

Cesarean Section for Parturients with Ascending Aortic Aneurysm: Two Case Reports with Anesthetic Recommendations

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Aortic Disease and Pregnancy

Physiologic changes

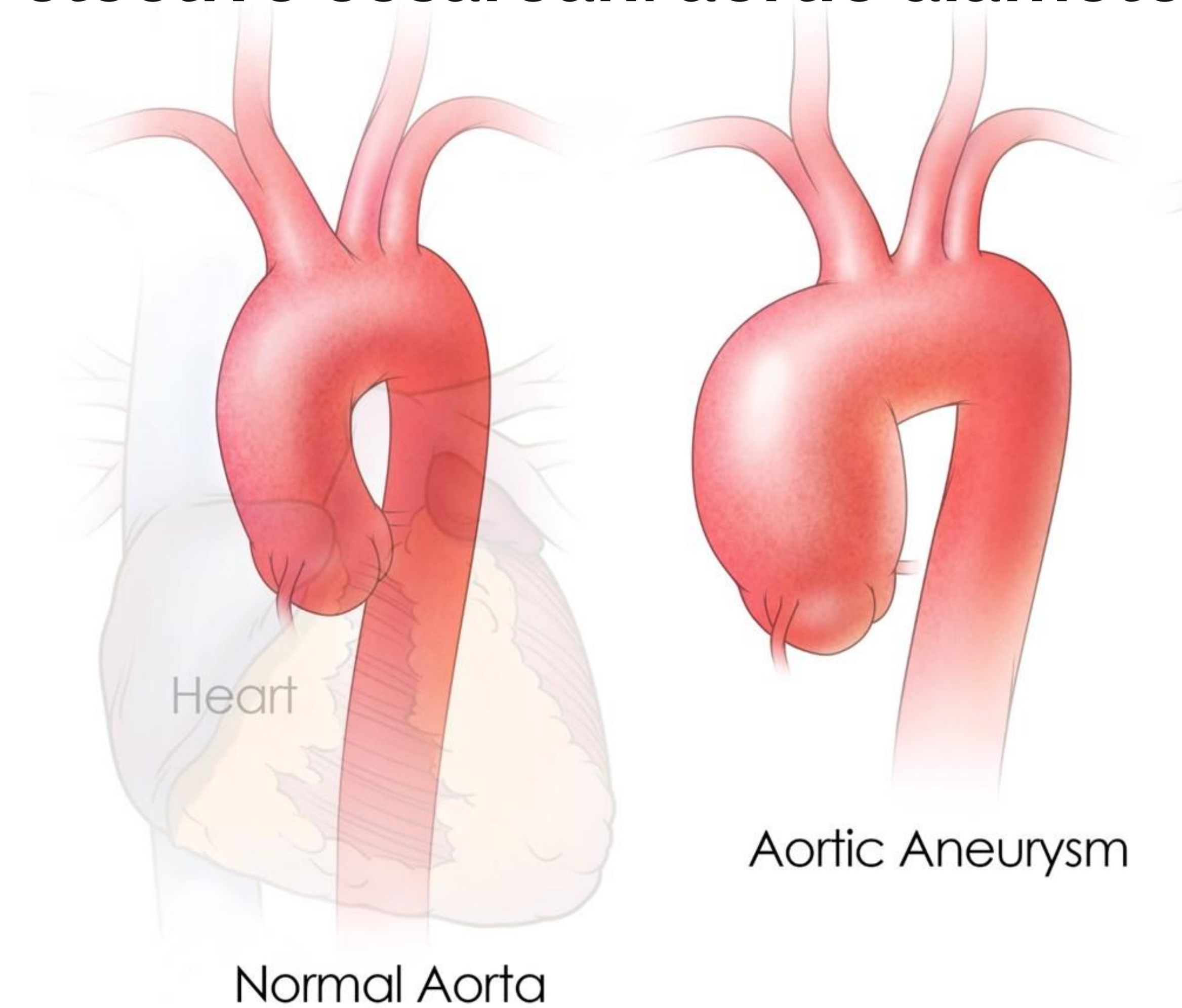
Inc HR
Dec PVR



Worsen aortic dilation
Inc rupture risk!

Elective cesarean avoids valsalva during vaginal delivery that may lead to rupture or dissection

Absolute indication: aortic diameter > 45 mm
Consider elective cesarean: aortic diameter 40-45 mm

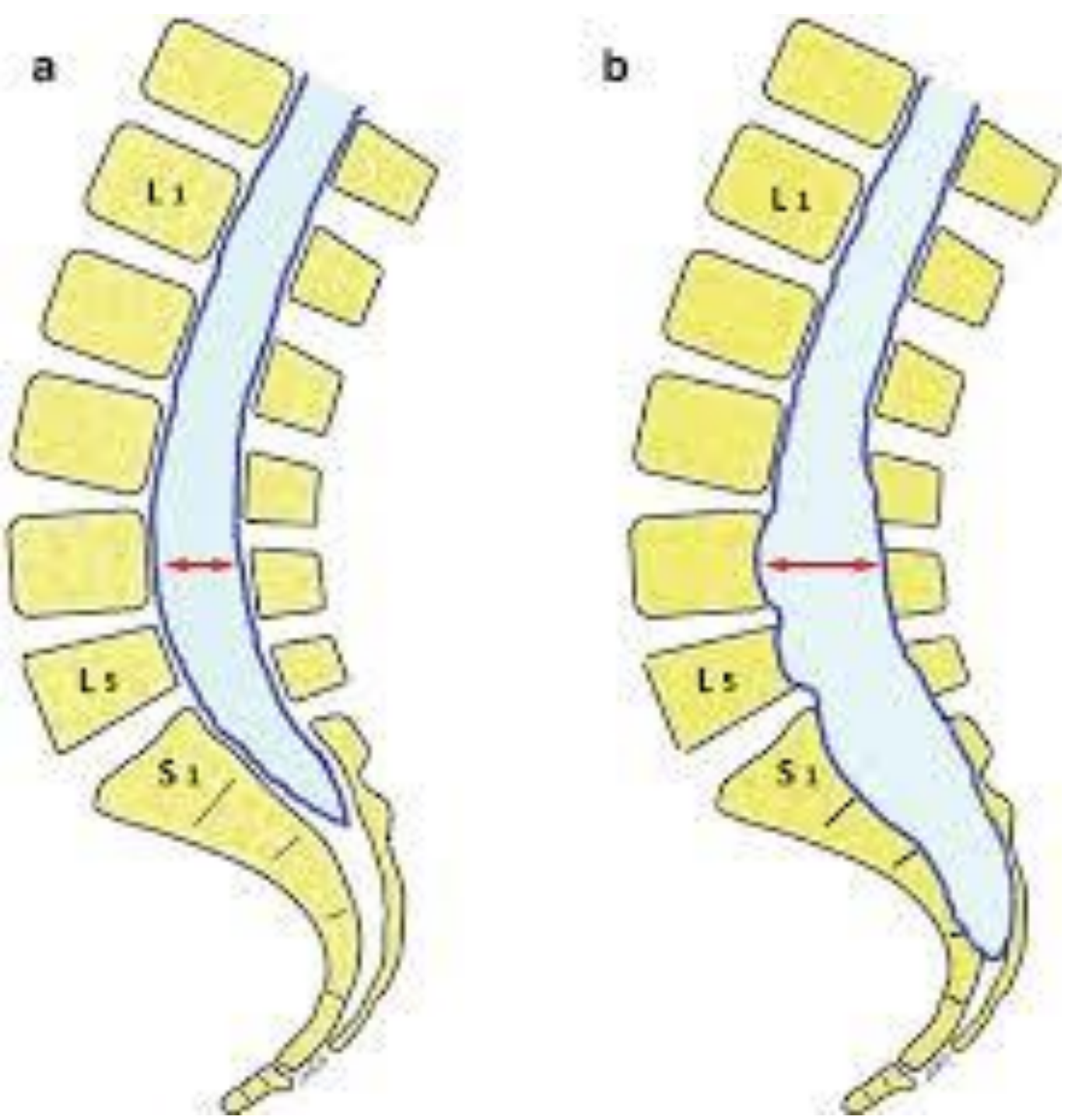


Prophylactic aortic root surgery recommendations	
Marfan's syndrome	>4.5 cm 4.0–4.5 cm if there are other risk factors present (family history of aortic dissection, rapid aortic growth >3 mm/year)
Bicuspid aortic valve	≥5.0 cm
Turner syndrome	≥2.5 cm/m2
Loeys-Dietz syndrome	≥4.0 cm if TGFB1, TGFB2, SMAD3 variants ≥4.5 cm if TGFB2, TGFB3 variants
Non-syndromic heritable thoracic aortic aneurysm disease	≥4.5 cm

CASE 1

32yo G1P0 with Marfan's Syndrome and aortic root dilatation, stable at 43mm during pregnancy. She was on 25mg metoprolol daily with adequate HR and BP control. Elective c/s at 37 weeks under GA.

- Pre-induction A-line, RSI
- Oxytocin IM, carboprost, TXA, EBL 1L
- Cardiac step-down -> Postpartum POD1



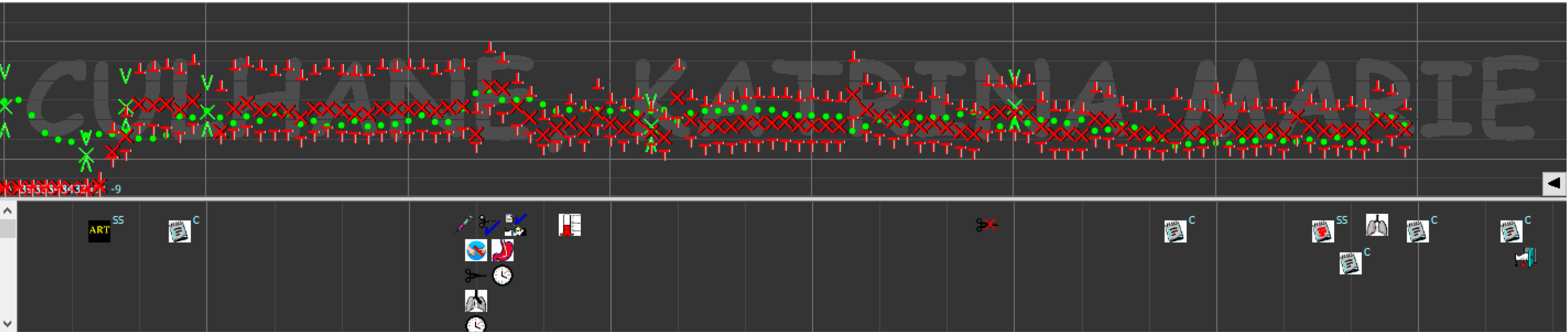
Dural ectasia

CASE 2

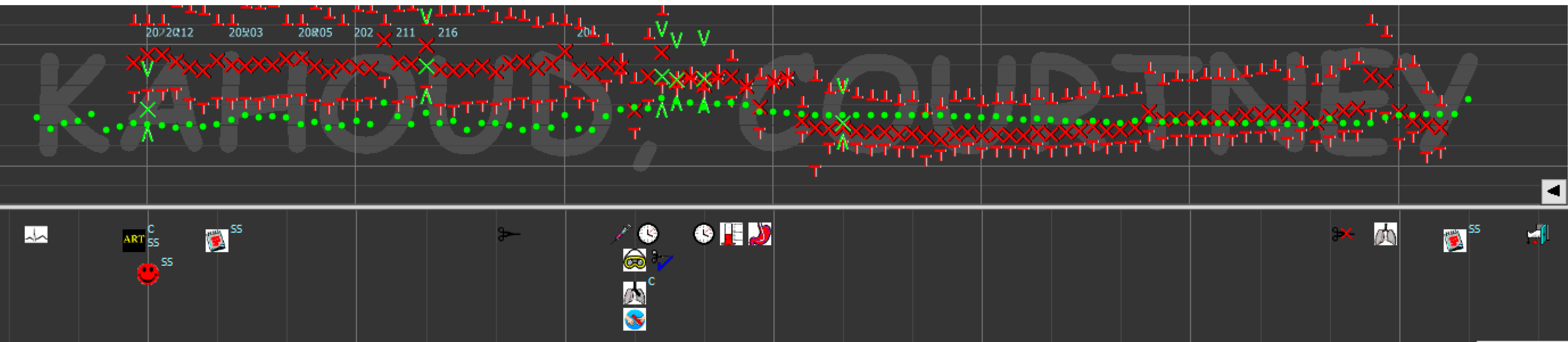
39yo G1P0 with chronic hypertension and congenital bicuspid aortic valve with aortic root dilation, stable at 44mm during pregnancy. She was on 75mg metoprolol daily and was up-titrated in the 3rd trimester to 100mg daily for BP control. Elective c/s at 37 weeks under GA.

- Pre-induction A-line, required nicardipine pushed to control BP
- RSI
- Oxytocin IM, EBL 500 mL intra-op
- PPH in PACU -> carboprost, misoprostal, 2u PRBC, Jada placed, total EBL 2L
- Cardiac step-down -> Postpartum POD1

Case 1



Case 2



Teaching Points

Limited literature on pregnancy and ascending aortic aneurysm. A team approach is critical to plan for safe delivery and postpartum recovery.

- Cesarean is often indicated due to aortic diameter
 - Neuraxial or GETA are both safe options
- Choice of neuraxial technique should plan for a slow load to avoid precipitous drops in BP and reflex tachycardia.
- With general anesthesia, attention should be taken to avoid hypertension and tachycardia during laryngoscopy and intubation.
- With both anesthetics, close hemodynamic management is necessary to avoid devastating complications from aortic aneurysms.

Recommendations

- Conduct Multidisciplinary Meeting (MDM) with MFM, Anesthesiologist, Cardiologist and Cardiac Surgeon to determine timing and mode of delivery, anesthetic plan and recovery location (cardiac floor, ICU)
- Plan for Arterial line, large bore IV access
- Strongly consider c/s in Main OR with cardiac surgeons available
- Consider IV oxytocin (in place of IM) if volume status allows for it
- Avoid methergine
- Frequent postpartum follow-ups to monitor aortic growth and/or dissection