

CASE

- A 68-year-old male with history of paroxysmal atrial fibrillation and HFpEF experienced new dyspnea and edema.
- He had undergone ablation for his PAF seven years prior complicated by right femoral pseudoaneurysm that spontaneously thrombosed.
- Exam showed elevated JVP, edema and palpable thrill in his right groin with audible bruit.
- Echocardiogram demonstrated normal EF and RVSP of 50-55mmHg, increased from prior of 40mmHg.

TABLE 1

Site	Pressures (mmHg)
Pulmonary capillary wedge (PCW)	14
Pulmonary artery (PA)	50/18, mean 30
Right ventricle (RA)	50/14
Right atrium (RA)	10

TABLE 2

Location	Oxygen saturation (%)
Aorta	96
Pulmonary artery	80
Superior vena cava (SVC)	66
Right atrium (RA)	80
Right ventricle (RV)	80

FIGURE 1



Figure 1: Fluoroscopic evidence of AV fistula

FIGURE 2



Figure 2: Fluoroscopy post-AV fistula repair

DECISION MAKING

- RHC showed moderate post-capillary pulmonary hypertension, high cardiac output (Table 1) and PA saturation of 80%. Oximetry run showed step up in oxygenation from SVC to RA (Table 2). Using the SVC saturation as systemic venous O₂ saturation and aortic saturation as pulmonary vein saturation, Q_p:Q_s ratio by RHC was 1.7:1. A residual ASD from his prior septal puncture was suspected.
- However, cardiac MRI showed an intact atrial septum, Q_p:Q_s of 1.0, and a markedly increased IVC to SVC flow ratio of 2.7 (IVC flow 6.34 L/min).
- Right groin ultrasound showed an AV connection with flow between the superficial femoral artery and common femoral vein.
- Vascular surgery performed a lower extremity angiogram revealing an AV fistula and performed primary repair.

CONCLUSION

- Elevated PA saturation on RHC should prompt an oximetry run. The SVC saturation is sometimes used as an estimate of the SvO₂ in intracardiac shunt calculations, however, his Q_p:Q_s was inaccurate due to not sampling the IVC. If included in the SvO₂ calculation, this would have resulted in a normal Q_p:Q_s.
- High output heart failure treatment is correcting the etiology, in this case AV fistula repair.

CONTACT

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