Case Report

Bilateral Radial Artery Pseudoaneurysms Following Arterial Cannulation: A Rare Case Report

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Abstract

The use of arterial cannulae for blood pressure monitoring and repeated arterial blood gas sampling is increasing. The placement and maintenance of such cannulae is not without complication. To our knowledge, a case of synchronous bilateral radial artery pseudoaneurysms is a very rare presentation and only couple of cases are reported in the literature.

Key Words: Pseudoaneurysm, radial artery, surgery

Introduction

The use of arterial cannulae for blood pressure monitoring and repeated arterial blood gas sampling is increasing. The placement and maintenance of such cannulae are not without complication. To the best of our knowledge, a case of synchronous bilateral radial artery pseudoaneurysms is a very rare presentation and only couple of cases is reported in literature.

Case Report

A 24-year-old female, who had required 21 days' ventilatory support to manage peripartum fulminant hepatic failure, was referred for a vascular surgical opinion of bilateral pulsatile swellings over both wrists. While in Intensive Care Unit, she had alternate left and right 20 G radial arterial cannulae, each for 7 days. She was referred 8 days after removal of a second left radial arterial cannula.

Over a period of days, before surgical consultation, the swellings over both wrists expanded rapidly to 3 cm diameter, resulting in pain due to increasing pressure over the overlying skin [Figure 1]. Allen's test suggested bilateral radial dominance. Preoperative arteriography confirmed pseudoaneurysm of the radial artery on both wrists [Figure 2]. Immediate repair involved elliptical incision over the skin, resection of the pseudoaneurysms and end-to-end reconstruction of the radial artery on the right side, and repair with an interposition vein graft on the left side [Figures 3 and 4]. Postoperative recovery was uncomplicated [Figure 5].

Discussion

The complications of radial arterial puncture include thrombosis, hemorrhage, and pseudoaneurysm formation.[1] Pseudoaneurysms are caused by a perforation of the arterial wall followed by the development of an enlarging hematoma. The hematoma, surrounded by connective tissue, undergoes organization and central liquefaction

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Figure 1: Patient with bilateral radial artery pseudoaneurysms (wrist)

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How to cite this article: Singh D. Bilateral Radial Artery Pseudoaneurysms Following Arterial Cannulation: A Rare Case Report. Indian J Vasc Endovasc Surg 2016;3:104-6.

Received: April, 2016. Accepted: June, 2016.
Singh: Bilateral radial artery pseudoaneurysms

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Indian Journal of Vascular and Endovascular Surgery | Jul-Sep 2016 | Issue 3 | Volume 3

vascular reconstruction is necessary. This is achieved by end-to-end anastomosis or an interposition vein graft.

Before cannulation, the arterial supply to the hand should be assessed using Allen’s test, whereby both the radial and ulnar arteries are compressed at the wrist, the hand is blanched by direct pressure or clenching of the fist, and each vessel is released to observe capillary return. If the hand remains blanched for longer than 15 s during occlusion of the radial artery, ulnar flow is deemed insufficient and radial artery cannulation should not be attempted. Vigilance in aseptic technique for arterial puncture and pressure over the vessel following cannula removal should reduce the risks of wound infection, hematoma formation and subsequent development of a pseudoaneurysm; performing Allen's test before cannulation may reduce the need for vascular reconstruction when simple arterial ligation may suffice.

Financial support and sponsorship

Nil.
Conflicts of interest
There are no conflicts of interest.

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