What is your diagnosis and which treatment modality should be chosen for this patient?

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Answer: A

Iatrogenic femoral artery dissection is a rare complication of cardiac catheterization, which typically occurs at the time of needle puncture. Guidewire passage with the needle in a subintimal position dissects the artery. In most cases, iatrogenic dissections spontaneously heal because of the catheter passage in an opposite direction to the blood flow (1).

In this case, dissection of the right CFA was diagnosed by dye hang-up post-injection due to contrast staying in one of the layers between the arterial tunica intima and tunica adventitia. Because of the patient's good clinical situation and palpable distal pulses, treatment of enoxaparin sodium in therapeutic doses was started. A diagnostic angiogram, which was performed a few days later through the left CFA, revealed patent right femoral and right common iliac arteries (Fig. 2, Video 3). There was also an eccentric plaque on the right CIA, which might be ruptured and embolized by the advancement of the floppy guidewire. In such cases, the therapeutic options include surgical arteriotomy, thrombectomy, and in situ arterial fibrinolysis, but conservative treatment with watchful observation might be an option (1, 2). Stenting was planned for this eccentric plaque, but the patient refused any other intervention.

Arterial perforation was ruled out because no extravasation was observed. Guidewire perforations of CFA itself are usually of little consequence because they are typically small and rarely result in significant bleeding. There was also no simultaneous contrast opacification of the right common femoral vein for the diagnosis of arteriovenous fistul (AVF). AVFs often originate from a puncture below CFA. Iatrogenic AVFs are usually asymptomatic and tend to spontaneously close in nearly 40% of cases (2).

The catheter-induced accordion effect, which is associated with mechanical distortion of a particularly tortuous vessel resulting in sequential, discrete, eccentric pseudo lesions, was excluded after administering intra-arterial nitroglycerin. It is generally seen when blood vessels, particularly soft, highly tortuous vessels, are linearized with a stiff guidewire. Placing the floppy segment of the guidewires at the site of the accordion effect or withdrawal of the diagnostic catheters can solve this problem (3).

In the presence of atherosclerotic disease, arterial dissection, atheromatous plaque disruption, and distal embolization into the peripheral arteries, which is a well-known but an under-recognized phenomenon, can occur because of the use of coronary guidewires. The clinicians should pay careful attention to resistance while introducing the guidewires. In case of resistance, the other access sites, such as contralateral femoral artery or radial artery, should be used. This case also highlights the importance of a careful clinical examination and angiographic assessment for the prevention of unnecessary and more importantly harmful vascular interventions.

Figure 2. Patent right femoral and right CIAs with an eccentric plaque on the right CIA

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Video 1. Control arteriography before the procedure.
Video 2. Severe occlusion of the right CFA and right CIA.
Video 3. Patent right femoral and right CIAs with an eccentric plaque on the right CIA.

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