

# Incidence of Complications of Trans Radial Access for Coronary Intervention

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## Abstract

**Background:** Common site of coronary intervention is Femoral artery due to its larger diameter and ease of puncture but it had certain complications but due to certain complications Radial approach has paved its way with the progression of better and successful coronary interventions with less complications.

**Objective:** To check safety and observe complications from the radial approach in patients undergoing coronary intervention.

**Methodology:** Data of 100 patients who underwent PCI by trans-radial approach was collected. Study included the procedural success, vascular complications, major cardiac events and other associated complications during hospitalization.

After the informed consent was taken from the patient, few observations were made prior to the coronary intervention and a few complications were to be noticed peri-procedural and rest complications were observed after follow up of patient.

**Results:** A total of 100 consecutive patients were included in the study. Mean age of patients was Mean age of the patients was  $53.7 \pm 11.8$  years old. Gender distribution include 79% Male and 21% Female.  $53.65 \pm 11.84$  years. Hematoma (21%), Nausea/Vomit (31%), Pain at site of PCI (52%), Hand Ischemia (2%), major bleeding (1%) while 14% Minor bleeding and 7% Myocardial Infarction and no reported Deaths were detected from trans radial access during Percutaneous Coronary Intervention.

**Conclusion:** Tran's radial route is relatively safe and tend to have less complications than Trans femoral for PCI. The occurrence of less complications and early mobilization of patient makes trans radial ideal approach for PCI.

**Key words:** trans radial; complications; coronary intervention

## Objective

The aim of this study was to check safety and observe complications from the radial approach in patients undergoing coronary intervention.

## Introduction

Common site of coronary intervention is Femoral artery due to its larger diameter and ease of puncture but it had certain complications like bleeding, hematoma and delayed mobility [1-6].

With the progression of better and successful coronary interventions radial approach has paved the way with less complications especially when patients are taking prescribed anticoagulants, clopidogrel, aspirin and glycoprotein IIb/IIIa receptor inhibitors [7-10].

Campeau informed a success rate of 88% patients via radial approach without complications like vascular complications. It also increases the comfort of patient and less duration of stay in hospital [10-12].

Radial approach can be associated with a few problems from puncture, hemostasis or guide management, such as hematoma, pseudoaneurysm or perforation of the artery [13,14].

There are less number of complications observed via radial approach like bleeding, hematoma, nausea/vomiting, hand ischemia and revascularization. The use of non-surgical intervention is quite frequent.

Bleeding from the puncture site represents a leading concern after coronary stenting, sometimes it may be life-threatening and usually it prolongs the hospital stay. To prevent bleeding complications from the puncture site, the radial artery has been increasingly chosen as the route of choice for transradial approach [15,16].

## Material & Methodology:

### Study Design:

It was a cross sectional descriptive study.

**Settings:**

The survey was conducted in Gulab Devi Chest Hospital, Lahore

**Sampling Technique:** Simple Random sampling was used. The data was collected from patients who underwent trans-radial access for coronary intervention after Myocardial Infarction.

**Methodology:**

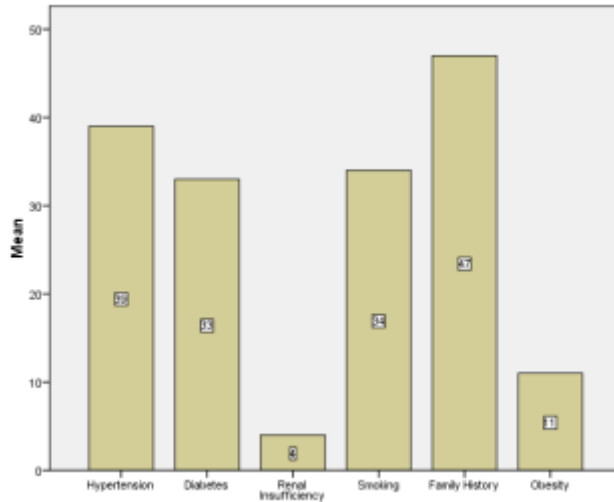
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**Results**

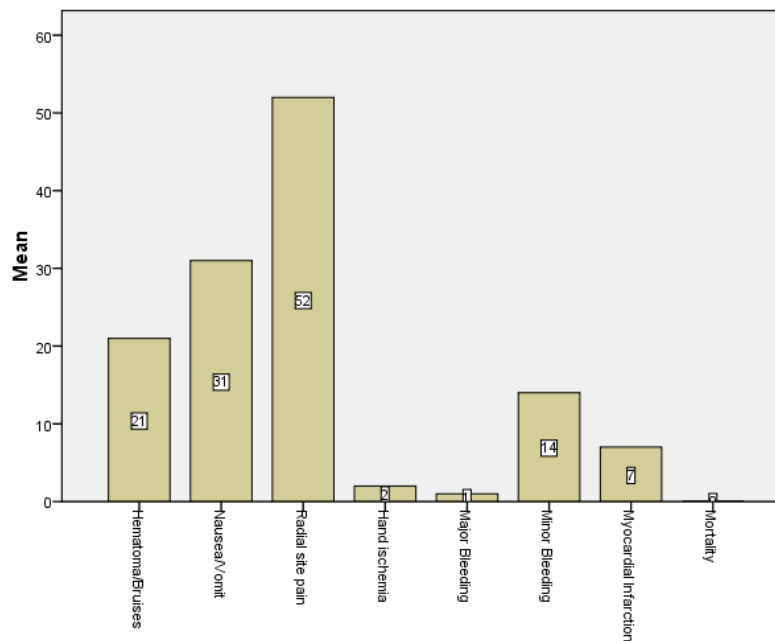
Mean age of the patients was  $53.65 \pm 11.844$  years. Gender distribution include 79% Male and 21% Female. Procedural success was achieved in 100% cases. Multivessel Percutaneous Coronary Intervention was done in 100% patients. Maximum Targeted lesions treated were associated with LAD (69.61%), RCA (42.22%), followed by LCX (33.72%) and LMS (3.17%). Associated Risk factors of the patients included hypertension 39%, Diabetic were 33%, Renal insufficiency 4%, Smoking 34%, Family history for Myocardial Infarction 47% and Obesity in 11%. There was no significant association observed between the risk factors and access to trans radial site as  $P > 0.005$ .



No case of vascular complications such as dissection, vascular perforation, radial artery occlusion were observed. Whereas, Hematoma or Bruising was observed in 21 patients, 31 Patients had nausea/vomiting. 52 patients had radial site pain after 24 hours of procedure, 2 patient

presented with Hand Ischemia, 14 cases of minor bleeding were observed whereas, only 1 case of major bleeding. There were periprocedural myocardial infarctions observed in 7 patients and No deaths reported.

Complications	Occurrence
Hematoma/Bruising	21
Nausea/Vomit	31
Radial site Pain	52
Hand Ischemia	2
Major Bleeding	1
Minor Bleeding	14
MI	7
Deaths	0



## Discussions:

Radial site comparatively offers a safer route regarding complications like another study conducted in order to access neurological complications [17], hematoma or spasm [18]. Hematoma was encountered frequently in 0.38% patients in another study [19] showing less incidence to this study.

No severe vascular complications like perforation, dissection or even occlusion were observed unlike [20],[21] attributed reason was prolonged increased pressure compression on the radial artery but in this study additionally, a few minor complications like radial site pain in almost half of the study patients, nausea/vomit in 21 patients, hand ischemia in 2 patient was observed that may have occurred due to prolong cannulation or probably patient had prior history for Raynaud's disease that was kept uninformed though its incidence is comparatively very rare among other studies [22]. Minor Bleeding may not be life threatening that is evident in radial access while femoral bleeding really can worsen due to high pressure of femoral artery that may later require blood transfusion [21].

There was reduction in major bleeding, shock corresponding trend for reduction in MI or deaths in this study and similar results were found in Jolly et al study [23].

Cardiac biomarkers (CK-MB) were determined to figure out the ratio of infarction during PCI which revealed 7% patients approximately like other studies [24,25,26,27]. That may be due to diffuse vessel intervention or involving Left Main stem.

## Conclusion

Trans radial route is relatively safe and tend to have less complications than Trans femoral for PCI. The occurrence of less complications and early mobilization of patient makes Trans radial ideal approach for PCI.

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