Transradial Access Approach for Cardiac Catheterization

Based on an interview with Joseph Tuma, MD, interventional cardiologist at Rapid City Regional Hospital (Rapid City, South Dakota)*

Dr. Tuma is one of a growing number of interventional cardiologists who have adopted the transradial approach for interventional catheterization procedures. First introduced to the technique during his fellowship at Creighton University Medical Center, Dr. Tuma developed the transradial program at Rapid City Regional Hospital in 2006.

Why is transradial access your first choice for cardiac catheterization?

DR. TUMA: Although femoral access has been standard practice for more than 30 years, the procedure still has a 1 to 3 percent risk of vascular complications. In my opinion, transradial is safer and easier on the patient: it minimizes the risk of bleeding complications, even for patients on aggressive anticoagulant therapy; it has no weight-bearing restrictions, unlike the 10-pound limit after femoral procedures; and it requires a much shorter recovery period.

How does the transradial approach impact your clinical practice?

DR. TUMA: Of the 500+ angioplasty procedures I perform each year, roughly 84 percent are transradial access. There’s a sense of security with this procedure—the knowledge that I’m not putting my patients at risk for further complications. And high patient satisfaction has translated into a large number of referrals.

When you brought transradial procedures to Rapid City Regional Hospital, did you experience any resistance from staff or colleagues?

DR. TUMA: None at all. Right from the start, the entire staff was extremely receptive to the training, and now more than half the team uses the approach regularly. We’ve also trained our cath lab team, and our radiation technologists have been nationally certified in transradial access. It’s been a gradual evolution, but today, nearly all our new hires have been exposed to the technique.

Why do you consider the ACIST | CVi® Contrast Delivery System integral to your transradial procedures?

DR. TUMA: The ACIST power injector overcomes the limitations of hand injections. By giving you control over contrast delivery, you can decrease the number of dye injections you need. Also, the inherent clarity of the images—excellent opacification and visualization of the arteries—reduces the number of photos and radiation you need. In addition, the image quality allows you to use guide catheters as small as 5 French, which speeds up the patient’s recovery process.

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How do you determine which patients are appropriate for this procedure?

**DR. TUMA:** I believe that transradial should be our default approach—the access site of choice—for nearly all patients. Some exceptions are patients with limited collateral blood supply, faint pulse, abnormal Allen’s test or vascular spasm.

How has Rapid City Regional Hospital benefited since it began offering transradial access?

**DR. TUMA:** We have seen a decrease in vascular complications that saves the hospital thousands of dollars each year. In addition, the shorter recovery period opens up beds more quickly, allowing us to treat more patients per day. And because these patients require less monitoring, the staff can handle a larger patient load more easily. At the same time, the financial investment is minimal, limited to dedicated diagnostic and interventional catheters, tapered hydrophilic radial sheaths, and specialized radial access needles.

What are the risks of transradial access?

**DR. TUMA:** In my experience, the primary risks are thrombosis of the radial artery and radial artery spasm. I have had success in managing the risk for both using an anti-spasm cocktail which combines 100 mcg nitroglycerin, 2 mg verapamil and 3,000 units heparin. For interventions, we usually add bivalirudin as an antithrombin agent with standard dosing. For non-interventions, we give the patient an additional 2,000 to 3,000 units of heparin to prevent radial artery thrombosis. Through a combination of antispasmodic cocktail and the current sheaths available, occurrence of significant spasm is extremely rare.

Does your hospital have specific discharge guidelines for transradial patients?

**DR. TUMA:** The staff follows prescribed guidelines for transradial and femoral procedures. Transradial diagnostic angiograms require only 2 hours in recovery, compared to 4 to 6 hours for femoral diagnostic angiograms. For femoral interventions, patients are kept overnight, while patients recovering from transradial interventions can often be discharged that same day.

Do you have any insights for physicians new to transradial?

**DR. TUMA:** There is an initial learning curve—50 to 100 procedures—to develop familiarity with anatomic variances in the radial/ulna loop and how to manipulate the guide wires and catheters through the smaller and frequently more tortuous vessels. The key is to dedicate yourself to learning the basics: work with a mentor, attend workshops and access online tutorials. Stick with it, and utilizing transradial technique for access will become as second nature to you as femoral.

This publication is not intended as a substitute for proper training or consideration of individual patient risk.

**Important Product Information:**
The ACIST | CV® Contrast Delivery System is intended to be used for the controlled infusion of radiopaque contrast media for angiographic procedures. For additional product information, visit www.acist.com.