Hypocalcemia is an unusual cause of cardiomyopathy with high mortality if not recognized and managed appropriately. Calcium plays an essential role in augmenting cardiac contractility; severe or prolonged hypocalcemia may lead to ventricular dilation and dysfunction. Patients with hypocalcemic cardiomyopathy fail to improve with heart failure goal-directed therapies until calcium has been adequately replaced (1). We present a patient with refractory heart failure due to hypocalcemia.

### Case Summary

- **Evaluation of Hypocalcemia Revealed:**
  - **Ionized Serum Calcium:** 4.5-5.3 mg/dL
  - **Intact PTH:** 8.7-77.1 pg/mL
  - **25-OH Vitamin D:** 30.0-100.0 ng/mL
  - **Magnesium:** 1.6-2.3 mg/dL

- She disclosed that she had developed permanent hypoparathyroidism three years ago after undergoing total thyroidectomy for Graves disease. She reported good adherence with calcitriol but admitted that she had always struggled to take oral calcium replacement consistently.

- She was placed on a calcium gluconate infusion and later transitioned to a regimen of oral elemental calcium (5000 mg/day in divided doses), cholecalciferol (1000 IU daily), calcitriol (0.5 mcg qPM and 0.25 mcg qAM), and magnesium supplementation. Her total serum calcium level improved to 8.4 mg/dL with subsequent improvement in her heart failure symptoms.

### Take Home Points

- Hypocalcemia is a rare but important cause of cardiomyopathy.
- Heart failure symptoms may not respond to goal-directed therapy until hypocalcemia is identified and treated.
- It is essential to pinpoint the underlying cause of hypocalcemia in order to enact appropriate treatment.

### Conclusion

The management of cardiomyopathy is focused on treating the underlying etiology, with hypocalcemia representing a rare but important cause.

Cardiomyocytes require PTH-mediated calcium influx to activate the signaling cascade for cardiac contractility (2). This case highlights a patient with iatrogenic hypoparathyroidism and longstanding poor calcium intake who developed severe systolic and diastolic dysfunction. Fluid retention leading to abdominal distension, anorexia, and bowel wall edema may have caused a further decrease in her calcium intake and absorption, creating a vicious cycle. Diuresis and goal-directed therapies did not lead to improvement until aggressive calcium replacement was initiated (3).

It is critical to consider hypocalcemia from hypoparathyroidism as the cause of heart failure in any patient with a history of anterior neck surgery (2).

### References