

erative nurses must accept their constantly changing roles, and they must be prepared to meet these changes head on. Taking all of this into consideration, What do you think the future of perioperative nursing will be?

In an article in the *Nursing Administration Quarterly*, Colleen Harvey states that, "In a highly technical environment, the perioperative nurse will be the "high touch," human element required to maintain a high order of ethics and values and to advocate excellence in nursing care for the surgical patient. The perioperative nurse will institute and maintain standards for the quality of practice and for comprehensive, cost-effective care for each patient."⁵⁶

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Laparoscopic Nissen Fundoplication

A Minimal Access Alternative

By Priscilla Troch, RN, BScN, and Helen Jansen, RN

Laparoscopic Nissen Fundoplication is fast becoming the preferred treatment for patients suffering from gastroesophageal reflux (GER) disease. Traditionally, correction of GER has been accomplished by an extensive invasive conventional "open" Nissen Fundoplication (Low, 1988). But, in the advent of laparoscopic surgery a successful repair of GER is now being achieved laparoscopically. GER is defined as the retrograde flow of gastric contents into the esophagus (Hunter, 1993). Although virtually everyone has experienced GER, the symptom of "heartburn" is masked by natural physiological reactions. It is suggested that GER afflicts some ten percent of the

general population (Hunter, 1993; McKernan, Wolfe, & MacFadyen, 1992). Treatment of GER for many has been managed by the use of pharmaco-therapeutics in conjunction with lifestyle alterations (McKernan, Wolfe, & MacFadyen, 1992). There are those however that remain symptomatic despite prescribed therapy, and surgical intervention is then indicated. Nissen Fundoplication simply, is a procedure whereby the fundus of the stomach is wrapped around the esophagus to form a sphincter like band that will reduce/prevent the reflux of gastric contents into the esophagus. A laparoscopic approach to correction of GER offers patients an attractive alternative to life long drug therapy or a major transabdominal or transthoracic surgery (Bagnato, 1992).

Abstract

The preferred treatment of gastroesophageal reflux has traditionally been Nissen fundoplication. This involves an extensive abdominal or thoracic incision and subsequently results in patient discomfort, an extended recovery period, and increased overall costs. In the advent of laparoscopic advances surgical correction of symptoms of gastroesophageal reflux are now being offered through minimal access surgery. Increased patient satisfaction, decreased costs, and a quicker return to activities of daily living, suggest why laparoscopic Nissen fundoplication, (LNF) is fast becoming the preferred alternative to correction of gastroesophageal reflux disease. This article will review gastroesophageal reflux and describe one surgical method of laparoscopic correction. The role of the perioperative nurse and implementation of the nursing process regarding this surgical procedure will be highlighted.

Preoperative Preparation

In preparation for minimal access surgery the patient undergoes physiological tests of the gastrointestinal tract in order to obtain a thorough GI history

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Table 1

Fibreoptic Esophagogastroduodenoscopy : Allows for visualization of the esophagus, stomach, and upper small bowel with a fibreoptic gastroscope. The condition of the upper gastrointestinal tract is also evaluated for the presence of inflammation, ulceration and strictures. If biopsies are obtained, changes in the cellular structure of the GI tract may be detected.

Esophageal Manometry: Examines the motor function of the upper esophageal sphincter, esophageal body and lower esophageal sphincter. A pressure sensitive perfusion catheter filled with water is introduced to the GI tract. As motility of the GI Tract occurs, the catheter is compressed and a pressure read out in mmHg is obtained as a wave form for evaluation.

24 Hour Esophageal pH: Determines the frequency and duration of acid reflux into the esophagus and examines the correlation between symptoms and reflux events for a 24 hr period. A pH probe is inserted transnasally and positioned above the lower esophageal sphincter. The probe is connected to a small monitor and the patient is discharged home. A diary of activities and resulting symptoms are kept by the patient for a 24 hr period. The probe is removed and results evaluated at the motility lab.

Barium Swallow: This procedure is performed in the radiology department and allows the physician to view the patients gross gastro-intestinal anatomy.

and establishment of the probable cause of the patient's problematic gastric symptoms. If evaluation determines acid reflux as the primary cause of the patient's symptomatic esophagitis, the patient will require surgical intervention. In preparation for LNF a number of diagnostics are routinely performed including: fiberoptic esophagogastroduodenoscopy, esophageal manometry, 24 hour pH, GI motility, and Barium swallow (Table 1).

Once GER is confirmed and surgical intervention is indicated, the patient is referred to the preassessment unit (PAU) for a routine surgical work up. A CBC, electrolytes, creatinine, glucose, ECG (if indicated), and urinalysis are obtained with results submitted to the patients chart. Preoperative education is initiated in the doctors office and continues throughout the perioperative patient experience. Education tools include: a preoperative video, information pamphlets and surgery specific information sheets. Any necessary consults are ordered at the time of the preassessment unit visit. The patient then returns on the day of surgery at the specified time to the Same Day Admit Surgery (SDAS) service for standard hospital admission

In the Operating Room the efficiency of both equipment and personnel are mandatory for a successful procedure. The suction irrigator and a cabinet complete with a TV monitor, light source, high flow CO₂ insufflator, and camera are brought into the room, (VCR on request). The circulating nurses gather the basic laparoscopic instruments(Table 2) along with

any necessary equipment and supplies (Tables 3 & 4) for the case, and arrange the theatre furniture appropriately. The patient is transported to the Operating Room one half hour before the scheduled start time by the OR porter. The patient is received in the Operating Room's perioperative assessment area, where routine preoperative criteria are checked, patient assessment performed and documentation initiated. Emotional support is offered, information provided and questions answered as necessary. The patient is then transported to the OR theatre. The nurse directs his/her attention to the anaesthetic phase of patient intervention, and patient monitors are placed appropriately. Safety measures and ongoing supportive care is provided at all times. The patient is continually informed regarding changes in his/her environment in order to reduce anxiety. The induction phase is critical, the nurse prepares for a "crash" induction as the patient is at high risk for gastric reflux secondary to GER. Once the patient is in a state of general anaesthesia and the airway is secured, the nurse is free to assist with patient positioning, protection, and safety practices.

Intraoperative Phase

The patient is placed in lithotomy position and the legs secured in Allen stirrups by the operating surgeon. The patient is prepped using an appropriate prep solution, and sterile drapes are applied. The room equipment is moved into place (Figure 1) and the sterile field is created. Sterile equipment is handed up by the scrub nurse and secured.

Table 2
Basic Laparoscopic Instruments

10 foot fibre optic light cord	fine sharp dissecting clamp
insufflation tubing	fine blunt dissecting clamp
hooked scissors	heavy blunt grasping forcep
suction irrigator tubing	heavy toothed grasping forcep
short tubing for hydro dissection pump	10mm trocar and cannula X2
stainless steel saline bottle cap	metal suction irrigator probe
Verres needle	coagulation probe
reducer 10mm to 5mm	L- hook cautery probe and cord
ligaclip applier (med)	5mm trocar and cannula X 3

Additional pick items: 45cm grasper, extra small trocar with metal trap angled allis forcep with flexible trocar, 2 needle drivers (one with ratchet), cook needle driver, laparoscopic babcock, 0° telescope, and Hasson grasper.

Table 3
Special Equipment

Laparoflator	Zenon light source
Camera	Video monitor, (VCR for recording of LNF on request)
Hydro-dissection pump	Cautery machine with footswitch
Allen universal stirrups X 2 with pads	

Note: A case cart complete with instruments and supplies necessary for an open procedure is kept outside the room in case it is necessary to abort the laparoscopic approach.

Table 4
Supplies

# 42 Bougie	antifog
Raytex gauze	sutures
TB syringe & needle	# 15 blades X 2
Steri-strips	

The unsterile camera is connected to the sterile telescope by the circulating nurse under direct guidance of the scrub nurse. The sterile camera drape is then extended to its maximum length and secured on the sterile field. Remaining ends including: cautery cord, light source, insufflation and suction irrigation tubing are then passed off to the circulating nurse and connections made appropriately.

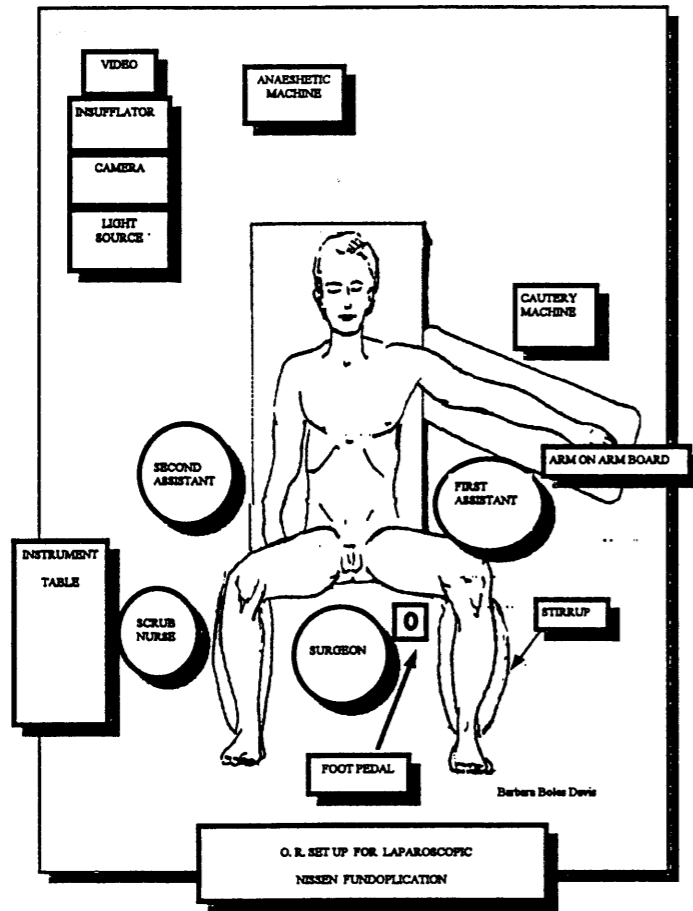
Intraoperatively the nurses monitor and attend to the surgical teams needs including: ongoing assessment of the patient, equipment, and supplies that assist in the provision of quality care for the patient. The scrub nurse reviews and seeks information as necessary from the circulating nurses regarding general endoscopic instrumentation, their accessories and expected performance. She/he maintains the sterility,

cleanliness and functioning of equipment and supplies throughout the procedure. Participation as an assistant when required is strongly supported and advocated. Dr. M. Anvari, a general surgeon at St. Joseph's Hospital performs the following technique to achieve a successful LNF.

Procedure

With the patient in lithotomy position, a verres needle is introduced into the abdominal cavity through a small incision made in the left upper quadrant. The insufflation tubing is connected and the abdomen is instilled with CO₂ gas which lifts the peritoneum, maximizes visibility and creates pneumoperitoneum. An initial cannula (10mm) is placed blindly 5cm

Figure 1



above the umbilicus, and the laparoscope is introduced. The remaining cannulas are then placed under direct visualization of the internal organs and vessels. Three 5mm laparoscopic cannulas complete with trocars are introduced as follows: in the right upper quadrant, in the left upper quadrant and below the xiphosternum. The remaining 10mm cannula is finally placed 5cm to the left of the umbilicus. If the surgeon anticipates a problem with insertion of the verres needle or trocars, a 5mm trocar and laparoscope may be used initially instead of the 10mm trocar.

The liver is retracted upwards with a suction tip in order to maximize visualization of the gastroesophageal junction. The division of the peritoneum over the gastroesophageal junction is accomplished using electrocautery or scissor dissection. The anaesthetist is directed by the surgeon to insert a # 42 Bougie (a larger size may be necessary depending on motility) into the esophagus assuring localization of the esophagus. The esophagus is then mobilized about 5 cm through the esophageal hiatus. Identification of both

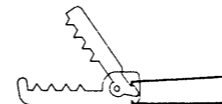
the anterior and posterior vagus is achieved and both are protected appropriately. Once a satisfactory mobilization is achieved, a curved grasping instrument is passed behind the esophagus and the fundus of the stomach is pulled behind and to the right of the esophagus. Interrupted 2-0 silk sutures are then placed between the fundus and esophagus and a 3 cm long, 360 degree fundoplication is completed (Figure 2). At this point the anaesthetist is directed to remove the Bougie. The pneumoperitoneum is deflated and all cannulas are randomly removed. Both the fascia and skin are approximated using #1 and 3-0 vicryl sutures respectively and steristrips applied. The described procedure including set-up and anaesthetic time is approximately one and one half hours.

Immediate Post-Op

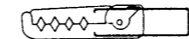
Drapes are removed and the patient is assessed and returned to a supine position. The patient's emergence and immediate recovery in the Operating Room is orchestrated by the anaesthetist. During emergence of

Rocket Hulka Clip

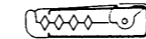
Laparoscopic Female - Tubal Sterilization



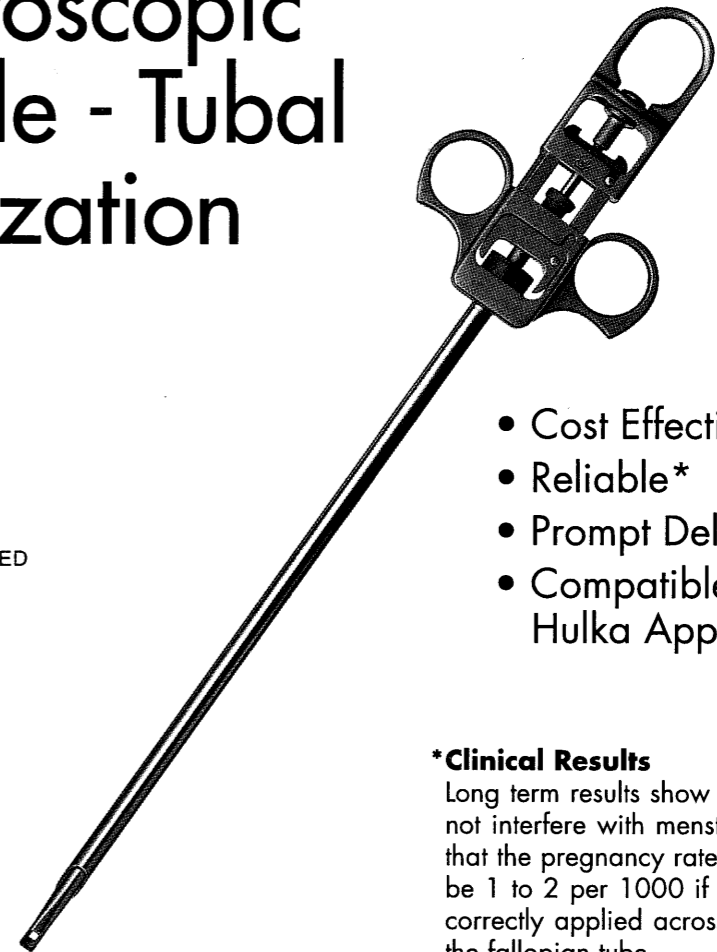
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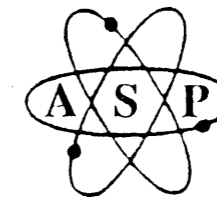
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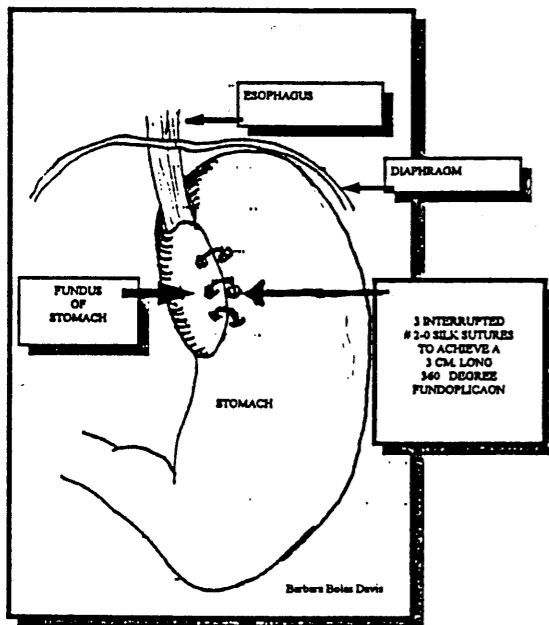
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Figure 2



anaesthesia the nurse remains in attendance to respond to emergent situations and provide safety and comfort measures to the patient as necessary. The patient is assessed, extubated, stabilized and transferred to the Post Anaesthetic Recovery Room where standard postoperative assessments are performed, with an estimated length of stay of one hour. Once discharge criteria have been met the patient is transported to the nursing unit.

The morning after surgery, the patient undergoes a gastrographin swallow to confirm a secure anastomosis exists. If the X-ray is negative (no apparent leaks), the patient starts on a fluid diet and is discharged on the second postoperative day. The patient is educated to remain on a fluid or semi-solid diet for approximately one week, and gradually resumes eating solid foods. All patients are followed up regularly with 24 hour pH and esophageal manometry studies at six months, two and five years, unless otherwise determined.

Results

Over a seventeen month period (Aug. 1992-Apr. 1994) at St. Joseph's Hospital in Hamilton Ontario, 105 LNF's have been performed. Of this number only one case required conversion to the conventional open Nissen Fundoplication. Dr. Anvari states, "all patients that have undergone this procedure have reported complete or partial relief of their symptoms". Post operative complications have been minimal and zero mortality reported.

Conclusion

Laparoscopic repair of gastroesophageal reflux has been demonstrated as an efficacious alternative to traditional radical laparotomy and thoracotomy approaches. Low morbidity, high patient satisfaction, less pain, shorter recovery and subsequently a quick return to activities of daily living are just a few of the benefits to minimal access surgery (Geagea, 1991).

Technologies and health care are rapidly advancing towards the minimally invasive approach. Continued research and development of equipment, techniques and surgeon expertise are required in order to empirically demonstrate the success of new laparoscopic approaches. Successful advanced minimal access surgery now being performed by our expert staff include: laparoscopic bowel resection, gastrectomies, hernia repair, appendectomies, liver biopsies and thorascopic surgery. St. Joseph's Hospital and its team of health professionals have embraced this challenging new field of minimal access surgery with enthusiasm. As a team we endeavour to remain on the cutting edge of knowledge and practices in our continuous striving for excellence in the provision of health care.

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Laparoscopic Assisted Vaginal Hysterectomy

By Pam Railton, RN, Lynn Kurylko, RN and Dr. C.M. Shah

Laparoscopic assisted vaginal hysterectomy (LAVH) is the latest advancement in gynecological surgery. Laparoscopy is a medical term used to describe insertion of a telescope into a sleeve into the abdominal cavity. In the past few years, technological advancements have made it possible to do extensive surgeries utilizing laparoscopy.

It is now possible to do a vaginal hysterectomy by doing a laparoscopy - surveying the pelvic contents, separating the uterine attachments, fallopian tubes, ovaries, and main arteries.

As the uterus is too large to remove through a small cannula, it is removed through the vagina. Therefore, a patient who wouldn't normally be a candidate for vaginal hysterectomy can have an LAVH, thus avoiding a large abdominal incision and benefiting from a more rapid recovery.

In the following article, the indications, instrumentation, procedure and early clinical experiences comparing LAVH and abdominal hysterectomy will be covered. Complications, restrictions, benefits, costs and postoperative care for patients undergoing LAVH will also be discussed.

Indications

Dr. J. Arneja and Dr. C. M. Shah have been performing LAVH at the Victoria General Hospital since January 1992. After completing 50 cases they undertook a review of their clinical experiences. They found that indications for doing hysterectomies were almost identical between the two techniques - LAVH and abdominal hysterectomy. The most common indication being fibroids. (See Tables 1A and 1B).

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Abstract

Laparoscopic Assisted Vaginal Hysterectomy (LAVH) is the latest advancement in gynecological surgery. It is proving to be a viable alternative to abdominal hysterectomy.

Dr. J. Arneja and Dr. C. M. Shah have been doing LAVH since 1992. After completing 50 cases, a review of clinical experiences was undertaken. Indications for doing the procedures are almost identical, with fibroids being the most common indicator.

A list of instruments required for doing LAVH, along with a diagram of the room set-up are included to help those nurses who are in the preliminary stages of doing LAVH.

The procedure is described at length, beginning with positioning, prepping, and draping of the patient.

A telephone audit with 25 patients who had a LAVH or Abdominal Hysterectomy is also reported.

Complications, benefits, restrictions, and a cost comparison are discussed, including charts to show our results. The article concludes with an overview of the postoperative management of patients having LAVH.