

Introduction

- Pulmonary vein isolation (PVI) ablation is one of the mainstay treatments for atrial fibrillation
- Complications include tamponade, pulmonary vein stenosis, and pericarditis
- A rare complication of PVI is constrictive pericarditis
- We present a case of constrictive pericarditis in a patient who underwent ablation four months prior to presentation

Case

- A 65 year-old male presented with dyspnea on exertion and fatigue for four months
- Past medical history: chronic diastolic heart failure, persistent atrial fibrillation status post six catheter ablations (most recently 4 months ago), cardiac resynchronization therapy, coronary artery disease status post percutaneous intervention, obstructive sleep apnea, hypertension, hyperlipidemia, and diabetes mellitus
- Medications: amlodipine 10 mg, atorvastatin 40 mg, bumetanide 1 mg twice daily, clopidogrel 75 mg, dapagliflozin 10 mg, metoprolol succinate 100 mg twice daily, and warfarin
- Physical exam: jugular venous distention, trace bilateral lower extremity edema
- Transthoracic echo showed a markedly dilated LV with normal wall thickness, mild-moderately decreased systolic function, regional variation and dyssynchrony of contractility, excessive respiratory phasic septal motion, and inferior vena cava appeared dilated with reduced inspiratory decrease
- CT and catheterization results supported a diagnosis of constrictive pericarditis
- Colchicine did not relieve his symptoms, so he underwent pericardiectomy, with resolution of symptoms

Discussion

- Constrictive pericarditis is marked by a thickened, inflexible, and fibrous pericardium
- This causes impaired filling during diastole and leads to interdependence between the ventricles
- This is demonstrated by respiratory discordance between left ventricular and right ventricular pressure waves
- Recent literature emphasizes noninvasive multimodality imaging to diagnose constrictive pericarditis, but invasive hemodynamic profiling through left and right heart catheterization should remain the gold standard



Figure 1. Computerized tomography of the chest showed a small pericardial effusion with a noncalcified thickened pericardium.

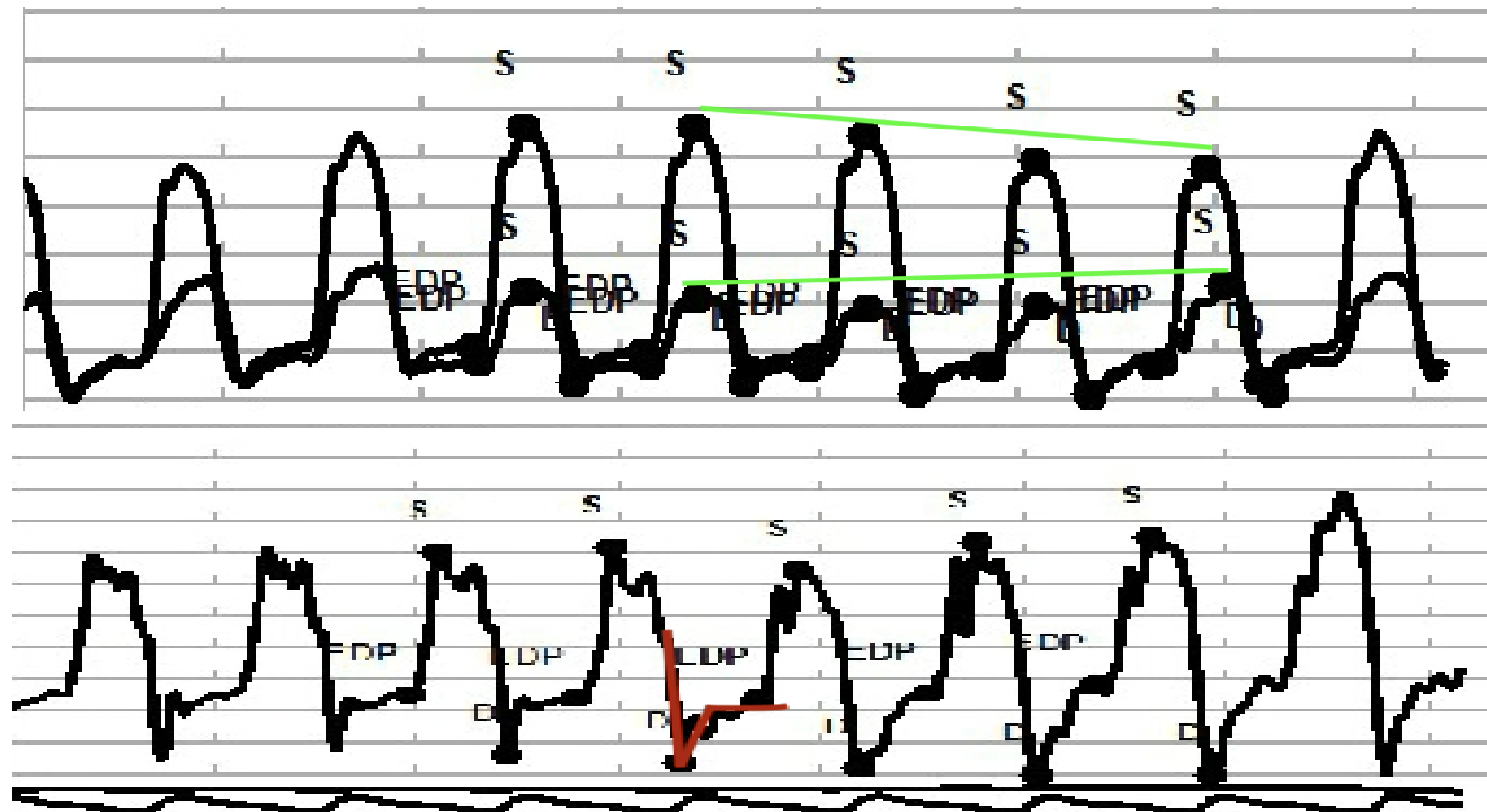


Figure 2. Right and left heart catheterization filling pressure curves show equalization of right and left ventricles, diastolic filling pressures, and a “dip and plateau” sign in the right ventricle pressure tracing (red square root sign). Solid green lines show left and right ventricular pressure respirophasic discordance.

Conclusion

- Left and right heart catheterization is the gold standard to diagnose constrictive pericarditis
- Consider pericarditis in your patients who have undergone ablation for atrial fibrillation

References

1. F. Mookadam, P. Jiamsripong, S.F. Raslan. Constrictive pericarditis and restrictive cardiomyopathy in the modern era. *Future Cardiol*, 7 (2011), pp. 471-483
2. T. Welch. Constrictive pericarditis: diagnosis, management and clinical outcomes. *Heart*, 104 (2018), pp. 725-731
3. A. Mahmoud, M. Bansal, P. Sengupta. New cardiac imaging algorithms to diagnose constrictive pericarditis versus restrictive cardiomyopathy. *Curr Cardiol Rep*, 19 (2017), p. 43
4. J. Geske, N. Anavekar, R. Nishimura, et al. Differentiation of constriction and restriction: complex cardiovascular hemodynamics. *J Am Coll Cardiol*, 68 (2016), pp. 2329-2347
5. S. Ahsan, J. Moon, M. Hayward, et al. Constrictive pericarditis after catheter ablation for atrial fibrillation. *Circulation*, 118 (2008), pp. e834-e835
6. A. Javaheri, H. Glassberg, M. Acker, et al. Constrictive pericarditis presenting as a late complication of epicardial ventricular tachycardia ablation. *Circ Heart Fail*, 5 (2012), pp. e22-e23
7. A. Oesterle, A. Singh, H. Balkhy, et al. Late presentation of constrictive pericarditis after limited epicardial ablation for inappropriate sinus tachycardia. *HeartRhythm Case Rep*, 2 (2016), pp. 441-445
8. De Roeck, Frederic et al. Constrictive pericarditis as late complication of cryoballoon pulmonary vein isolation. *HeartRhythm case reports* vol. 6,1 34-39, 28 Oct. 2019. doi:10.1016/j.hrcr.2019.10.012