

44604 - CHOLECYSTECTOMY USING LAPAROLIFT IN A PATIENT WITH FONTAN PHYSIOLOGY

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PURPOSE: In the Fontan palliation procedure, blood flows passively from the systemic venous circulation to the pulmonary artery. Fontan physiology management strategy includes maintenance of preload, ensuring normal gas exchange to preserve low pulmonary vascular resistance (PVR) and blood flow, preserving ventricular filling, contractility and sinus rhythm while avoiding large increases in afterload, and minimizing stress response.

Laparoscopy reduces surgical trauma and post-operative pain, and allows early ambulation and hospital discharge. Insufflated CO₂ absorbed by the peritoneum results in respiratory acidosis and hemodynamic stress response, including an increase in mean arterial pressure, systemic vascular resistance and PVR and pulmonary capillary wedge pressure and central venous pressure, and a decrease in cardiac index (1,2,3). CO₂ embolism during peritoneal insufflations is observed in most patients undergoing laparoscopic cholecystectomy (4). Gasless abdominal distension using laparolift for a cholecystectomy is associated with a stable hemodynamic profile (5).

CLINICAL FEATURES: A 32 year-old women with Fontan physiology was scheduled for a laparoscopic cholecystectomy using laparolift. She was acyanotic and well compensated (NYHA 2). She had no major complications of her Fontan physiology except for a discrete right pleural effusion and right convexity scoliosis. The EKG showed normal sinus rhythm. Before induction of general anesthesia (GA) a spinal with epimorph was easily performed for post-operative pain management. GA was induced with etomidate, fentanyl and rocuronium and maintained with Des-O₂-air under mechanical ventilation. Installation of left radial arterial line, right internal jugular access for central venous pressure and transesophageal echocardiography (TEE) completed our standard monitoring. Surgery and laparolift placement went uneventfully. Vital signs remained stable throughout the procedure. TEE monitoring did not detect air embolism and cardiac function was preserved. The patient returned to spontaneous breathing and was extubated at completion of the procedure with complete analgesia. Her post-operative analgesic requirements were minimal. Her pain was controlled by acetaminophen alone. After 24 hours in our intensive care facility, she was released on post-operative day 6. She then received furosemide to improve her oxygenation. Patient consent was obtain for publication.

CONCLUSION: Gasless laparoscopic cholecystectomy using laparolift can be safely performed in a patient with compensated Fontan physiology while preventing the negative physiologic effects of CO₂ pneumoperitoneum. TEE may prove useful in detecting adverse hemodynamic response. Spinal epimorph analgesia provided satisfactory analgesia to our patient.

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