

ANESTHETIC CONSIDERATIONS AND MANAGEMENT OF PATIENTS WITH PERIPARTUM CARDIOMYOPATHY

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INTRODUCTION

Peripartum cardiomyopathy is a rare type of heart failure associated with the puerperium. Peripartum cardiomyopathy is believed to be a distinct clinical syndrome because of its temporal association and occurrence in the peripartum period. The exact etiology is unknown. It may reflect an unmasking of a previously undiagnosed heart disease brought out due to the stresses of pregnancy. Alternatively, it may have autoimmune, hereditary or familial components. However, the signs and symptoms of peripartum cardiomyopathy are virtually the same as those seen in other forms of congestive heart failure.

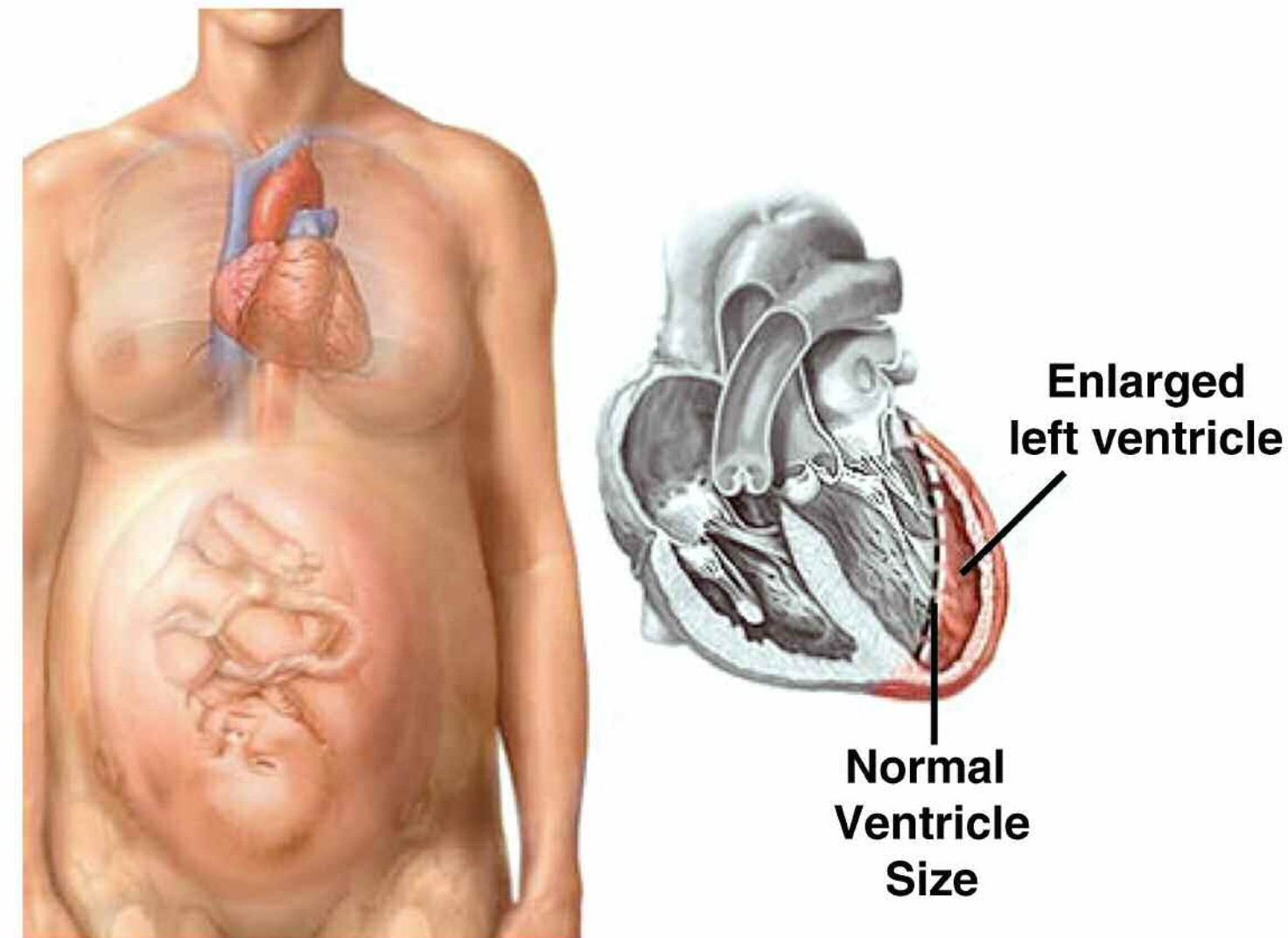
We present a case in which a 21 year old female with a history of mitral valve disease and subsequent mitral valve repair, presents with worsening cardiac function and heart failure in the period before her expected delivery date. The patient Underwent cesarean section under regional anesthesia with standard and invasive monitors. Hemodynamic stability was maintained throughout the delivery and the patient had an uneventful delivery and post partum course.

CASE REPORT

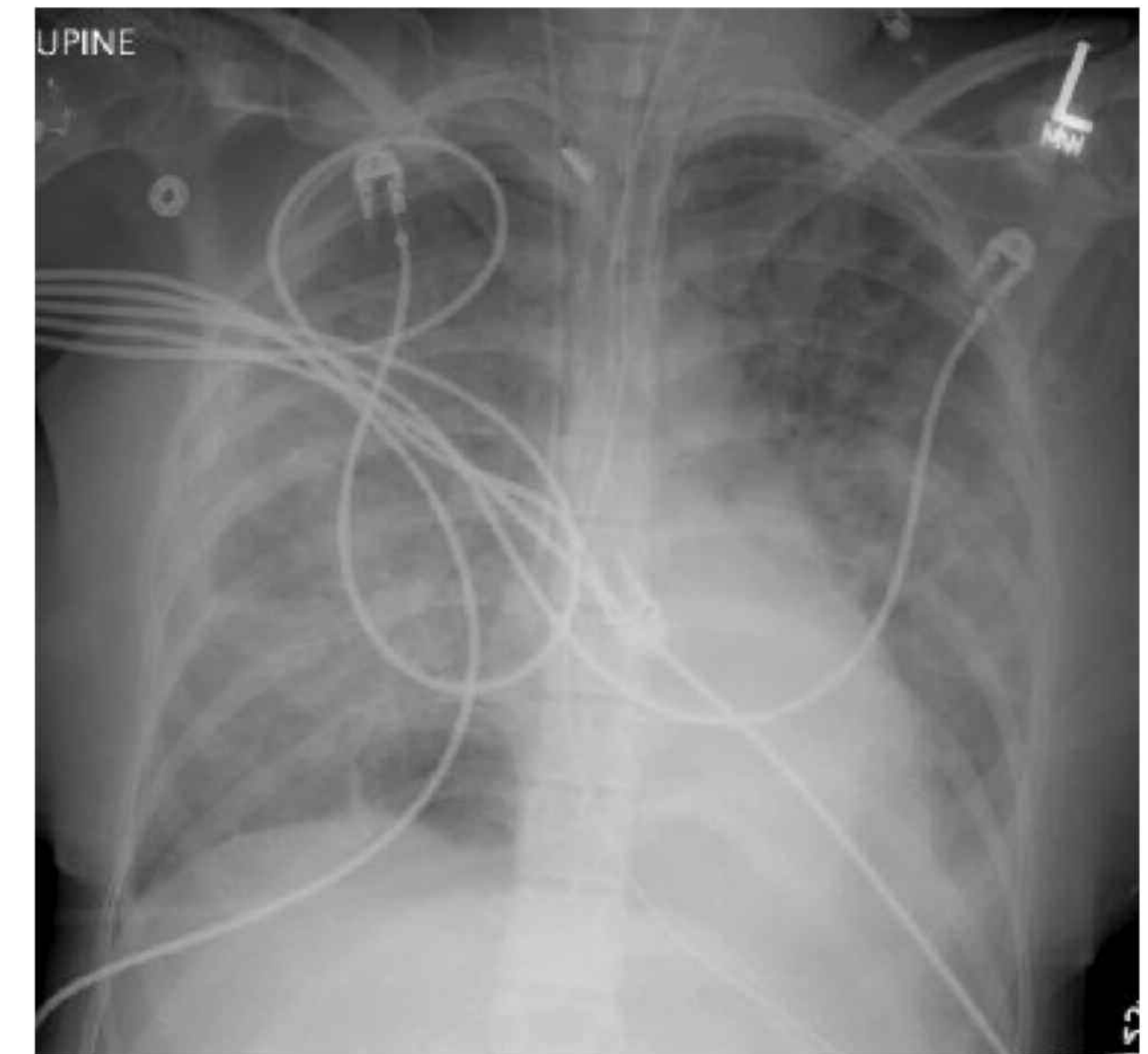
A 21 year old female G1P0 with a history of mitral valve repair arrived at 35 weeks gestation to the hospital for evaluation of LOF. Upon examination fetal heart rate (FHR) was within normal limits and showed adequate variability and no evidence of membrane rupture. Upon further examination, the patient showed questionable decelerations on the fetal heart tracing, mild variables and a Biophysical profile of 8/8. The patient was admitted for continued observation and monitoring. The patient remained stable for two days without any complaints and no change in fetal tracing. On the third day the patient complained of 'chest discomfort' but no shortness of breath. Contractions were found to be at every 3-4 minutes, FHR at ≈ 130 bpm and an increased S/D ratio. Prompt EKG, ECHO, cardiac enzymes, and a cardiology consult were ordered. The EKG showed LVH and no ST-T changes and the BNP, Troponin, and CK-MB were 23.6, < 0.02 , and 37 respectively. The patient's symptoms resolved shortly thereafter. The Echocardiogram results yielded an EF of 27%. The cardiology team assessed the patient and assigned her as CHF class I. They also recommended elective C-section and avoidance of the active stage of labor. The obstetric anesthesia team evaluated the patient at that time and noted, along with the obstetric team, that development of signs and symptoms of CHF will be an indication for prompt Cesarean section.

The patient continued to be monitored and remained under observation over the next several days. The patient was then found to have a NRFHT and variable decelerations and the decision was made to proceed with a Cesarean section. The gestational age was now 36 weeks and 5 days. The patient was pre-treated with Bicitra 30 cc P.O. and metoclopramide 10 mg IV. Standard ASA monitors were placed upon entrance to the O.R. A right radial arterial line was placed under sterile conditions in the O.R., as was a right central venous catheter placed in the internal jugular vein. A combined spinal epidur-

Enlargement of Left Ventricle due to Dilated Cardiomyopathy



Peripartum Cardiomyopathy



al was attempted in the right lateral position unsuccessfully. The patient was then placed in the sitting position and at the L4-L5 interspace the CSE was placed in the first attempt. An intrathecal dose of 10 mg of Ropivacaine was used with 10 μ g of fentanyl and 0.25 mg of Duramorph. The epidural catheter was threaded to 5 cm in the epidural space and was tested with 5 mL of Lidocaine 1.5% with 1:200,000 epinephrine with a negative result. The catheter was secured and patient was placed in the supine position. A sensory level of T3 was obtained bilaterally.

A male infant weighing 2365 grams was delivered with APGAR scores of 9/9. The patient was given Ampicillin 2 grams and Gentamicin 160 mg IV upon clamping of the umbilical cord and Pitocin 20 units/1L after delivery of the placenta. The patient's blood pressure ranged from 110-140/40-65 and heart rate maintained between 60-80 beats per minute. The central venous pressure was in the range of 10-14 mm Hg. The patient's total blood loss was approximately 600 mL, IVF 1 Liter of Lactated Ringer's and urine output of approximately 200 mL. The patient was taken to the recovery room at the conclusion of surgery with stable vital signs. Vital signs in the recovery room were blood pressure: 136/65, heart rate 67 bpm, respiratory rate 18 and oxygen saturation of 100%. The patient was then placed on an epidural PCEA. The epidural catheter was removed on the first post-operative day and arterial line and central line were later removed, all without complications.

DISCUSSION

The patient underwent an echocardiogram approximately 6 months after delivery of her baby with an ejection fraction of 21%. However, an echocardiogram, done approximately a year and two years after delivery, yielded an EF of 30-40%. Although classically PPCM presents with resolution of the cardiomyopathy and normalization of echocardiographic findings within 3-6 months, patients with underlying cardiac disease may present with normalization of cardiac function to pre peripartum levels.

CONCLUSION

We believe this case illustrates a limited resolution of worsening cardiac function during the peripartum period. In other words, her underlying cardiac condition was worsened during the puerperium and improved within a year of the delivery.

REFERENCE

Ashton JR: Review Article: "Pre-anesthetic Assessment of the patient with Peripartum Cardiomyopathy" *Anesthesiology News*: Lesson 253: Reviewed By: Donald Bishop, MD