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Ultrasound guided compression of femoral Pseudoaneurysm

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Abstract: *A 60 Year Old Female after Undergoing Coronary Angioplasty Developed Femoral Arterypseudoaneurysm. Which Was Diagnosed On Ultrasound With Typical Swirling Pattern Of Blood Flow In The Pseudoaneurysm Sac? It Was Closed Successfully With Ultrasound Guidedcompression*

I. Case Report

A 60-year-old woman with history of recent coronary angioplasty presented with complains of progressively worsening swelling, redness, and pain in her right groin. The symptoms began after her right femoral artery was accessed for coronary angioplasty with stenting. . After 3 days of uneventful post procedure period, the patient complained of pain and swelling in the right groin. Physical examination revealed erythema, tenderness, and localised swelling over the right groin. A bruit was audible and pulsations were palpable over the swelling. The extremity was neurovascularly intact.Bedside ultrasound (US) was performed by an emergency medicine resident using a high-frequency linear transducer (Model HD11, Philips). Examination revealed a large anechoic mass with swirling pattern of internal blood flow., the presence of a communicating neck to the collection was noted, which is diagnostic for a pseudoaneurysm. Also observable with color flow Doppler is the classically described yin and yang sign . In Chinese philosophy, yin and yang (also, yin-yang or yin yang) describes how apparently opposite or contrary forces are actually complementary, interconnected, and interdependent in the natural world, and how they give rise to each other as they interrelate to one another. This finding is caused by swirling motion of blood within the pseudoaneurysm cavity, with inflow and outflow of blood overlying the opposite sides of cavity. Under ultrasonographic guidance, compression by the 10 MHz transducer was gradually applied until the colour flow within the pseudoaneurysm disappeared. The compression was maintained for 10 to 15 minutes depending on pts tolerance and fatigue of the physician. This procedure was done in two sittings, 2 days apart. During each of these procedures a strong compression was applied for nearly 30 minutes at the neck of the pseudoaneurysm and a repeat Doppler was done after each procedure to evaluate the morphology of the pseudoaneurysm following ultrasound guided compression. After two sessions of compression, the cystic mass was replaced by an echogenic haematoma. No colour flow was identified in follow-up scans obtained after 15 minutes and after 24 hours. There was no evidence of recurrent pseudoaneurysm or any complications.

The incidence of PSA after diagnostic catheterization ranges from 0.05% to 2 %.(1) When coronary or peripheral intervention is performed, the incidence increases to 2% to 6%.The most catastrophic complication of PSA is rupture. Although the exact rate is unknown, the risk of spontaneous rupture of PSA is related to size >3 cm, presence of symptoms, large hematoma, or continued growth of the sac. (2), (3), (4)

Although most postcatheterization PSAs are sterile, infection of a PSA significantly increases the risk of rupture as well as septic emboli. (5) The diagnostic examination of choice is duplex ultrasound with a 5- to 7-MHz linear transducer. Presently, the main treatment modalities have been US-guided compression and percutaneous thrombin injection. Surgical repair of PSAs is indicated only in patients who exhibit rapid expansion, infection, compression syndrome, or failure of other modalities of treatment. Ultrasound-guided compression repair is safe and successful but is limited by patient discomfort, long procedural times, and the relative ineffectiveness of the technique in anticoagulated patients. Ultrasound-guided thrombin injection is effective even in patients who have undergone anticoagulation and seems to be the best method to treat PSAs, with very high technical success rates, minimal recurrence. One of the major complications is escape of thrombin into the native circulation, causing distal embolization. A whole host of other treatment modalities such as FemStop compression devices,coil insertion,fibrin adhesives, or balloon occlusion have been used with variable success.

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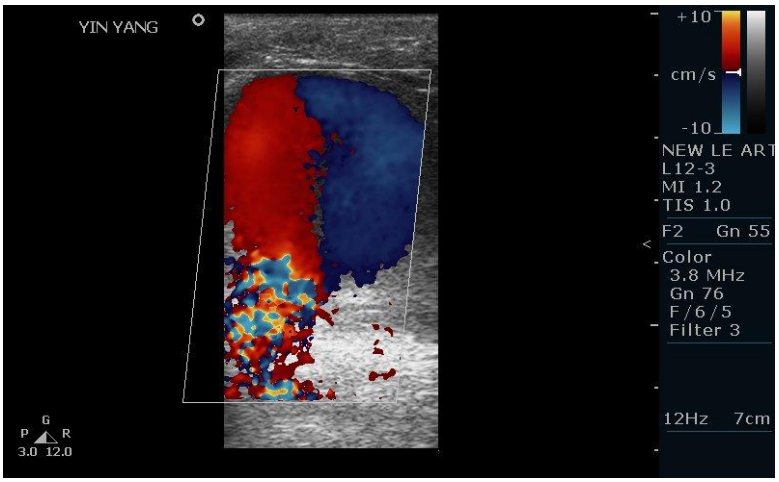

Fig 1

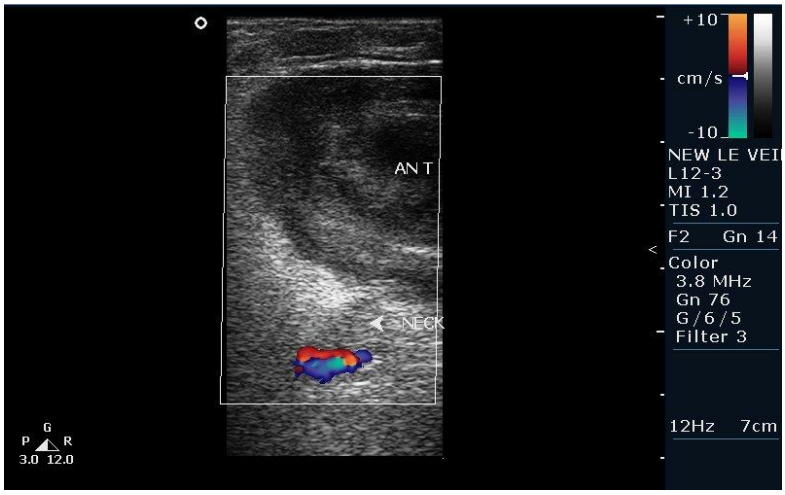

Fig 2