Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIDP) in a Pediatric Patient for Laparoscopic Appendectomy

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Background:
• 15yo M with CIDP presented with acute appendicitis for lap appy.
• CIDP is characterized by symmetrical proximal and distal weakness with large fiber sensory loss, impaired balance, and areflexia [1].
• Rare in adults at 1-1.9 per 100,000; more so in children at 0.48 per 100,000 [2].
• Symptoms of CIDP began 8 months prior when his football coach mentioned a decrease in his weight lifting ability.
• Diagnosis 3 months later based on clinical presentation, electrodiagnostic testing, elevated CSF protein, and MRI [3].
• Home meds are Prednisone 60mg PO q day.
• Physical exam: 72kg 15yo male with stable VS. Neuro exam: paresthesias bilat. feet, grip 4/5 L hand and 5/5 R hand, dorsiflexion and plantar flexion 3/5 bilaterally, 1+ DTRs bilat. Brachioradialis, absent DTRs bilat. achilles.

Case Description:
• Hydrocortisone 160mg IV and antibiotics pre-op due to chronic immunosuppression.
• Pre-op Vital Capacity 1.7L with mask during spontaneous respiration (Figure 1).
• Induction: Lidocaine 100mg IV, propofol 300mg IV, fentanyl 250mcg IV. Intubated in one attempt.
• No paralytic was given [4].
• Remifentanil 0.3mcg/kg/min and isoflurane 1.6% for maintenance.
• Surgery was laparoscopic. Adequate muscle relaxation for facile removal of the appendix in 32 minutes.
• Post-op Tidal Volume 422mL during spont. respiration while intubated (Figure 2).
• Extubation uneventful. Neurological exam in the PACU identical to pre-op exam.
• IVIg X 3 and discharged home in stable condition with follow up by pediatric neurology.

Anesthetic Considerations:
• Main consideration in a pediatric patient with CIDP is preservation of muscle strength. Paralytics should be avoided and regional anesthesia considered.
• Autonomic dysfunction is seen, but is mainly sudomotor with adrenergic sparing, thus hemodynamic instability is not an increased concern [5].
• Children more frequently relapse compared to adults but respond better to therapy. Optimization with pre-op steroids and post-op IVIg is important [6].
• Chronic steroids is the treatment of choice for CIDP. Patients should receive a stress dose of steroids pre or intra-op to avoid adrenal insufficiency. Side effects of weight gain and edema may impact airway management. Risk of osteoporosis warrants limitation of c-spine manipulation during intubation. Poor wound healing should prompt increased vigilance in sterile technique and appropriate dosing and scheduling of antibiotics.