Nursing Management of patient with upper GI surgery

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Objective

- Pre-operative care and concern
- Positioning
- Theatre setting
- Preparation and care of specific equipment/instruments/consumable items
- Specific intraoperative care & post-operative care
Upper GI Surgery

- Upper GI Surgery refers to the management and surgery of diseases which involve the upper half of our digestive system.
  - includes the stomach, oesophagus, spleen, the small intestines and gallbladder.
  - Common problems include gallstones, acid or gastro-oesophageal reflux, splenomegaly and stomach tumors/ulcers.
  - Surgery for obesity (also termed bariatric surgery) is also performed by upper gastrointestinal surgeons, as the surgery involves operating on the stomach and small intestines.
Anatomy of Stomach

- Esophagus
- Cardia
- Anterior surface
- Fundus
- Longitudinal muscle layer
- Circular muscle layer
- Lesser curvature (medial surface)
- Left gastroepiploic vessels
- Body
- Oblique muscle layer overlying mucosa
- Rugae
- Greater curvature (lateral surface)
- Pyloric canal
- Pylorus
- Pyloric antrum
- Duodenum
Common Upper GI Surgeries

- Fundoplication
- Hiatal hernia repair
- Gastrectomy
- Splenectomy
- Cholecystectomy
Pre-operative care and concern

- +/- Foley
- +/- Gastric tube
- Prophylactic antibiotic (Augmentin)
- Legs
  - Sequential compression device
  - Prevent deep vein thrombosis
- Body warmer
  - Prevent hypothermia
Positioning

- For laparoscopic cholecystectomy
  - Supine
- For gastrectomy (open/laparoscopic), laparoscopic fundoplication, splenectomy
  - Supine + Abduction of legs + Abduction of arms
  - Reverse Trendelenburg position during operation
- Gamgee + Safety Strips/Cotton Bandage for securing of legs

◆ Ensure correct patient positioning
◆ Secure patient to the OT table as the procedure will require tilt and angulations
Theatre setup

- Anaes. Machine
- Laparoscopic system + TV
- Working table
- TV
- ESU + Energy device
- Suction unit
- N
Theatre setup
Lap hiatial hernia repair +/- fundoplication

- For gastroesophageal reflux disease (GERD)
  - The fundus of the stomach is wrapped around the lower end of the esophagus and stitched in place, reinforcing the closing function of the lower esophageal sphincter
  - Specific instrument: Hurst Bougie Fr.46
  - Ensure the wrapping is not too tight
Gastrectomy

Indication

- Benign tumors
- bleeding
- inflammation
- perforations in the stomach wall
- Polyps
- cancer
- severe peptic or duodenal ulcers
Gastrectomy

- Distal gastrectomy is the removal of distal part of the stomach.
- Total gastrectomy is the removal of the entire stomach.
- Sleeve gastrectomy is the removal of the left side of the stomach. This is usually performed as part of a surgery for weight loss.
Splenectomy

- Indication: for various benign hematologic diseases, malignant hematologic diseases, secondary hypersplenism, splenomegaly
- Laparoscopic assisted splenectomy +/- open
- Open splenectomy requires a larger surgical incision across the middle or left side of abdomen underneath the rib cage.
Instrument

- Liver retractor
  - used during laparoscopic surgery, fully supports and retracts the liver. It is inserted through a small incision and has been designed to evenly distribute the weight of the liver.
  - use with table-mounted retractor arms, in which the Liver Retractor is attached to a table-mounted system, held in a fixed position
Liver retractor

- Nathanson Retractor
- Iron Intern
- Reveel retractor
Energy device

- ESU
Energy device

- Ligasure
  - delivers a unique combination of pressure and advanced bipolar energy to create a consistent seal with each application.
  - Permanently fuses vessels up to and including 7 mm in diameter and tissue bundles without dissection or isolation.
Energy device

- Caiman (Aesculap)
  - Advanced bipolar energy
  - Seal up to 7mm vessel
  - Has articulate model
Energy device

- Harmonic ace +7 shear
  - ultrasonic energy device with a 7 mm vessel sealing indication.
  - Adaptive Tissue Technology delivers unmatched precision, multifunctionality, and now Advanced Hemostasis for stronger large vessel sealing.
Energy device

- Thunderbeat
  - Delivers both ultrasonic energy and advanced bipolar energy to a tissue simultaneously
  - Ultrasonic energy for superior dissection and fast tissue-cutting capability
  - Advanced bipolar energy for fast and secure hemostasis for vessels up to and including 7 mm in diameter
Consumables

- Hemolok
  - The Hem-o-lok System allows for ligation of 10 mm vessels through a 5 mm port or up to 16 mm vessels through a 10 mm port
  - Non-Absorbable polymer is inert, nonconductive, radiolucent, and does not interfere with CT, MRI, or X-ray diagnostics
  - Size: ML, L, XL
Consumables

- Surgical staples
  - reloadable titanium staple cartridges, incorporate a knife to complete excision and anastomosis in a single operation
    - iDrive ultra powered handle

- Endo GIA Ultra Universal Staplers
Surgical staples

- Echelon 60
Consumables

- DST Series™ EEA™ OrVil™ Transoral Circular Stapler Anvil with Advancing Proximal Guide Suture
  - For Laparoscopic Total Gastrectomy cases
  - For end-to-end anastomosis of esophagus and ileum
  - Use with extra long EEA Circular Stapler (Fr.21/25)
Bariatric surgery

- cause weight loss by
  - restricting the amount of food the stomach can hold
  - causing malabsorption of nutrients
  - by a combination of both gastric restriction and malabsorption

- minimally invasive techniques

Suitable for
- body mass index (BMI) that is greater than 40
- greater than 35 with weight related illnesses (sleep apnoea, HT, DM)
- tried all other types of diets without long-term success

(ASMBS, 2016)
Bariatric surgery

- Gastric Banding
- Sleeve Gastrectomy
- Gastric Bypass
Laparoscopic Gastric Banding

- a restrictive type of surgery
- a silicone band is placed around the top portion of the stomach
- generates a small pouch with limited volume
- feel full even ingest small amount of food and subsequent weight loss
- lower morbidity, readmission, and reoperation/intervention rates
Laparoscopic Sleeve Gastrectomy

- a restrictive procedure
- surgical removal of the outer margin of the stomach
- a sleeve of stomach, roughly the size and shape of a banana, and the pylorus are remained to restrict food intake.
Laparoscopic Gastric Bypass

- a combination of both gastric restriction and malabsorption
Laparoscopic Gastric Bypass

- The Roux-en-Y gastric bypass procedure involves creating a stomach pouch out of a small portion of the stomach.
- The pouch is attached directly to the small intestine, bypassing a large part of the stomach and duodenum.
- Not only is the stomach pouch too small to hold large amounts of food, but by skipping the duodenum, fat absorption is substantially reduced.
Patient preparation

- Ask patient to move from recovery bed to OT table
- Position: Supine with both arms and leg abducted
- Gamgee + Cotton Bandage/Safety Strip for legs
- Legs
  - Sequential compression device
  - Prevent deep vein thrombosis
- Body warmer
  - Prevent hypothermia
- Reverse Trendelenburg position during operation
  - Ensure correct patient positioning
  - Secure patient to the OT table as the procedure will require tilt and angulations
OT Table

- Maquet Alphamaxx
- Maximum load: 450kg
OT Table accessories

- Foot rest
  - Prevent intra-operative patient fall
OT Table accessories

- Large arm board
OT Table accessories

- Table width extension
  - For super obesity case
Before anaesthesia

Bronchoscope                       C-max video laryngoscope
Before anaesthesia

Difficult intubation trolley

Troop Elevation Pillow

- quickly achieves the Head-Elevated Laryngoscopy Position (HELP)
- Tips: Place the troop pillow BEFORE patient transfer
Gastric Tube

- MIDSLEEVE silicone orogastric calibration tube

- Ethicon Gastric Calibration Tub
Instruments

- Extra-long laparoscopic instruments (45cm)
- Extra long laparoscope (45cm, 30°)
- Laparoscope (30cm, 0°)
Special Equipments/consumables

- AirSeal insufflator
- Energy device
  - Ligasure
  - Harmonic ace
  - Caiman
  - Thunderbeat
AirSeal insufflator

- An intelligent and integrated access system for laparoscopic and robotic surgery
- provide stable pneumoperitoneum, continuous smoke evacuation, and valve-free access to the abdominal cavity
- reduces procedural time, costs, and hassles in ways that conventional insufflation, trocar, and filtered tubing systems.
- For bariatric cases as can maintain lower intra-abdominal pressure than conventional insufficator

http://surgiquest.com/what-is-airseal.html
AirSeal insufflator

- 12mm Trocar and Tubing
- Serve as optical trocar for placing camera port
Energy device

LigaSure
Energy device

Caiman
Energy device

Harmonic ace
Energy device

Thunderbeat
Autosuture

- Medtronic
  - iDrive ultra powered handle
    - use long shaft for bariatric cases
    - DO NOT AUTOCLAVE Batteries after use

- Endo GIA Ultra Universal Stapler
Autosuture

- EndoGIA Reload
- **Always** clarify with surgeon before open
Autosuture

- Ethicon
- Echelon power 60 XL
Consumables

- REVEEL liver retractor
  - REVEEL offers superior exposure of the operating site and is optimized for large, fatty livers.
  - composite material that really “sticks” to the liver - less retraction force and less slippage
Consumables

- Applied medical optical port 15mm x 150mm
  - Offers true non-bladed access and separates tissue along natural fiber lines
  - Use 0° Laparoscope
Post Operation

- HDU/ICU
- Arrange enough manpower for patient transfer
- Non invasive ventilator
Non invasive ventilator

- CPAP machine
- Patient own CPAP machine as standby
3D Laparoscopic system
3D Laparoscopic system

- produces a bright, natural 3D image in a lightweight and ergonomic design.
- provides up to 100° of articulation in all directions enabling observation and therapy in the entire peritoneal cavity
- enable critical anatomical views in 2D and 3D that are simply not possible with traditional rod lens laparoscopes.
EndoFLIP

The EndoFLIP® (Endolumenal Functional Lumen Imaging Probe) Imaging System is a revolutionary new technology used to measure the dimensions and function of a variety of hollow organs and sphincteric regions throughout the gastrointestinal tract.

http://www.crospn.com/EndoFLIPTechnology.htm
Robotic Upper GI surgery

Advantages of robotic surgery
- Small incisions
- Shorter hospital stay
- Less blood loss
- Less pain
- Fewer complications, less risk of infection
- More precise due to better visualization of the surgical field (3D magnification)
- Better in hand movements
- Greater maneuverability of instruments
Complication

- diarrhea
- nausea
- vomiting
- gastric dumping syndrome
- Surgical site infection
- internal bleeding
- anastomotic leak causes scarring, narrowing, or constriction (stricture)
- intestinal obstruction
- vitamin deficiency
- weight loss
Dumping syndrome

- Dumping syndrome is a group of signs and symptoms that usually occurs due to poor food choices. It is the result of high sugar or high fat foods passing too quickly into the small intestine.
  - Symptoms: cramping, nausea, dizziness, weakness and fatigue.
  - How to prevent:
    - Avoid eating sugar and other sweets, dairy products and alcohol.
    - Don't drink 30 minutes before, during and 30 minutes after meals.
Dumping syndrome

How to eat:

- Eat five or six small meals or snacks a day.
- Keep portions small, chew well before swallowing.
- Combine proteins or fats along with fruits or starches. (For example, combine fruit with cottage cheese.)
- Stop eating when you first begin to feel full.
- Drink liquids 30 to 45 minutes after meals.
Thank you