioplasty

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In this article, we describe a 49-year-old patient who underwent percutaneous coronary intervention for a non-Q wave myocardial infarction via a transradial approach. The procedure was technically difficult, and the following fluoroscopic image was obtained soon after radial arterial puncture (Figure 1).

Further questioning revealed that the patient suffered a fall in 1975 while working in Liberia as an engineer. He fell from an 80-feet crane and sustained multiple fractures and soft tissue lacerations including the one below his right arm (Figure 2). He did not receive any surgical intervention to his limb. Despite the abrupt interruption of the brachial artery, necrosis of the limb did not occur.

Furthermore, the patient describes his blood pressure always being recorded at the left cubital fossa as physicians could not auscultate Korotkoff sounds at the level of the right brachial artery.

Due to the brachial vascular anomaly, which could not be negotiated, it was decided to proceed with percutaneous coronary intervention via a femoral approach. However, this also proved technically difficult as the patient had fractured his right hemipelvis 3 years before, which required surgical fixation (Figure 3).

Successful primary coronary intervention was eventually achieved by a left femoral approach.

Percutaneous transluminal coronary angioplasty is generally performed using a transfemoral approach because of the was eventually achieved via a left femoral approach and ease of vascular access and the larger calibre of the femoral artery. Advances in the miniaturization of angioplasty equipment enable an alternative approach via the radial artery. Since it limits wound bleeding complications, especially in patients receiving intensive anticoagulation, it has proven valuable. In addition, it has undoubted advantages: patient comfort.

Figure 1. Severed brachial artery, and vascular flow maintained via a newly formed laterally positioned highly tortuous collateral artery. It was not possible to advance the catheter through the tortuous collateral vessel.
is improved and early ambulation and a shorter hospital stay are facilitated.\textsuperscript{1,5} Transradial coronary angiography is nonetheless technically more demanding than transfemoral coronary angiography. The technique also has limitations, including the need to demonstrate a dual palmar vascular supply, a higher procedural failure rate and a prolonged procedural time.

This case highlights the technical difficulties of obtaining vascular access for primary coronary intervention in patients who have sustained soft-tissue, vascular and bony trauma. It also demonstrates the technical difficulties the operator faces in negotiating newly formed tortuous collateral vessels.

\textit{Conflict of interest:} None declared.

\textbf{References}


