Antepartum Valve-sparing Aortic Root replacement in a patient with Marfan Syndrome

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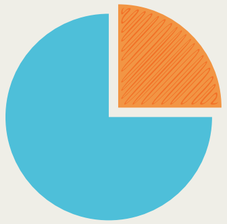
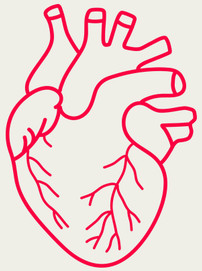


Nonobstetric surgery in pregnancy occurs in around 0.3-2% of all pregnancies in the US and EU

Maternal mortality with elective cardiopulmonary bypass during pregnancy is comparable to that of nonpregnant women (1-9%)

Fetal mortality in cardiac surgery remains high (~14%)



Mitral valve disease remains the most common valvular disorder requiring surgery during pregnancy

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CASE PRESENTATION

Clinic

- 23-year-old G2P0010 with known Marfan syndrome presented to adult congenital cardiology clinic after an unplanned pregnancy
- Imaging demonstrated interval increase in aortic root size to 4.6cm at 8 weeks gestation

Evaluation

After interdisciplinary discussion between the obstetrics, cardiac surgery, cardiology, and cardiac anesthesiology teams, second trimester surgical intervention was recommended

Preoperative

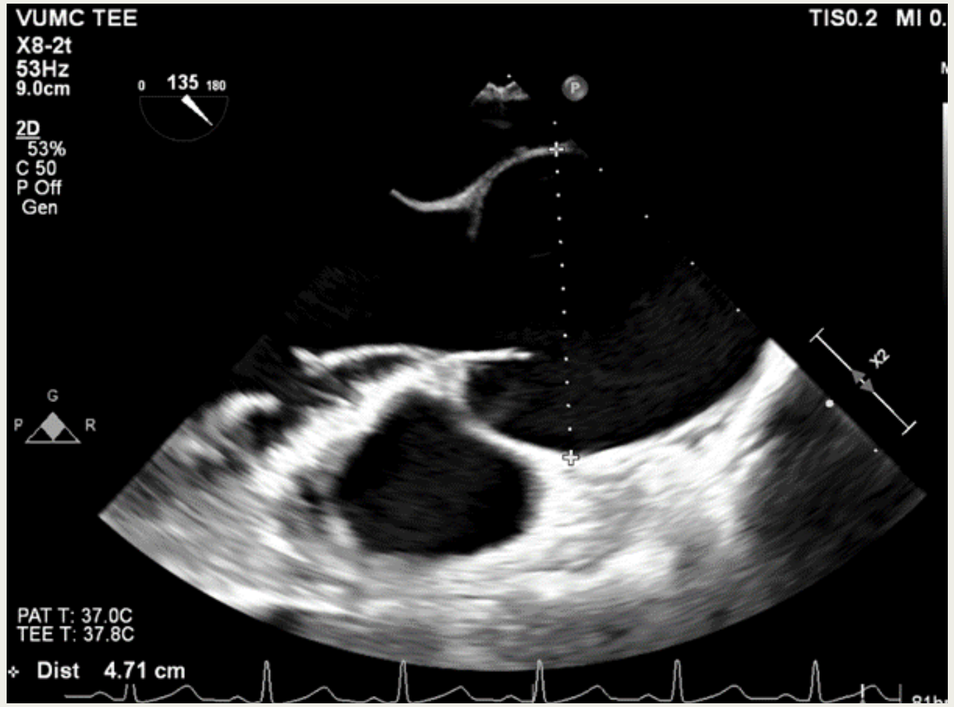
- At 16 weeks and 5 days gestation, patient presented for valve-sparing aortic root replacement
- Left uterine displacement was achieved, followed by radial artery catheterization, rapid sequence induction and intubation, central venous and pulmonary artery catheterization and TEE probe insertion

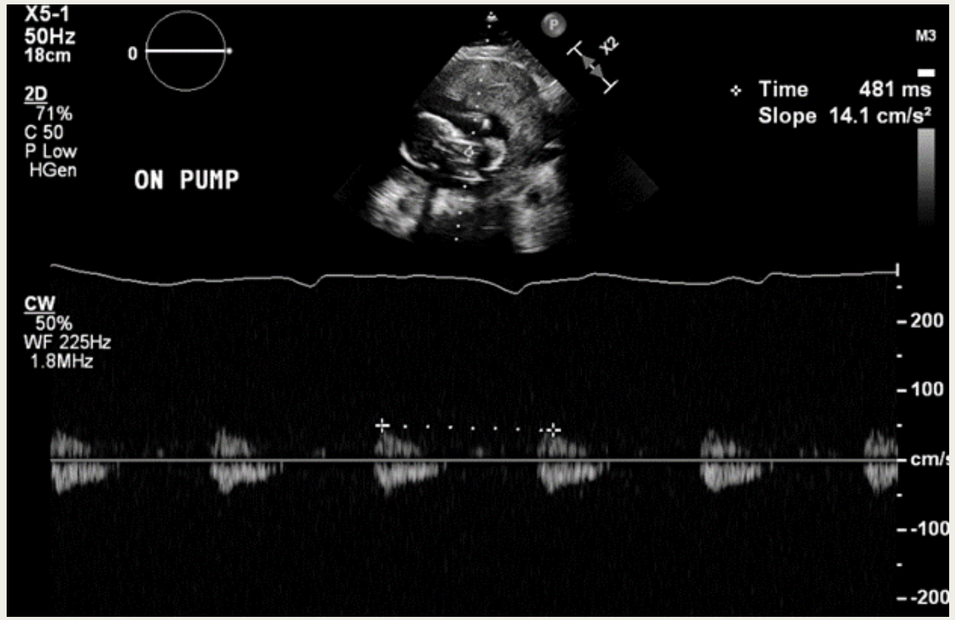
Intraoperative

- Median sternotomy and cannulation for cardiopulmonary bypass (CPB) with normothermic, pulsatile CPB technique.
- Standard monitoring for patient
- Additional fetal NIRS and intermittent CWD FHR measurement
- Uneventful separation from CPB

Postoperative

- Transferred to ICU without the administration of exogenous blood products
- Muscle relaxation reversed with atropine and neostigmine
- Extubated on postoperative day (POD) 0.
- Discharged home on POD 7 without complications
- Underwent LTCS with arterial line without complications





Teaching points

Anesthetic considerations

- Rapid sequence and video laryngoscopy
- Left uterine displacement
- Avoided benzodiazepines and elected for propofol infusion
- Avoided IV lidocaine to mitigate risk of fetal ion trapping
- Avoided IV vasopressors when possible
- Reversal with sugammadex
- Resuscitate to elevated Hematocrit goal

Monitoring considerations

- Maternal monitoring: standard monitors in cardiac OR (PAC not necessary)
- Surface probe CWD for FHR measurement by surgical team
- Placental NIRS for regional oxygenation

Cardiopulmonary Bypass considerations

- Normothermic, pulsatile CPB technique
- Higher flows for higher MAP targets (70-75)
- Minimize CPB time (108 minutes)
- Minimize aortic cross-clamp times (96 minutes)

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