Transradial access for percutaneous coronary diagnosis and intervention remains relatively rare in the United States (less than 2 percent of cases), despite significantly lower bleeding complications, increased patient comfort and earlier ambulation compared with femoral access. The long learning curve involved in mastering the transradial approach has hindered domestic adoption of the technique. However, the Oregon Cardiology team at PeaceHealth Sacred Heart Medical Center has performed thousands of transradial access procedures over the past decade, with excellent outcomes and no serious complications. In the past five years, the team has completed 2,644 transradial procedures to great patient benefit.

**HOW IT WORKS**

Entry point for procedures is in the radial artery of the wrist instead of the femoral artery. The superficial location of the radial artery makes it an ideal target for percutaneous arterial access. The collateralization of the radial artery decreases the risk of ischemia, and there is no major adjacent nerve, minimizing risk of nerve damage.

Once venous access is obtained, a diagnostic catheter is advanced into the brachial, axillary and subclavian arteries with use of a guide wire and fluoroscopic guidance. Upon completion of angiogram, the catheter is withdrawn. If further intervention is necessary, a catheter can often be reintroduced through the same access point.

**Treatment Indications**

The transradial approach may be appropriate for a wider patient population, including:

- Morbidly obese patients
- Patients with severe peripheral vascular disease
- Patients on oral anticoagulation
- Elderly patients

**Patient Benefits**

- Painless, minimally invasive procedure with excellent outcomes.
- Increased patient safety due to substantial reduction in bleeding and vascular access complications.
- Procedures can be performed on out-patient basis, with discharge in two to three hours.
- No need for immobilization, which can substantially reduce back pain.
- Decreased time to ambulation.
**RESEARCH/EFFICACY**

- Transradial access reduces the risk of major bleeding by over 70 percent\(^5,6\), even among high-risk groups\(^7\).
- Groin complications have been the most common peri-procedural complication of cardiac catheterization\(^8\). Patients who experience bleeding complications and transfusions have a significantly increased risk of death\(^9\).
- Among patients who have had both femoral and transradial approaches, 80 percent are more likely to prefer the transradial procedure, while only 2 percent prefer the femoral\(^10\).

**ADDITIONAL TRANSRADIAL ACCESS PROCEDURES**

Should a patient require immediate intervention or therapy, several procedures can be performed through the same transradial access site, including:

- Diagnostic angiography
- Angioplasty
- Percutaneous stenting

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\(^4\) Cohen MG, Alfonso C. Starting a transradial vascular access program in the cardiac catheterization laboratory. J Invasive Cardiol 2009;21:Suppl A;11A-17A


\(^9\) Chase AJ, Fretz EB, Warburton WP, et al. The association of arterial access site at angioplasty with transfusion and mortality: The M.O.R.T.A.L. Study (Mortality benefit of reduced transfusion after PCI via the arm or leg). Heart 2008;94:1019-1025

\(^10\) Tremmel JA. Launching a successful transradial program. J Invasive Cardiol 2009;21:Suppl A;5A-10A

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**Case Study**

**Subject:** A 76-year-old man presented with angina. Patient had a femoral access stenting procedure in 2007 and was reluctant to undergo repeat groin puncture and long recovery period.

**Diagnosis:** Cardiologist David Saenger, MD, and patient’s wife convinced patient to submit to transradial access angiogram. During procedure, Dr. Saenger detected critical stenosis of the ramus intermedius branch of the left coronary artery (90 percent lesion).

**Treatment:** Cardiologist Dennis Gory, MD, performed the stenting the same day through the transradial access site.

**Outcome:** The patient was “completely surprised by how easy, simple and painless the transradial procedure was,” Dr. Saenger said. “He went from being unable to walk due to chest pain to feeling completely normal.”

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