



A MODERN PARADIGM FOR PERITONEAL CATHETER INSERTION: SINGLE PORT OPTICAL ACCESS LAPAROSCOPIC SHUNT INSERTION

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Introduction

Ventriculoperitoneal shunting is one of the most commonly performed neurosurgical procedures. Typically, for insertion of the peritoneal catheter, a mini-laparotomy technique and “open” dissection is utilized. Although generally safe, this method is cosmetically undesirable and time consuming. Complications of this approach include malpositioning of the shunt (most commonly in the pre-peritoneal space), bowel injury, and delayed hernias.

Over the past decade, laparoscopy has become widely accepted in general surgery. Modern techniques and technology have allowed for smaller incisions, as well as faster and safer surgeries. One significant advance has been the way in which the peritoneal cavity is first entered, with devices emerging that allow for dissection through the abdominal wall under direct visualization with the laparoscope peering through a clear trocar, in a process referred to as optical access.

Methods

All ventriculoperitoneal shunts placed by the senior author since April 2011 were retrospectively reviewed through electronic chart review. Surgical and perioperative complications, length of post-operative stay, and any shunt revisions were reviewed from the available medical records.

Results

56 patients were identified, in which 58 procedures were performed. The two most common indications for shunt placement were post-hemorrhagic and normal pressure hydrocephalus. There were no cases of peritoneal catheter misplacement. One intraoperative complication occurred early in the series, in which there was an injury to the gallbladder necessitating cholecystectomy. 5/56 patients developed abdominal complications necessitating revision: 3 with abdominal pain and peritonitis, and 2 with pseudocyst development. Median post-operative length of stay was 6 days (range 1-23 days).

Conclusions

Single port optical access laparoscopy is a safe, fast, and minimally invasive technique that allows direct visualization of the layers of the abdominal wall, and peritoneal shunt catheter placement. It utilizes a small cosmetic incision (on the scale of 8mm), and obviates the need for radiographic studies to verify catheter placement. The procedure has a modest learning curve, but can be utilized without the assistance of a general surgeon after the skills are acquired.

Learning Objectives

By the conclusion of this session, participants will be able to describe an alternative safe method of inserting peritoneal catheters with direct visualization and with a single small abdominal incision.

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