

Procedural and clinical utility of transulnar approach for coronary procedures following failure of radial route: Single centre experience



Mansour Sallam^{a,*}, Adil Al-Riyami^a, Mohammad Misbah^a, Rashid Al-Sukaiti^b, Abdallah Al-Alawi^a, Aiman Al-Wahaibi^a

^a Medicine Department, Cardiology Unit, Sultan Qaboos University Hospital, Muscat

^b Radiology Department, Sultan Qaboos University Hospital, Muscat

^{a,b} Oman

Objectives: To assess the feasibility and safety of transulnar approach whenever transradial access fails.

Background: Radial access for coronary procedures has gained sound recognition. However, the method is not always successful.

Methods: Between January 2010 and June 2013, diagnostic with or without percutaneous coronary intervention (PCI) was attempted in 2804 patients via the radial approach. Transradial approach was unsuccessful in 173 patients (6.2%) requiring crossover to either femoral (128 patients, 4.6%) or ulnar approach (45 patients, 1.6%). Patients who had undergone ulnar approach constituted our study population. Selective forearm angiography was performed after ulnar sheath placement. We documented procedural characteristics and major adverse cardio-cerebrovascular events.

Results: Radial artery spasm was the most common cause of crossover to the ulnar approach (64.4%) followed by failure to puncture the radial artery (33.4%). Out of 45 patients (82.2%), 37 underwent successful ulnar approach. The eight failed cases (17.8%) were mainly due to absent or weak ulnar pulse (75%). PCI was performed in 17 cases (37.8%), of which 8 patients underwent emergency interventions. Complications included transient numbness, non-significant hematoma, ulnar artery perforation, and minor stroke in 15.5%, 13.3%, 2.2% and 2.2%, respectively. No major cardiac-cerebrovascular events or hand ischemia were noted.

Conclusion: Ulnar approach for coronary diagnostic or intervention procedures is a feasible alternative whenever radial route fails. It circumvents crossover to the femoral approach. Our study confirms satisfactory success rate of ulnar access in the presence of adequate ulnar pulse intensity and within acceptable rates of complications.

© 2014 King Saud University. Production and hosting by Elsevier B.V. All rights reserved.

Keywords: Coronary procedures, Ulnar, Radial, Femoral approach, Alternative, Feasible, MACCE

Disclosure: Authors have nothing to disclose with regard to commercial support.

Received 20 October 2013; revised 27 December 2013; accepted 3 January 2014.

Available online 6 February 2014

* Corresponding author. Address: Cardiology Unit, Department of Medicine, Sultan Qaboos University Hospital, P.O. Box 38, Al-Khod 123, Muscat, Oman. Tel.: +968 95620189; fax: +968 24141198. E-mail address: mansoursallam@yahoo.com (M. Sallam).

¹ Al-Azhar University, Cairo, Egypt.



P.O. Box 2925 Riyadh – 11461KSA
Tel: +966 1 2520088 ext 40151
Fax: +966 1 2520718
Email: sha@sha.org.sa
URL: www.sha.org.sa



1016–7315 © 2014 King Saud University. Production and hosting by Elsevier B.V. All rights reserved.

Peer review under responsibility of King Saud University.
URL: www.ksu.edu.sa
<http://dx.doi.org/10.1016/j.jsha.2014.01.003>



Production and hosting by Elsevier

Introduction

Transradial artery approach for coronary intervention has gained solid recognition as an alternative to the standard transfemoral artery approach. It is associated with significantly lower rates of local vascular complications, shorter hospital stay and greater comfort to the patients due to early mobilization [1–3]. However, access to the radial artery is not always successful, with reported crossover rates to other routes between 3% and 8% [4]. Failure to get radial access is mainly attributed to difficulty in puncturing the artery – chiefly due to arterial spasm and infrequently to presence of a radial loop – hypoplasia, or occlusion of the radial artery [5,6]. Transfemoral artery approach may result in major life or limb-threatening complications, and remains the leading cause of morbidity after cardiac catheterization [7]. Since the first description by Terashima et al. [8], the ulnar artery has become the alternative approach when the radial artery cannot be accessed or used [9,10]. The aim of this study is to assess whether the transulnar approach is a feasible and safe alternative whenever transradial approach fails.

Patients and methods

A prospective non-randomized study was carried out between January 2010 and June 2013. During that time, we performed 2804 diagnostic coronary angiographies with and without percutaneous coronary intervention (PCI) either via a right or left transradial approach. Transradial approach was unsuccessful in 173 patients (6.2%) necessitating crossover to either transfemoral approach (128 patients, 4.6%) or transulnar approach (45 patients, 1.6%). Our study population constituted transulnar approach patients. Selective forearm angiography was performed after ulnar sheath insertion in most of the patients. We documented procedural characteristics and major adverse cardio-cerebrovascular events. Informed consent was obtained from all patients, and we received the approval of our local ethical committee. Patients were prepared according to the American College of Cardiology/American Heart Association (ACC/AHA) task force on Cardiac Catheterization Laboratory Standards [11]. Routine laboratory investigations including urea and electrolytes, full blood counts, liver and renal function tests and coagulation profile were performed. The technique of radial and ulnar artery cannulation has been documented [12].

Diagnostic angiography of transradial and transulnar approaches were performed with a

List of abbreviations

ACS/NSTEMI	Acute Coronary Syndrome/Non ST segment Elevation Myocardial Infarction
ACC/ AHA	American College of Cardiology/American Heart Association
DAP	Dose Area Product
ECG	Electrocardiography
MACCE	Major Adverse Cardio-Cerebrovascular Events
PCI	Percutaneous Coronary Intervention
STEMI	ST segment Elevation Myocardial Infarction
TIG catheter	Tiger catheter

dedicated 6 French Cook radial sheath (micro-puncture radial artery access, William Cook Europe, Bjaeverskov, Denmark); a 5 French diagnostic TIG catheter (Terumo Corporation, Tokyo, Japan) for both left and right coronaries; and a 5 French pigtail catheter in case left ventriculography, aortography and/or non-selective renal angiography were required. We used various 6 French guiding catheters as Extra Backup, Judkins or Amplatz in case of intervention. A mixture of 100 µg glyceryl trinitrate and 2.5 ml verapamil was injected after sheath insertion followed by 5000 international units of unfractionated heparin through the sheath. One-milligram midazolam and 25 µg of fentanyl were given intravenously as per operator discretion depending on patient's clinical situation. The ulnar artery sheath was immediately removed at completion of the diagnostic and/or interventional procedure. Hemostasis was obtained by local compression using a tight pressure bandage for four hours. Patients were allowed to ambulate immediately unless their clinical status dictated otherwise. Only patients who experienced local vascular complications were subjected to Doppler ultrasound assessment for extravasation or deep hematoma. All patients were discharged four hours post diagnostic procedures, provided there were no symptoms or signs of hand and/or coronary ischemia, and that patients were clinically and hemodynamically stable. Most patients who underwent PCI were kept overnight for observation.

Inclusion criteria

We included all patients aged >18 years who were admitted for coronary angiography with or without intervention whose transradial approach was unsuccessful, and whose operator had chosen to cross over to transulnar approach.

Download English Version:

<https://daneshyari.com/en/article/2977764>

Download Persian Version:

<https://daneshyari.com/article/2977764>

[Daneshyari.com](https://daneshyari.com)