

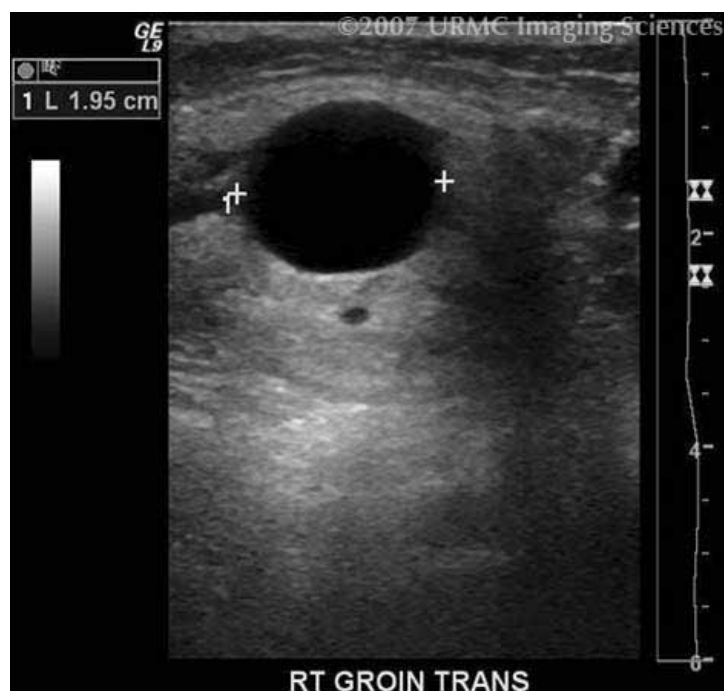
## Imaging Sciences Interesting Cases

### Case 17

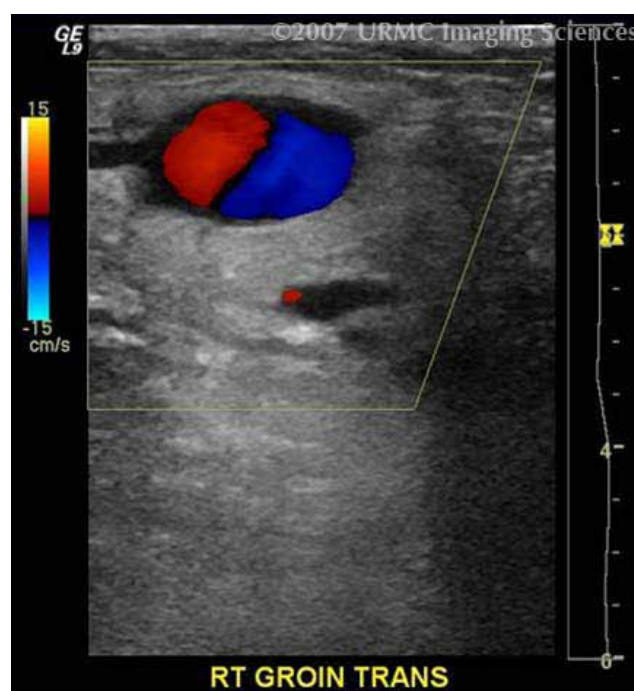
Scott Cassar, MD

**CLINICAL PRESENTATION:** Increased swelling over site of needle puncture in patient status post-cardiac catheterization for non-ST elevation MI.

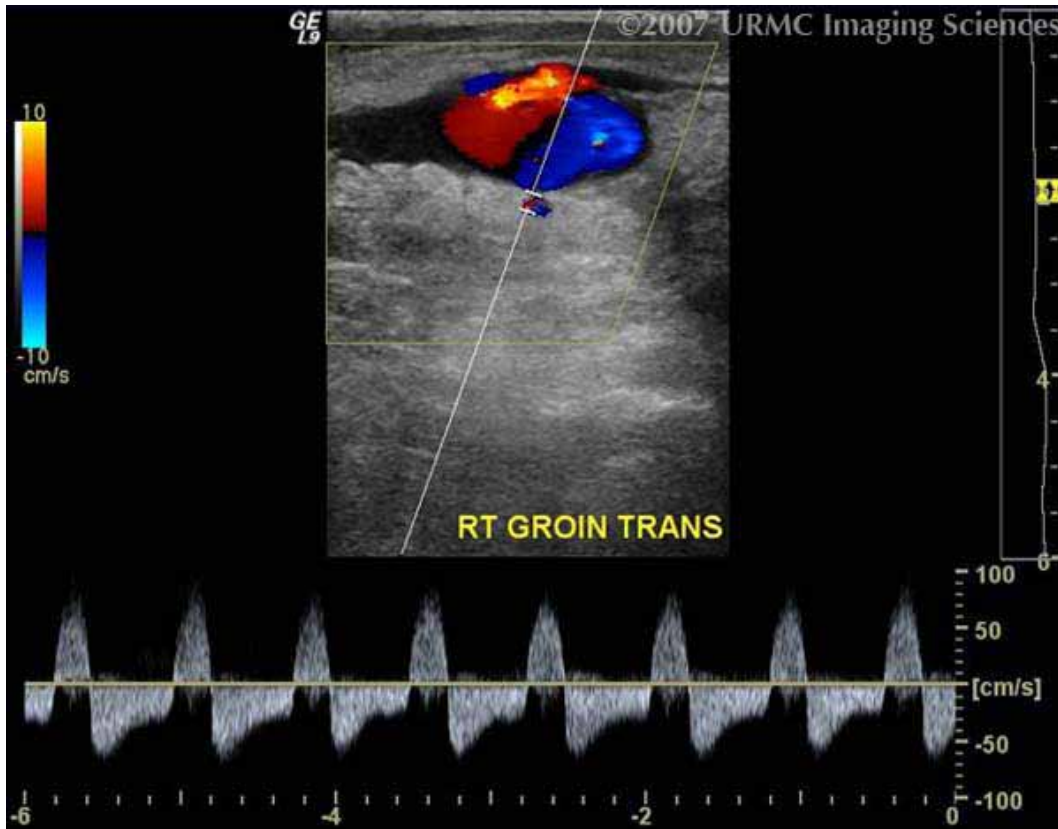
**IMAGING FINDINGS:** A 2 cm hypoechoic structure in the right groin. This lesion contains different color signals with the characteristic appearance of a “yin-yang” sign indicating swirling flow. There is a “to and fro” pattern present in the neck of the lesion.



**Figure 1:** Grayscale ultrasound - right groin hypoechoic structure.



**Figure 2:** Color Doppler - “Yin-Yang” sign.



**Figure 3:** Pulsed Doppler - "To and Fro" flow pattern in the neck of the lesion.

**DIAGNOSIS: Pseudoaneurysm**

**DISCUSSION:** A pseudoaneurysm is defined as an outpouching of a blood vessel, either involving a defect in the two inner layers (tunica intima and media) with an intact outer layer (adventitia), or involving all three layers with bleeding contained by clot or adjacent structures.

They are most commonly found involving the common femoral artery following an arterial puncture. Typically, pseudoaneurysms present with increased swelling which may be pulsatile and are often 1 to 3 centimeters in diameter.

The best imaging modality for pseudoaneurysm is ultrasound and findings include the "Yin-yang" sign on color Doppler and "to and fro" flow on pulsed Doppler. Treatment options include US-guided compression, US-guided thrombin injection, embolization, covered stenting, and if necessary surgery.

**REFERENCES:**

1. Rosen G, Samuels DR, Blank A. The to and fro sign: The hallmark of pseudoaneurysm. IMAJ 2001;2:781-782. [www.ima.org.il/imag/ar01oct-18.pdf](http://www.ima.org.il/imag/ar01oct-18.pdf)
2. Abu-Yousef MM, Wiese JA, Shamma AR. The "to-and-fro" sign: duplex Doppler evidence of femoral artery pseudoaneurysm. AJR Am J Roentgenol. 1988 Mar;150(3):632-4. PMID: 3277354