Background
Catecholaminergic polymorphic ventricular tachycardia (CPVT) is a potentially lethal cardiac arrhythmia:
- Triggered by emotional or physical stress
- Presents as syncope, seizures, or sudden cardiac death
- Onset during 1st or 2nd decade of life
 genetic mutations in cardiac myocyte:
- Ryanodine receptor subtype affected in 50% of cases.
- Recessive mutations in calsequestrin proteins have also been identified.
- In both cases, there is abnormal calcium regulation within the cardiac myocyte.

Adrenergic stimulation leads to ventricular ectopy, tachycardia, and may progress to ventricular fibrillation.

Treatment options include:
- Antiarrhythmics (e.g. beta-blockers)
- Implantable cardiac defibrillators (ICDs)
- Surgical transection of the upper thoracic sympathetic chain: called left cardiac sympathetic denervation (LCSD)

Case Report
A 17 year old male with refractory CPVT presented for video-assisted thoracoscopic LCSD surgery. The patient suffered frequent syncopal episodes despite medical therapy and ICD placement. He also suffered frequent painful shocks from his ICD.

Case Details:
- After oral premedication with diazepam, general anesthesia was induced with propofol. Anesthesia was maintained with sevoflurane, remifentanil, and dexmedetomidine.
- Lung isolation was performed with a double-lumen oral endotracheal tube.
- Arterial and central venous catheters were inserted.
- A magnet was placed on the ICD to prevent the defibrillation feature.
- No arrhythmias occurred and the surgery proceeded without adverse event.

Postoperative Course:
- Analgesia was provided with intravenous fentanyl and local anesthetic infiltration of the thoracoscopic skin incisions.
- Following closure of the surgical incisions, we examined the left paravertebral space with ultrasound.
- Minimal anatomic distortion of the left paravertebral space was found despite the thoracoscopic dissection (image shown).
- A paravertebral block was deferred because infiltration of the skin incisions with local anesthetic was deemed adequate.
- Follow-up at 2 weeks with ICD device interrogation showed resolution of ventricular tachycardia.
  - The patient denied recurrence of painful ICD shocks.

Conclusions
CPVT is a potentially lethal syndrome in the pediatric population. This case illustrates several important anesthetic issues in surgical therapy for CPVT:
- Perioperative stress and tachycardia should be avoided.
- Premedication, choice of anesthetic agent, and planning for postoperative analgesia are key considerations.
- Ultrasound-guided paravertebral block is a feasible component of postoperative pain management.
- The associated ryanodine receptor mutation is not a risk for malignant hyperthermia.

References