Guideline Title: Post oesophago-gastric procedures care

Summary:
Patients who have undergone an oesophago-gastric procedure and who require assistance with ventilation or other advanced level of care, will be managed appropriately within the ICU.

Approved by: ICU Director

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Replaces Existing Policy/ Guideline: Post oesophago-gastric procedures care

Previous Review Dates: April 2011

Background Information:
Patients undergoing oesophagectomy, oesophagogastrectomy (also called oesophagogastrostomy) and oesophago-jejunostomy surgery are at risk of developing anastomosis leak, respiratory complications such as pneumonia, aspiration and acute respiratory distress syndrome (ARDS), gastric necrosis or bleeding, cardiac dysrhythmias, infection, sepsis and pain.

This guideline outlines prevention, assessment, monitoring and intervention to manage and care for patients in the post-operative period.

1. Introduction:
   The risk addressed by this policy:
   Patient Safety.

The Aims / Expected Outcome of this guideline:
To provide effective care of the post oesophagectomy, oesophagogastrectomy and oesophago-jejunostomy patients in the Intensive Care Unit.

Related Standards or Legislation
NSQHS Standard 1 Governance

Related Policies
LH_ICU_Clinical Guidelines_Pain assessment and analgesia
LH_ICU_Systems_Respiratory_Weaning from mechanical ventilation
LH_ICU_Systems_Respiratory_Intercoastal catheter insertion and management
LH_ICU_Clinical Guidelines_Receiving a patient into the ICU and clinical handover
2. Policy Statement

- All care provided within the Liverpool Hospital will be in accordance with infection prevention, manual handling and minimisation and management of aggression, guidelines.
- Inform the ICU registrar and the surgical registrar if sudden change in the colour of the chest tube drainage which may indicate an anastomosis leak.
- Inform immediately if loss is > 100 mL/hour. See assessment and management of intercostal catheters (ICC) and under-water sealed drains (UWSD).
- Do not move or manipulate the nasogastric tube. This may disrupt suture lines which can result in a leak into the mediastinum.
- Inform ICU/surgical team if the NG tube dislodges. Do not attempt to replace NG tube if it is dislodged or is not working properly.
- Oral medications, if prescribed (and suitable), must be administered appropriately via the NG tube, never swallowed.
- A contrast swallow using non-ionic water soluble contrast is performed 5 to 7 days post surgery to confirm integrity of the anastomosis and patency of the GIT.
- Inform the surgical team if the Jackson Pratt drain(s) to bulb suction protruding from the incision(s) site(s) will not hold suction.
- Maintain axion drain(s) on low wall suction, as directed by the surgeon; observe for patency of drainage and/or possible leaks. Never obstruct air vents on the axion tubing. Notify surgical team immediately if drain is blocked or leaking.
- Meticulous skin and wound care and strict infection prevention, surveillance and management measures must be followed.

3. Guidelines

Approaches for oesophageal resection

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<td>High mortality if chest anastomosis leak</td>
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<td>Low anastomosis risk in the chest</td>
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<td>Less recurrent laryngeal nerve injury</td>
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<tr>
<td>Field (McKeown)</td>
<td>Ivor-Lewis [plus left cervical incision]</td>
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<td>Left Thoracoabdominal</td>
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<td>Anastomosis in neck</td>
<td>Anastomosis in chest</td>
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<td>Transhiatal</td>
<td>Laparotomy and left cervical incision for tumours of distal oesophagus, or mid-thoracic</td>
<td>Near total oesophagectomy (Anastomosis in neck (less severe leaks))</td>
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<td>Reduced pain (no thoracotomy)</td>
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Pre Operative Assessment.
- These patients will be assessed in the pre-op anaesthetic clinic by both the anaesthetist and the Outside ICU Staff Specialist. The list of patients booked into the pre-op anaesthetic clinic will be sent in advance to the ICU Nurse Manager / ICU Staff Specialist.
- A scoring system will be utilised to identify high risk patients.
- Patients who were identified to be respiratory high risk would be referred to a physiotherapist for respiratory optimization.
- Patients who were identified to be nutrition risk would be referred to a dietician pre-op for nutritional optimization.
- The patients would be given specific written instructions for pre-op preparation that would encourage them to adequately hydrate themselves on the day prior to surgery. They would continue to drink clear fluid for up to 2 hours prior to the time of surgery.

Post Operative Management
After surgery, patients are at high risk for complications relating to airway patency and the risk for aspiration. This is due to disruption of the oesophagus and incision into the thoracic cavity. After a McKeown oesophagectomy patients may have recurrent laryngeal nerve neuropraxia which is a risk factor for aspiration.

Post oesophago-gastric surgery patients usually require intensive care management for 24 to 48 hours. They are usually intubated and have multiple drains and tubes. Patients require continuous hemodynamic monitoring immediately post surgery. Critical care nursing skills are vital in the systematic assessment and care of these patients.

Respiratory Management
- Identify and discuss pre-operatively those patients that are a high respiratory risk. This discussion should occur between the ICU Staff Specialist, the Consultant Surgeon and attending Anaesthetist.
- Early aggressive chest physiotherapy to prevent atelectasis and pneumonia.
- Non-cardiogenic pulmonary oedema may develop quickly after surgery due to decreased lymph clearance after removal of the mediastinal lymphatics and nodes and deflation of the lung. Monitor patient for signs of ARDS.
- Nebulisers may be required to improve secretion removal.
- Maintain SpO2 ≥ 95%, unless pre-existing disease process (SpO2 as established pre-operatively). Monitor oxygenation closely and inform ICU team of changes.
- Assess patient carefully prior to extubation. Extubation should only take place in those patients who are expected to be able to breathe spontaneously without NIV support post extubation. In the presence of respiratory failure there should be a low threshold for reintubation.
- After extubation, deep breathing, coughing and incentive spirometry is encouraged.
- Mobilise the patient early to reduce pulmonary complications.
- Pain control is paramount in ensuring compliance with physiotherapy, deep breathing and coughing exercises and spirometry and to prevent complications.

Continuous Positive Airway Pressure (CPAP)
- CPAP will be used as routine part of chest physiotherapy post extubation for the duration of the patients stay in ICU. The only exception to this is if the Consultant surgeon specially requests and documents not to use CPAP.
- CPAP for physiotherapy will be used in the haemodynamically stable patient, it will be intermittent and utilise low PEEP settings of 5cm H2O.
- The process of utilising CPAP for physiotherapy will occur between 8am - 5pm. It will be applied for 30 minutes every second hour with 5cmH2O PEEP settings.
- The nasogastric tube should be placed on low wall suction when CPAP is applied.
• If patient demonstrates signs of respiratory failure, there should be a low threshold for re-intubation and communication of the plan between ICU Staff Specialist and Consultant Surgeon.

Chest drains
• Measure drainage and document chest drain observations on admission and then hourly.
• Drainage should become haemoserous within a few hours and should decrease gradually.
• Inform the ICU Registrar and the Surgical Registrar of sudden changes in the colour of the chest tube drainage, as this may indicate an anastomosis leak.
• Inform the ICU Registrar and the Surgical Registrar immediately if loss is > 100 mL/hour. See assessment and management of intercostal catheters (ICC) and under-water sealed drains (UWSD).
• Observe for signs of subcutaneous emphysema.

Pain management
• Administer and ensure sufficient analgesia, using the ICU appropriate pain scale.
• Multimodal approach to pain is required. This will include:
  o Administration of spinal morphine intraoperatively.
  o Administration of systemic analgesia with continuous intravenous fentanyl infusion.
  o Administration of continuous local anaesthetic infusion via paravetebral /subpleural / intercostal catheter.
  o Use adjunctive analgesia such as paracetamol/NSAIDS as per anaesthetist.

Neurological status
• Assess and report any neurological changes which may indicate a post operative complication.
• Observe for changes in the GCS, pupillary changes, level of consciousness, limb strength, inability to control pain and observe for any focal deficits.

Haemodynamics
• These patients should all have continuous hemodynamic monitoring with a PiCCO monitor, which will be inserted by the anaesthetist in OT. This will involve the insertion of the femoral PiCCO Arterial line and a femoral central venous catheter.
• These patients will also have monitoring of SvO₂ with the vigileo monitor.
• Continuous monitoring will aid in the assessment of fluid status as well as vascular resistance and can be used to guide inotropes, vasoconstrictive and fluid therapy.
• Administer intravenous therapy as prescribed, observe and prevent fluid overload and/or hypovolaemia.
• Maintain urine output at least at 0.5mL/kg/hr, inform ICU team immediately if urine output drops below this goal.

Fluid Management
• A fluid restrictive approach should be applied both intraoperatively and post operatively
• Monitor strict fluid balance (intake / output). Maintain patient in a neutral or slightly negative fluid balance.
• Utilise crystalloids or albumin for fluid boluses. (Synthetic colloids should not be used).
• When clinically indicated active diuresis should be initiated.

Nasogastric care
• Maintain nasogastric tube securement (NG is usually sutured to the nose).
• Do not move or manipulate the nasogastric tube. This may disrupt suture lines which can result in a leak into the mediastinum.
Attend NG tube drainage/aspirations as per post op directions (either continuous low wall suction, regular aspirations or both). During CPAP for physiotherapy post extubation the NGT must be placed on low wall suction.

Inform ICU/surgical team if the NG tube dislodges. Do not attempt to replace NG tube if it is dislodged or is not working properly.

**Gastrointestinal Care/ Nutrition**

- After surgery, patients are restricted from taking anything by mouth for 5 to 7 days to prevent anastomosis leak or fistula formation.
- Oral medications, if prescribed, must be administered (and suitable) via the NG tube, never swallowed. DO NOT GIVE MEDICATIONS VIA THE JEJUNOSTOMY TUBE
- Diligent oral care must be attended due to increased infection risk. USE SODIUM BICARBONATE MOUTHWASH Q4H.
- If a jejunostomy tube is insitu, follow the surgeon’s post surgical directions. Regular STERILE WATER flushes may be ordered until the jejunostomy tube can be used for feeds.
- Elemental JJ tube feeding may be commenced by the surgeon 1-2 days after the surgery depending on the patient’s status and surgery approach. In some cases Total Parenteral Nutrition (TPN) may be necessary. Notify dietician on day 0 (day of surgery) so that peptinex/vivonex feeds can be organised for day1.
- A contrast swallow is performed 5 to 7 days post surgery to confirm integrity of the anastomosis and patency of the GIT.
- NG tube and chest drains are removed after radiological and physical assessment, as well as review by the surgical/ICU teams.

**Drains**

- Patients may have a Jackson Pratt drain(s) to bulb suction protruding from the incision(s)
- Inform the surgical team if the bulb drain will not hold suction.
- Monitor amount and colour of drainage and notify team if colour changes.
- Document abdominal drain observations on admission and hourly for 4 hours. After the 4 hours, measure drainage 4th hourly.
- Keep the drain exit site dry and clean.
- A Penrose drain may be in the neck incision. Change dressing as necessary to maintain skin integrity around the drain.
- Maintain Axion drain(s) on low wall suction, as directed by the surgeon; observe for patency of drainage and/or possible leaks. Never obstruct air vents on the axion tubing.
- If several drains insitu, name or number each drain to assess and recognise exact progress of each.

**Incision care**

- Maintain all dressings dry, clean and intact.
- Neck incisions that are opened up may require cleaning and application of a dry dressing several times per day, as required
- In some cases when the anastomosis has separated, patients frequently have saliva leaking through the cervical incision, which can be managed with simple dressing changes.
- If saliva leakage is large, application of a wound drainage bag to the lower part of the neck incision may be required.
- Such leaks are allowed to seal on their own, which may take several weeks.

**Deep vein thrombosis/ infection prophylaxis**

- Post operative subcutaneous heparin, 5000 units, 12 hourly or 8 hourly as per team and thrombo-embolic deterrent (TED) stockings need to be initiated promptly unless contraindicated. Note that TED stockings may not fit due to design issues and may cause more compromise – do not use in these situations.
- Consider changing heparin to subcutaneous enoxaparin once epidural removed, the bleeding risk is low and renal function is normal, e.g. day 3-4.
- Intermittent calf compressors should be used until patient is ambulant
- TED stockings are worn (if not causing constriction/pressure area issues) until the patient is discharged from hospital.
- Patients should be sitting out of bed the first post operative day unless specifically contraindicated
- Encourage early ambulation and leg exercises.
- Early removal of drains/lines after the surgical team review is encouraged to decrease infection risk.
- Antibiotic prophylaxis may be prescribed by the surgical team
- Meticulous skin and wound care and strict infection prevention, surveillance and management measures must be followed. Strict PAC 2-4th hourly.

**Psychosocial aspects**
- Inform, support, reassure patient and significant others
- Liaise with significant members of the health care team as appropriate

### 4. Performance Measures

Incidents will be documented using the hospital electronic system: IIMS and these will be reviewed by the NUM and acted upon appropriately.

### 5. References:


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**Reviewers:** ICU Staff Specialist, ICU CNEs, ICU NM, ICU NUMs, GI Surgeon

**Endorsed:** ICU Medical Director, A/ Prof Michael Parr.
Appendix 1.

**Oesophagectomy**: Surgical procedure in which all or part of the oesophagus is removed, as may be required for severe recurrent bleeding, oesophageal varices or cancer.

Oesophagogastrectomy: Surgical creation of a passage between the oesophagus and the stomach by an artificial anastomosis of the two organs. The surgery removes the diseased oesophagus (cancerous) and attaches the proximal oesophageal remnant to the fundus of the stomach. The oesophagus is pulled downwards through the abdominal incision and the disease portion removed. Because the stomach can be elongated to reach the upper chest without disrupting its distal continuity with the duodenum, only a single visceral anastomosis (i.e. proximal stomach to oesophageal remnant) is necessary to restore continuity of the alimentary tract.

Oesophagojejunostomy: Surgical creation of a direct passage from the oesophagus to the jejunum, bypassing the stomach performed after total gastrectomy.

Images accessed on June 21, 2010 retrieved from: [www.cancerhelp.org.uk/type/stomach-cancer/treatments](http://www.cancerhelp.org.uk/type/stomach-cancer/treatments)