effects (1, 2). The effects of cannabis are primarily mediated by the activation of cannabinoid receptors, which are present in brain, heart, blood vessels, spleen and immune system (1,2). Cannabis increases sympathetic activity while decreasing parasympathetic activity, producing tachycardia and increased myocardial contractility (4-6). Additionally, smoked cannabis is associated with an increase in carboxyhemoglobin, resulting in decreased oxygen-carrying capacity (4-6). Therefore, cannabis associated ACS may result from increased oxygen demand not met by a myocardial supply of oxygen (4-6). These adverse hemodynamic changes due to cannabis smoking may lead to plaque rupture in vulnerable individuals culminating in the ACS and sudden death (4-6). The ACS has also been reported in the presence of normal coronary arteries suggesting coronary vasospasm (4-6). Sildenafil citrate alone can cause mean peak reductions in systolic/diastolic blood pressure that are not dose related, whereas the heart rate is unchanged (3). Therefore, these adverse hemodynamic changes, particularly in association with aggravating factors such as decreased blood pressure due to sildenafil citrate may explain the occurrence of symptoms and myocardial ischemia in myocardial bridge.

## Conclusion

Our case may suggest that coronary spasm in association with decreased blood pressure due to sildenafil citrate and myocardial bridge was the cause of the ACS in the absence of predisposing causes for thrombosis.

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# A case of radial arteriovenous fistula during coronary angiography

*Koroner anjiyografi esnasında oluşan radiyal arteriyovenöz fistül*

## Introduction

An arteriovenous fistula (AVF) is a complication after transradial approach and only three cases have been reported (1-3). All these cases were treated surgically.

We report a case of radial AVF, which developed during transradial coronary angiography and closed spontaneously during 2 months of follow- up period.

## Case Report

A 62-year-old woman was referred to our hospital due to acute coronary syndrome for coronary angiography. Right radial approach was the route for coronary angiography. After the completion of the left coronary system angiography, we were unable to selectively engage the right coronary system with the 5F right Judkins catheter. At the first hand, we were satisfied with the unselective right coronary views. However, the patient`s clinical condition changed our opinion and we intended to use the 5F right Amplatz catheter. We introduced the 0035 guidewire again and tried to advance the wire. However, the patient became severely painful. An angiogram of the sheath revealed an AVF between the right radial artery and the adjacent vein opening up to the cephalic vein (Fig. 1, 2. Video 1, 2. See corresponding video/movie images at www.anakarder.com). The procedure was discontinued. After the consultation with the vascular surgeon and radiology consultant, it was agreed upon that the patient should be followed up with a vascular ultrasound. One week after the procedure, the right upper vascular ultrasound scan also revealed the AVF between the proximal right radial artery and the adjacent vein opening up to the cephalic vein. The peak systolic and diastolic flow rate in the fistula tract was measured as 53 cm/sec and 17 cm/sec, respectively (Fig. 3). Two months later the vascular ultrasound showed no sign of the fistula (Fig. 4).

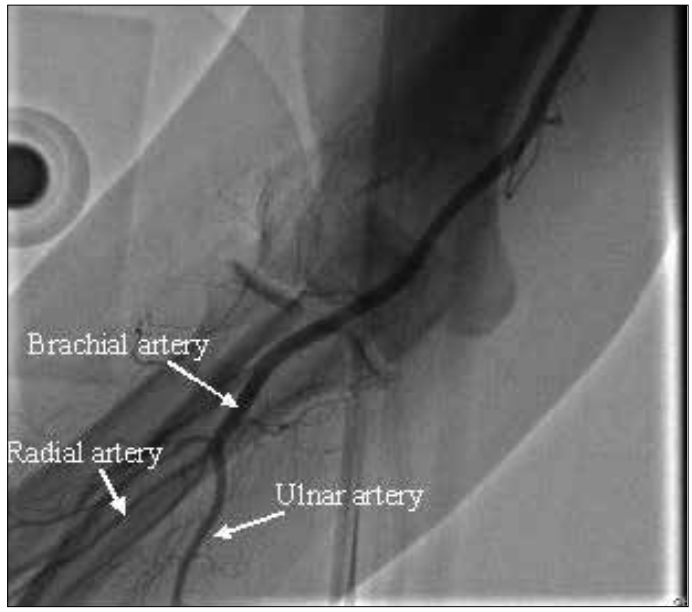


**Figure 1. Normal anatomy of the forearm arteries before angiography**

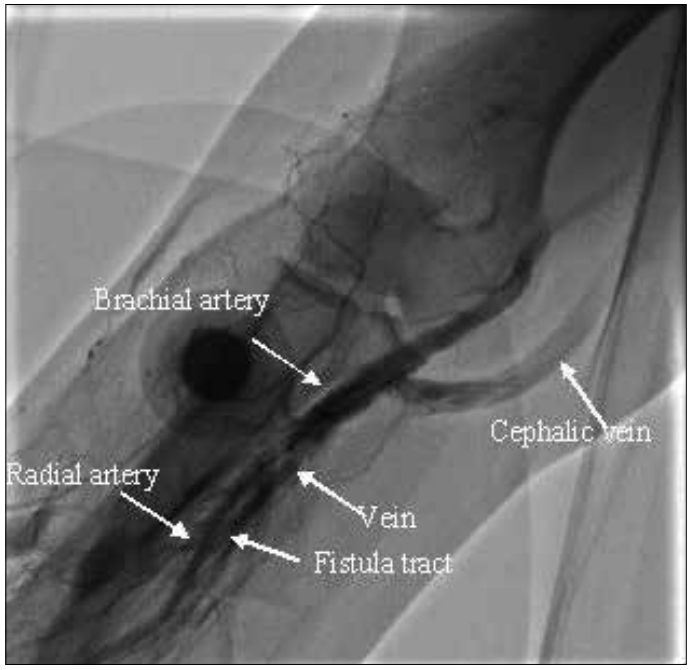


**Figure 2. The fistula tract between the radial artery and adjacent vein, which opens up to the cephalic vein**

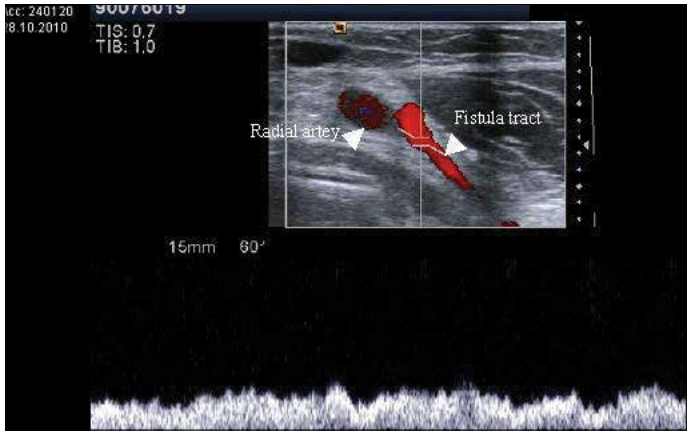


**Figure 3. The presence of the fistula shown by Doppler ultrasonography**

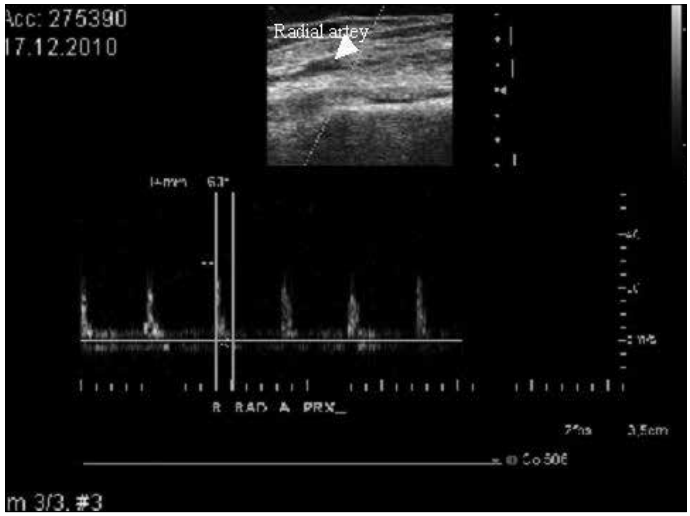


**Figure 4. The disappearance of the fistula after two months**

## Discussion

An AVF is an abnormal connection between an artery and a vein. The incidence of iatrogenic AVF is around 0.3% in patients undergoing transfemoral coronary procedures (4). The transradial approach is associated with fewer vascular access complications than the transfemoral approach (5). Furthermore, an AVF of the radial artery is rare and only three cases have been reported so far.

Three different treatment strategies are currently recommended to heal femoral iatrogenic AVF. These are surgical repair, implantation of covered stents, and ultrasound guided compression. Among them, surgical repair is indicated for patients with iatrogenic AVF (6). However, there is no clear-cut information how to treat radial iatrogenic AVF. All three patients in the literature with iatrogenic AVF were treated surgically. Because of the reluctance of the radiology consultant for an ultrasound guided compression, our patient received only periodical ultrasonographic follow up. During this follow- up, we observed that the AVF disappeared spontaneously. Based on this experience, it seems conceivable to follow up these patients at least for 2 months with ultrasonography.

## Conclusion

Following the patient ultrasonographically for at least two months may be an option in the treatment of an iatrogenic radial AVF.

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**Video 1.** The video view of the radial artery before the introduction of the guidewire and catheter
**Video 2.** The video view of the radial artery after the left system coronary angiography

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