

Percutaneous Coronary Angiography and Intervention via Transpalmar Access for the First Time in Turkey

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Abstract

Unstable angina is common in ischemic heart diseases. Patients with unstable angina undergo coronary angiography to detect lesions that may require treatment. Coronary angiography can be performed through several ways of arterial access. Radial access is the most commonly used method. We report a 71 year old male patient who presented with chest pain due to unstable angina pectoris. Coronary angiography was performed by a new technique, transpalmar access through superficial palmar branch of the ulnar artery. The patient was treated successfully with percutaneous coronary intervention of the left anterior descending artery. In our case, transpalmar approach was performed for the first time in Turkey.

Keywords: Coronary angiography, transpalmar access, ulnar artery

INTRODUCTION

Ischemic heart disease is the most common cause of death, and its frequency has been rising.^[1] Unstable angina pectoris is notable in ischemic heart diseases.

Unstable angina is defined as myocardial ischemia at rest or minimal exertion in the absence of cardiomyocyte necrosis.^[2] Invasive coronary angiography (CAG) is the main treatment modality for unstable angina pectoris.

In this case report, we present transpalmar approach, a novel technique for this procedure.

CASE REPORT

A 71-year-old male patient presented to our cardiology outpatient clinic with substernal crushing chest pain that started 3 days earlier. His chest pain aggravated during exercise and relieved after rest and with sublingual short-acting

nitroglycerine. His medical history revealed hypertension, and he has been smoking one pack of cigarettes daily since the age of 16. Physical examination on the admission was unremarkable. Blood pressure was 150/95 mmHg, and heart rate was 83 b/m.

The admission 12-lead electrocardiogram (ECG) showed normal sinus rhythm with negative T waves from V3 to V6 leads. Transthoracic echocardiography demonstrated left ventricular ejection fraction of 63% and mild mitral insufficiency with Grade 1 diastolic dysfunction. Laboratory findings, including routine blood tests and serum electrolyte levels, were within normal limits. Troponin value was negative. Exercise ECG stress test was performed and was found positive for inducible ischemia. In view of the ongoing chest pain and positive stress test, an invasive CAG was scheduled. The patient did not accept CAG via femoral approach because

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he suffered from lumbalgia due to a known lumbar hernia. In the pre-CAG examination, radial arteries were palpated with weak end pulses. Therefore, the patient underwent CAG by a new technique, transpalmar access through superficial palmar branch of the ulnar artery [Figure 1a]. Before the procedure, a written and informed consent was taken from the patient. The CAG revealed an 80% stenosis of the left anterior descending artery (LAD) [Figure 1b]. Percutaneous coronary intervention (PCI) was performed by stenting the LAD [Figure 1c-e]. Both circumflex and right coronary artery had normal flow. No periprocedural complications occurred, and the patient was discharged after about 6 h on the same day.

In 15 days following the procedure, on physical examination, the transpalmar access area was completely healed, and the patient had no complaints [Figure 1f].

DISCUSSION

CAG can be performed through several ways of arterial access. In 1953, brachial artery was the first way of access to be used.^[3,4] Currently, radial access is the most commonly used method. It is recommended over the transfemoral access in acute coronary syndrome if performed by experienced operators.^[5] Recent studies have shown that clinical complications are significantly reduced by upper limb approach. It is more comfortable for patients owing to early mobilization. Besides, local vascular complications occur less frequently.^[6] On the other hand, the risk of failure may be as high as 11% in some cases due to the smaller caliber, high anatomical variability, and susceptibility to vasospasm^[7,8] Therefore, other techniques have been developed lately. Transulnar access has been accepted as an alternative to the transradial approach, but the intention to

cause even less complications has kept the operators in search of a newer and better method. Thus, the first trans-snuff box approach was introduced by Kaledin *et al.* in 2014 and then transpalmar access by Roghani-Dehkordi in 2016.^[9,10]

In our case, transpalmar approach was performed for the first time in Turkey.

Rodgani *et al.* showed that hemostasis time was shorter in transpalmar access compared to other methods because the access artery is of a smaller caliber and more superficially located. Therefore, duration of hospitalization can be reduced by using this approach. In case of an access failure, a more proximal approach is still possible.

As the diameter of the ulnar artery is generally wider than that of the radial artery, catheter-induced spasm is less common.^[10] In addition, several studies have shown that vasospasm in radial or ulnar artery usually occurs in more proximal sites.

Possible complications of this procedure include ulnar nerve trauma, subcutaneous hemorrhage, hematoma, pseudoaneurysm, thrombus formation, and arteriovenous fistula. In order to prevent these complications, needle should be selected in proper size and insertion must be made with great care.^[11]

CONCLUSION

Transpalmar access is a novel alternative technique for patients undergoing CAG and PCI. Further studies must be carried out to develop this technique.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have

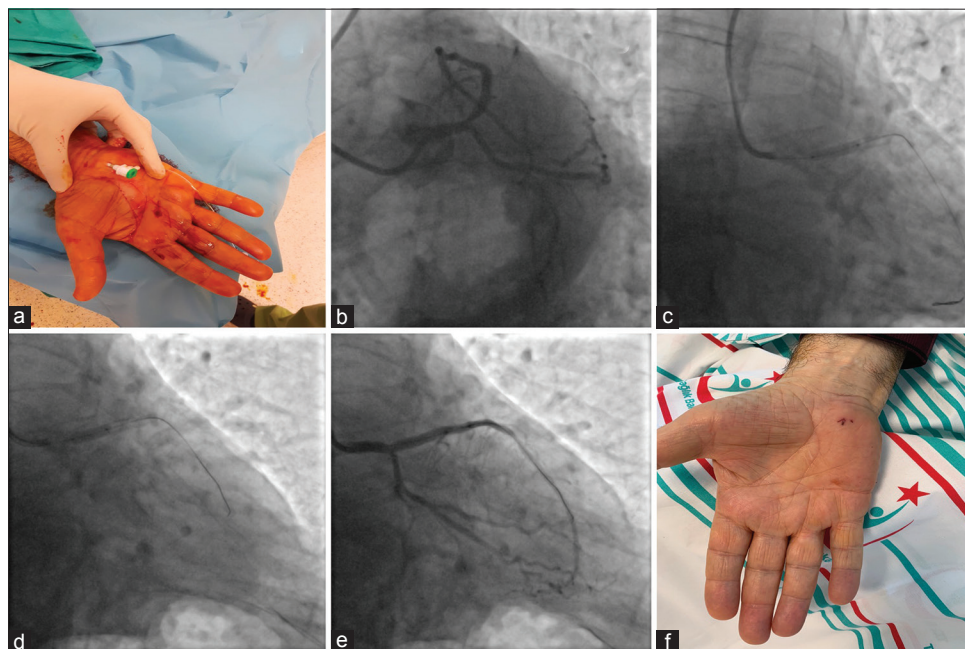


Figure 1: The patient underwent coronary angiography by a new technique, transpalmar access (superficial palmar branch of ulnar artery). Stent was implanted to the left anterior descending artery successfully. (a) Transpalmar sheath was inserted. (b) LAD stenosis was shown (spider view). (c-e) The stent was implanted to LAD successfully (anteroposterior caudal view). (f) Transpalmar access area was completely healed

given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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