



Pyloromyotomy (Open and Laparoscopic Approach)

10

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Indications and Benefits

- Hypertrophic pyloric stenosis (ultrasound findings of 4 mm thickness or greater, 14 mm channel length or greater, some variation is found at differing institutions, can also be diagnosed by upper gastrointestinal series)
- Benefits: Provides surgical correction results in resolution of this problem, there can be postoperative gastric atony that requires patience from the surgeon and family for resolution

Risks and Alternatives

- Standard risks (bleeding, infection, need for additional procedures, risks of sedation/anesthesia)
- Injury to adjacent structures (duodenum, stomach)
- Duodenal injury, full thickness injury at the pylorus requiring repair and additional myotomy, incomplete myotomy, delayed gastric emptying
- Alternatives: in very poor surgical candidates, patients can be maintained with orogastric

decompression and transpyloric feeding or TPN while allowing time for this problem to resolve

Essential Steps

1. Correct dehydration and electrolyte derangements prior to surgical intervention.
2. Ensure adequate myotomy (typically by demonstration of independent movement of superior and inferior margins).
3. Ensure no full-thickness injury.

Note These Variations

- Use of air insufflation via a preoperatively placed nasogastric tube to test for leakage/full-thickness injury at myotomy site.
- Open procedure may be performed via supra-umbilical curvilinear skin incision and midline fascial division superiorly at the linea alba.
- Full-thickness injury during myotomy: primary repair of the full-thickness injury with interrupted sutures and then rotate pylorus to perform the pyloromyotomy on a different aspect of the pylorus. Omental patch can be used on top of the perforation. The OG catheter can be left in place and postoperative upper gastrointestinal series completed to ensure no active leaking from the repair.

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Template Operative Dictation (Laparoscopic)

Preoperative Diagnosis Hypertrophic pyloric stenosis

Postoperative Diagnosis Same as preoperative diagnosis

Findings consistent with postoperative diagnosis

Procedure(s) **Performed** Laparoscopic pyloromyotomy

Anesthesia *General anesthesia*

Specimens none

Drains none

Implants none

Estimated Blood Loss *none/minimal*

Indications This is a ___ *day/week* old *male/female* who presents to the operative suite for pyloromyotomy due to preoperative findings of hypertrophic pyloric stenosis. The patient was admitted preoperatively and resuscitated with intravenous fluids and correction of electrolyte derangements was confirmed by laboratory results.

Procedure in Detail Following satisfactory induction of anesthesia/sedation, the patient was placed in a supine position and padded appropriately. A timeout was performed using both pre-induction and pre-incision safety checklists with participation of all present in the operative suite. These confirmed the correct patient, procedure, operative site, and additional critical information prior to the start of the procedure. *Appropriate perioperative antibiotics were administered.*

The patient was placed transversely on the OR table in a supine position with head slightly up and a monitor placed across from the operating surgeon. An OG catheter was placed and kept to

low intermittent wall suction. The abdomen was prepped and draped in a normal sterile fashion. Local anesthetic was instilled around the umbilicus, and then the umbilicus was grasped and the base of the appendix was bluntly opened with a curved hemostat. The instrument was noted to be intraperitoneal by showing mobility in all directions. A 3 mm port was then placed and insufflation to 10 mmHg was achieved. A laparoscope was inserted. This showed the stomach to be decompressed with the OG catheter and the pylorus appeared thickened.

Under direct visualization, local anesthetic was instilled in the right upper quadrant just below the level of the liver near the mid-clavicular line. This was followed by an 11 blade being used to create a stab incision under direct visualization until the peritoneum was penetrated. A duodenal grasper was then placed through this incision site under direct visualization. Local anesthetic was then instilled under direct visualization in the left upper quadrant above and just to the patient's left of the pylorus. This was followed by an 11 blade being used to create a stab incision under direct visualization until the peritoneum was penetrated. A long-tip insulated Bovie electrocautery device was then placed through this incision site under direct visualization. The cautery was set to 0 and coagulation set to 10. The duodenal grasper was used to gently grasp the proximal duodenum and to roll the pylorus into the field of view.

The cautery pencil was used to palpate the proximal and distal extent of the hypertrophic muscle and then was used with coagulation to mark deliberately the area to be used for pyloromyotomy while avoiding vessels and being sure to not dissect too proximally or distally. A second pass was used to score the entire line. The tip of the Bovie was then used to bluntly dissect at the center of the scored line and bluntly dissect through the hypertrophic muscle. This was rotated 360 degrees. The cautery was then exchanged for a blunt, hockey-tip style pyloric spreader. This was engaged in the center of the dissection line and once within the muscle was spread slowly under direct visualization. The mucosa was seen bulging below this and was intact. The pyloric spreader was then used proxi-

mally and distally until the muscle splayed out. The graspers were then used to ensure independent movement of the upper and lower aspects of the muscle.

If air insufflation leak test performed: the anesthesiologist then instilled air through the OG tube until the stomach was distended while the duodenum was occluded. There was no bubbling visualized nor any bilious fluid seen. The duodenal occlusion was released and air was seen going through the pylorus and filling the duodenum. The stomach was then aspirated of all air and the orogastric tube removed.

The instruments were removed under visualization and there were no signs of bleeding. The abdomen was desufflated and the umbilical stalk was closed with 3-0 absorbable braided suture. Skin was closed with 5-0 absorbable braided suture and surgical glue was placed on top of this in multiple layers.

Upon completion of the procedure, a debriefing checklist was completed to share information critical to the postoperative care of the patient. The patient tolerated the procedure well, *was extubated in the operating room*, and was transported to the postanesthesia care unit in stable condition thereafter.

Template Operative Dictation (Open)

Preoperative Diagnosis Hypertrophic pyloric stenosis

Postoperative Diagnosis Same as preoperative diagnosis

Findings consistent with postoperative diagnosis

Procedure(s) Performed Open pyloromyotomy

Anesthesia *General anesthesia*

Specimens none

Drains none

Implants none

Estimated Blood Loss *none/minimal*

Indications This is a ___ *day/week* old *male/female* who presents to the operative suite for pyloromyotomy due to preoperative findings of hypertrophic pyloric stenosis. The patient was admitted preoperatively and resuscitated with intravenous fluids and correction of electrolyte derangements was confirmed by laboratory results.

Procedure in Detail The patient was placed on the OR table in a supine position. An OG catheter was placed and kept to low intermittent wall suction. The abdomen was prepped and draped in a normal sterile fashion. A small transverse incision was created just to the right of midline at the level of the edge of the liver. The anterior rectus sheath, rectus muscle, and posterior rectus sheath were divided and the abdomen was entered safely. The stomach and pylorus were identified and the pylorus was externalized and the pylorus did appear thickened, consistent with the diagnosis of hypertrophic pyloric stenosis. The proximal and distal extents of the pyloric stenosis were identified. Bovie electrocautery was used to create a longitudinal mark along the pyloric stenosis and the muscle was superficially divided. A blunt pyloric spreader was then used and inserted into the muscle and slow traction was used to divide the muscle down to the level of bulging mucosa. The proximal and distal extents were spread similarly until the muscle splayed out and the upper and lower portion showed independent movement. Air was then given via the orogastric tube. This caused distention of the stomach and pylorus. There was no bubbling or bilious drainage seen. Hemostasis was satisfactory. The stomach was aspirated of all air and the pylorus delivered back into the abdomen. The fascia was closed in two layers with 3-0 absorbable braided suture, and the skin was closed with running subcuticular 5-0 absorbable braided suture followed by a sterile dressing.

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