Single-Port Laparoscopy in Children: A retrospective chart review of ultrasound-guided rectus sheath blocks

Kenneth Zuckerman, M.D., Nicholette Kasman, M.D., Wendy Su, M.D. Children’s Hospital and Research Center, Oakland, CA

Introduction: Single Port Laparoscopy has gained wider acceptance recently due to improved cosmesis over multi-port laparoscopy. Our collective clinical impression, however, is that the single port approach is associated with significant discomfort in light of greater muscle manipulation and stretching. To that end, we reviewed charts of 20 children with non-ruptured appendicitis who underwent single port laparoscopy for appendectomy.

Method: In this Institutional Review Board-approved retrospective study, we extracted data from 20 patients who underwent single port laparoscopy. Sonosite ultrasound with 10-15 MHz linear probe was used to identify the rectus sheath. 0.1-0.2 ml/kg of 0.25% Bupivacaine was injected in the space between the posterior rectus sheath and rectus abdominis muscle, bilaterally, at the level of the umbilicus. Patients received 1-3 mcg/kg Fentanyl on induction of anesthesia. Post-operative pain was scored by pediatric RN assessment for need of rescue morphine.

Results: Patients received an average of 30 mcg/kg morphine sulfate while in the PACU in their first post-operative hour. 24 hour opioid use was standardized at 50 mcg/kg/dose morphine sulfate while on surgical floor, where patients received an average of 1.3 doses of morphine sulfate in the first 24 hours after discharge from the PACU.

Conclusions: Ultrasound-guided imaging allows for accurate placement of local anesthetic between the posterior rectus sheath and rectus abdominis, making for straightforward performance of the rectus sheath block. Our preliminary results and clinical impressions suggest that bilateral rectus sheath block may provide superior pain control to traditional methods, such as local anesthetic injection around umbilical port site. Decreased opioid requirements may cause fewer or less-profound side effects, such as nausea, vomiting, pruritis, and ileus. An appropriately-powered randomized, controlled trial will be performed to determine whether bilateral rectus sheath block is superior to local anesthetic injection at the umbilicus in single port laparoscopy in children.