

Introduction

- Supraventricular tachycardia (SVT) is a dysrhythmia characterized by a narrow QRS complex <120 milliseconds at a heart rate in excess of 100 BPM; it originates at or above the atrioventricular node. There have been documented cases of SVT being triggered following epidural placement.
- Here, we present a case of an SVT episode in a pregnant patient after epidural placement.

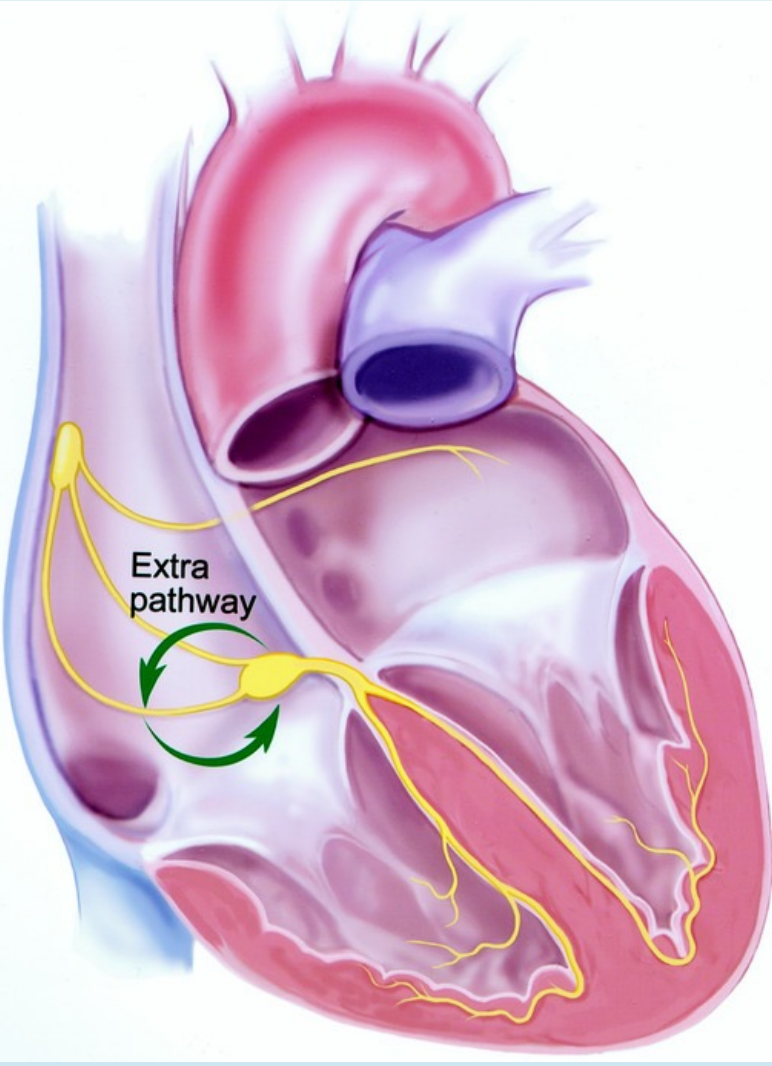
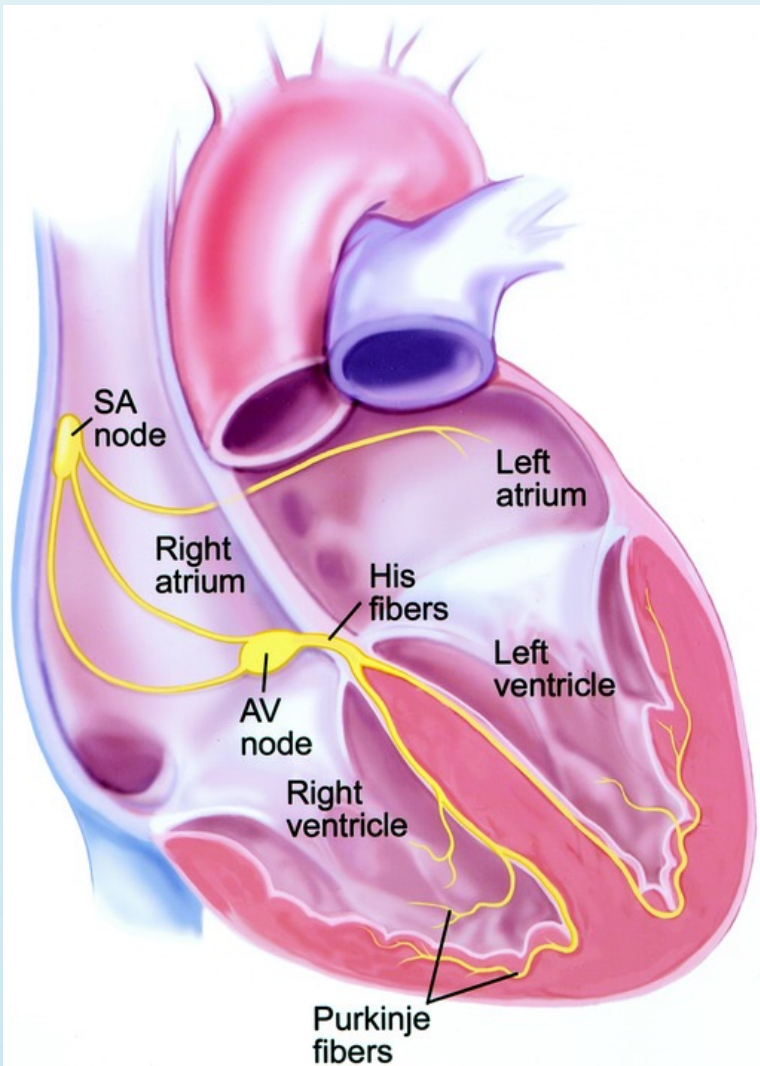
Background

- Patients in SVT usually present with palpitations, lightheadedness, syncope, dyspnea, and anxiety, with symptom onset being sudden.
- The etiology of SVT is wide-ranging, with triggers including exercise, psychosocial stress, caffeine intake, cardiovascular disease, as well as prescription and recreational drugs.
- In the pregnant patient, physiologic changes of pregnancy predispose to SVT, including increased blood volume, decreased SVR, and vascular compression.

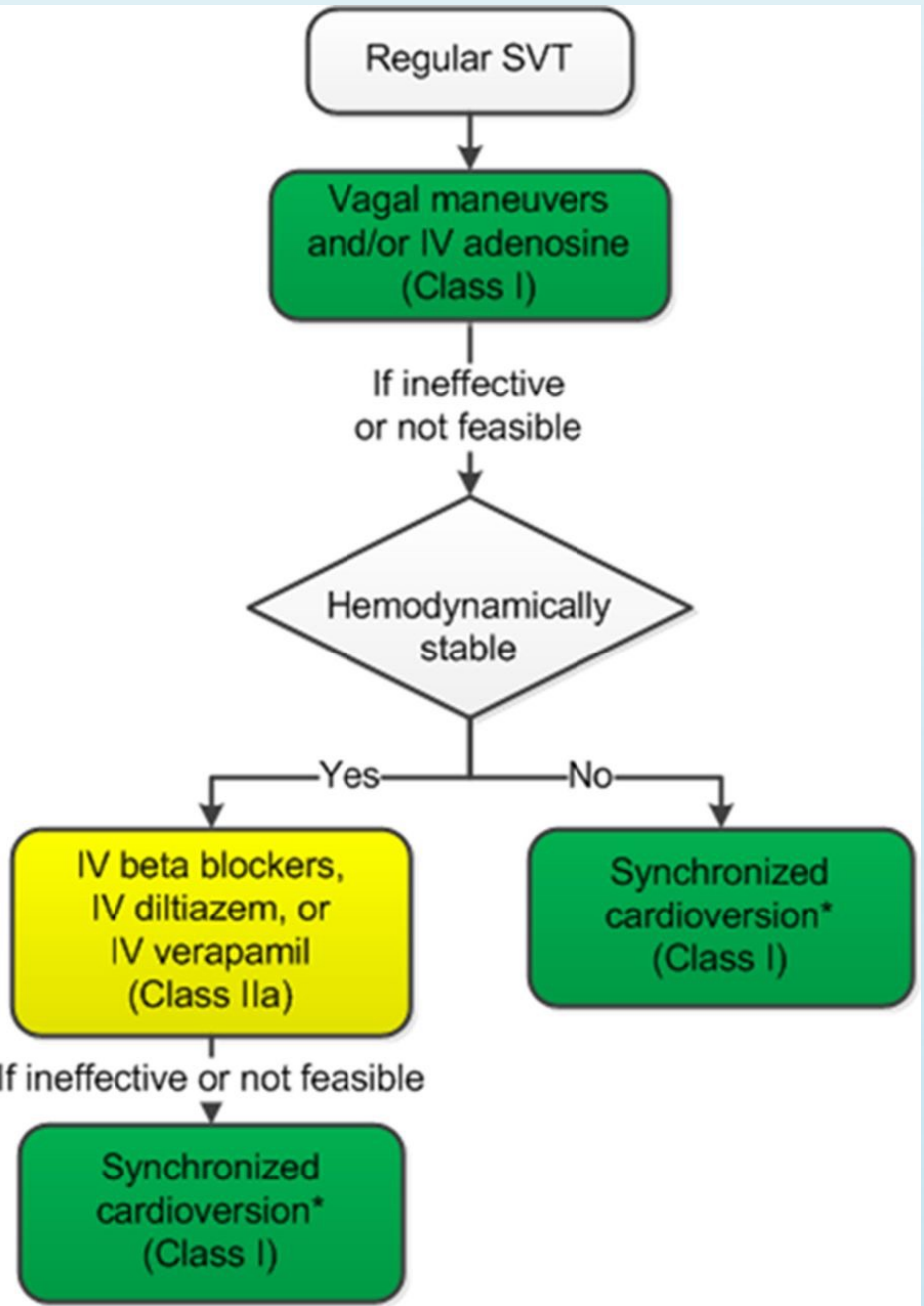
Case Report

- A 25-year-old G7P1243 at 35 weeks and 2 days' gestation with a history of SVT, chronic hypertension, and anxiety presented for right upper quadrant pain and nausea.
- Before this pregnancy she was scheduled for an ablation for SVT, but this was delayed until after delivery.
- Medications included acetaminophen, prenatal vitamins, aspirin, metformin, and metoprolol.
- Ruled in for preeclampsia with severe features two days after admission and was called for induction.
- A test dose of 3mL of 1.5% lidocaine with epinephrine 1:200,000 was negative.
 - Test dose included 15 mcg epinephrine total(5mcg/mL)
- Ten minutes after epidural placement the she developed an episode of tachycardia progressing to SVT; vagal maneuvers were initially attempted but provided no relief.
- She received a 3 mg bolus of adenosine with a concomitant decrease in heart rate, however, the patient was still symptomatic and continued to be in SVT.
- A subsequent 3 mg bolus of adenosine was delivered; the patient's heart rate then decreased further and her rhythm converted from SVT to sinus tachycardia.
- The patient was given 2 mg metoprolol IV for persistent sinus tachycardia while waiting oral metoprolol.
- No other peripartum or postpartum complications arose during her hospital course.
- Roughly 6 weeks after delivery, she underwent successful ablation with cardiac electrophysiology.

Images



From left to right: Normal conduction pathway in the heart; abnormal conduction as seen in atrioventricular nodal reentrant tachycardia (AVNRT); American Heart Association guidelines for management of SVT



Discussion

- The most likely etiology of this patient's episode of SVT was a delay in receiving her home dose of metoprolol.
- Given the half-life of non-extended release formations of metoprolol, it is plausible that such an episode would present more than 24 hours since she took her last dose.
- There was concern that the epinephrine in the test dose triggered this episode of SVT, but was less likely given the duration between administration and onset of SVT.
- This episode of SVT was aborted using intravenous adenosine and metoprolol.
- Subsequent labs showed mild hypocalcemia and hypermagnesemia, which could have contributed; daytime telemetry showed no findings suggesting electrolyte abnormalities.

References

• Kuo, C. D., et al. (2000). Biphasic changes in autonomic nervous activity during pregnancy. British Journal of Anaesthesia, 84(3), 323–329. <https://doi.org/10.1093/oxfordjournals.bja.a013433>

• Page, R. L., et al. (2016). 2015 ACC/AHA/HRS Guideline for the Management of Adult Patients With Supraventricular Tachycardia: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. Journal of the American College of Cardiology, 67(13), e27–e115. <https://doi.org/10.1016/j.jacc.2015.08.856>