

# Unchain My Heart: Constrictive Pericarditis in the Setting of Chronic Kidney Disease and Monoclonal Gammopathy of Undetermined Significance

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# Unchain My Heart: Constrictive Pericarditis in the setting of Chronic Kidney Disease and Monoclonal Gammopathy of Undetermined Significance

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## Introduction

Constrictive Pericarditis is characterized by pericardial inflammation, fibrosis, and eventually calcification resulting in an increase in diastolic pressure. Known causes can include viruses, tuberculosis, radiation, cardiac surgery, malignancy, and chronic kidney disease (CKD).

### Case

### Presentation

- A 68 year-old male with monoclonal gammopathy of undetermined significance (MGUS) and CKD4 presented to the hospital with 3 weeks of worsening dyspnea and lower extremity edema.
- Initial labs showed a creatinine of 3.01 and potassium of 6.5.
- An echocardiogram was done, which showed: a preserved ejection fraction of 60%, a thickened 9mm pericardium, marked respiratory variation in atrio-ventricular valve inflows, septal shudder and bounce.
- The diagnosis of constrictive pericarditis was further confirmed on CT scan and cardiac catheterization.
- The patient required hemodialysis for acute renal failure and for optimization of volume status.
- He was eventually discharged with the intention to wean off dialysis before evaluation for pericardectomy.

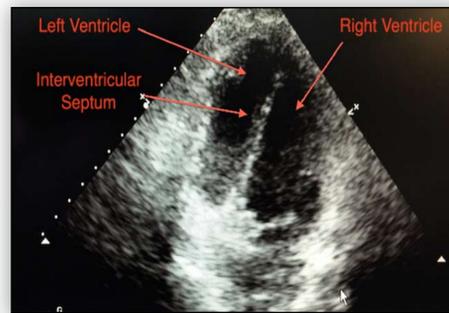


Figure 1

Apical 4-chamber echocardiogram view

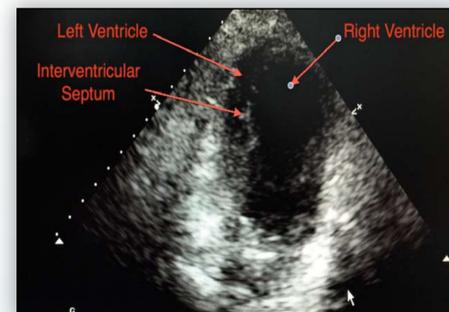


Figure 2

Apical 4-chamber view demonstrating ventricular interdependence

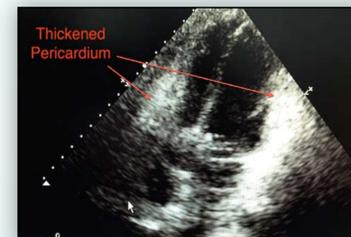


Figure 3

Apical 4-chamber view showing a thickened pericardium, measuring 9mm over RV

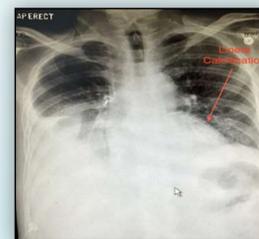


Figure 4

CXR showing a linear calcification over the left heart

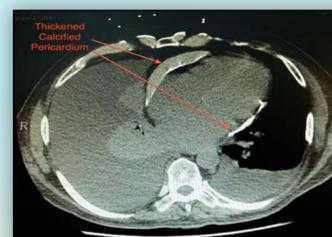


Figure 5

Axial view of non-contrast CT Chest showing thickened, calcified pericardium measuring 14mm over RV

## Discussion

- Constrictive pericarditis most commonly presents as right-heart failure, but disease progression leads to left-heart failure.
- A pericardial knock, Kussmaul's sign and pulsus paradoxus are classic signs present on physical exam.
- Echocardiography, typically reveals septal shudder and bounce, along with ventricular interdependence. These pathognomonic phenomena involve dramatic differences in septal motion and diastolic filling pressures based upon the respiratory cycle.
- Cardiac catheterization and imaging with chest x-ray, CT, and MRI can be useful diagnostic modalities.
- In up to 55% of cases of constrictive pericarditis, the etiology is either viral or idiopathic.
- Less commonly, up to 10% of cases can be attributed to malignancy or uremic pericarditis.
- Malignant etiologies are most commonly pulmonary adenocarcinoma or metastatic breast cancer, but cases attributable to multiple myeloma and MGUS have been reported. Uremia seen in CKD can also contribute to pericarditis.
- **Recognizing constrictive pericarditis' hallmark physical exam and echocardiography findings are critical for early diagnosis. Pericardectomy is the only definitive treatment.**

### References:

- 1 Haley JH, Tajik AJ, Danielson GK, et al: "Transient constrictive pericarditis: Causes and natural history". *J Am Coll Cardiol* 43:271, 2004.
- 2 LeWinter, Martin M, Tischler, Mark D. "Chapter 75: Pericardial Diseases." *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*. Saunders, 9e, 2011.
- 3 Little WC, Freeman GL: Pericardial disease. *Circulation* 113:1622, 2006.
- 4 Holt, Brian D. "Constrictive Pericarditis." In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. Accessed on May 19, 2014.
- 5 Sorajja, P., Holt, Brian. "Differentiating Constrictive Pericarditis and Restrictive Cardiomyopathy." In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. Accessed on May 19, 2014.