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# A Posttraumatic Pseudoaneurysm of the Radial Artery is a uncommon Complication of an Arteriovenous Fistula for Hemodialysis: About a Case

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**Abstract** **Case Report**

The occurrence of a radial artery pseudoaneurysm following puncture of the vascular access site is an unusual iatrogenic condition. We report here the case of a 29-year-old patient, chronic hemodialysis, on a left radio-radial arterio-venous fistula, admitted for the management of a pseudoaneurysm of the radial artery, The clinical diagnosis was evoked in front of a painful beating and pulsatile mass confirmed by echodoppler, the treatment was surgical with flattening of the false aneurysm and closing of the orifice of the supply. Hence the importance of preventing false aneurysms by regular clinico-radiological monitoring of the arteriovenous fistula.

**Keywords:** Pseudoaneurysm, Radial Artery, Arteriovenous Fistula.



## INTRODUCTION

The surgical creation of a native arteriovenous fistula causes the dilation of an easily puncturable superficial vein; it is a vascular approach of choice because of its longevity. Conversely, arteriovenous bypass with interposition of a prosthesis is quickly complicated by a stenosis of its venous anastomosis [1]. However, a number of complications can arise. These are the most frequent stenosis and thrombosis [2], or more rarely arterial false aneurysms, which occur on old fistulas following an accidental puncture. pseudoaneurysm is a rare presentation of an iatrogenic complication of arteriovenous fistula.

## CASE REPORT

This is a 29-year-old patient with a history of arterial hypertension under treatment, terminal chronic renal failure, on hemodialysis for 9 years, and a total thyroidectomy. She presented to the emergency room with a painless mass in the left forearm. His story dated back 15 days before his admission following an arterial puncture at the site of the fistula. The clinical examination found a beating renitent mass of 5 cm in the left forearm on the path of the left radial artery (Figure 1). The left radial pulse was felt and regular. Arterial echo-Doppler shows the presence of a hypoechoic formation in contact with the radial artery, well limited with a circulating medial portion and a lateral thrombosed portion. This formation measured 57 mm by 36 mm long axes (Figure 2). The diagnosis of a pseudoaneurysm of the left radial artery was retained.

The surgical indication consisted of flattening the pseudoaneurysm fed by the radial artery with closure of the feeding orifice by 2 hemisurgies (Figure 3) with good clinical evolution postoperatively.

**Figure 1: Aneurysmal mass in the left forearm**

**Figure 2: Arterial Echo-doppler images a showing the presence of a hypoechoic formation in contact with the radial artery**

**Figure 3: Flattening the false aneurysm with closure of the feeding orifice by two hemisurgies**

## DISCUSSION

Two main mechanisms are involved in upper limb pseudoaneurysm: penetrating trauma and repetitive strain injury [3].

Several types of aneurysms can develop complicating an arteriovenous fistula for hemodialysis, either on the arterial side, anastomotic or along the draining vein. Some are true arterial or venous aneurysms, others are false aneurysms. A pseudoaneurysm arterial can be defined by the formation of a pulsating and encapsulated hematoma, in communication with the lumen of a perforated vessel. Its origin is diverse but the majority of cases are associated with a traumatic event hemodialysis [4].

The incidence of pseudoaneurysm in the artery of the upper limbs is lower than that of the lower limbs. Pseudoaneurysms can be seen in penetrating trauma in patients of any age or location [5].

In a retrospective study of the complications having occurred for 31 arteriovenous fistulas performed in 31 patients, three pseudo-aneurysms and a single true aneurysm, that is 12.90% of all complications and 2% of all arteriovenous fistulas [6].

The brachial artery is not spared from this iatrogenic complication; the example of a case of a patient on hemodialysis with a non-superficialized humero-basilic fistula, complicated by a false aneurysm of the brachial artery following a puncture for dialysis has been described [7]. The treatment is surgical, and the action to be taken depends on the seat of the pseudoaneurysm in relation to the arteriovenous fistula ranging from simple flattening with closure of the feeding orifice, to flattening with a graft [8].

Doppler ultrasound is an important tool for screening because it allows monitoring the integrity of the continuity of the vessel and highlighting the presence of the false lumen so it establishes an early diagnosis of the false aneurysm with rapid management and simple [9], and consequently preserve the native fistula for hemodialysis.

## CONCLUSION

The diagnosis of a pseudoaneurysm of the radial artery is easy in front of a painful pulsating tumefaction next to a vascular path, with an ultrasound result in favor. A delayed diagnosis can induce serious complications such as thrombosis of the arteriovenous fistula. Therapeutic management is essentially surgical.

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**Patient Consent:** Consent for publication was obtained.

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