

## **Intermittent oesophageal pouch suction for the neonate/infant with unrepaired oesophageal atresia (including long-gap)**

### **Introduction**

Intermittent oesophageal pouch suction is used in the management of neonates and infants with unrepaired oesophageal atresia awaiting repair of their oesophagus. A suction catheter is placed into the oesophageal pouch intermittently to remove saliva.

Adequate drainage of the upper oesophageal pouch is essential to prevent saliva spilling over into the trachea resulting in aspiration or aspiration pneumonia.

### **Aim**

To outline the principles of intermittent oesophageal pouch suction for infants with unrepaired oesophageal atresia on the Neonatal Unit (NNU) of The Royal Children's Hospital.

### **Definition of Terms**

**Suction catheter:** a single lumen tube that is placed in the upper oesophageal pouch and connected to intermittent suction to aspirate saliva and prevent aspiration.

**Oesophageal atresia (OA):** a congenital anomaly in which the oesophagus ends in a blind upper pouch. Most neonates with OA also have an abnormal connection between the trachea and oesophagus; this is called a tracheo-oesophageal fistula (TOF).

**Long-gap oesophageal atresia:** those infants with pure OA or those with OA with a proximal TOF, or those with other variants of OA with a large gap where an oesophageal anastomosis is unable to be performed immediately. Neonates with long-gap OA are often managed with a delayed oesophageal repair or oesophageal replacement surgery.

### **Indications**

Intermittent oesophageal pouch suction is indicated for all patients with unrepaired OA to prevent aspiration. Saliva accumulates in the blind upper oesophageal pouch and if not adequately cleared with suction will overflow into the patient's trachea with resultant aspiration or aspiration pneumonia.

As the neonate continues to produce saliva, it is essential to clear the upper oesophageal pouch every 5-30 minutes (or more frequently if necessary) to prevent aspiration. This continues until surgical repair of the oesophagus is performed.

Infants with long-gap OA may be suitable for the use of a Replogle tube connected to continuous low pressure suction. (Please refer to the guideline on Replogle Tube Management).

### **Assessment**

Assessment of suitability of neonate for intermittent suction:

- All neonates with unrepaired OA require oesophageal pouch suction.
- Intermittent oesophageal pouch suction should be performed routinely & PRN in these patients.
- Patients with long-gap OA may be suitable for continuous Replogle tube suction (Refer to the guideline on Replogle Tube Management).

### **Initial Assessment:**

- The length of the oesophageal pouch should be measured with a size 10 Fg suction catheter by the Surgical Registrar, NNU AUM, Oesophageal Atresia Nurse, NNU CNE or Clinical Nurse Specialist. This is done by gently passing the suction catheter into the oesophagus, via the oro-pharynx, until resistance is felt. The suction catheter is then withdrawn 1.0cm and suction applied at <120mmHg to remove saliva from the upper oesophageal pouch. The measurement of the oesophageal pouch length and the length for oesophageal pouch suction is recorded in the Medical Record and recorded at the patient bedside on the Observation Chart. A tape measure with the suction distance marked is also attached to the infant's cot & labeled as 'oesophageal pouch suction'.
- The patient requires:
  - continuous cardio-respiratory and oxygen saturation monitoring
  - assessment of cardio-respiratory status

## **Ongoing Assessment:**

- The patient requires:
  - continuous cardio-respiratory and oxygen saturation monitoring
  - assessment of cardio-respiratory status
- Ongoing nursing assessment for any sign of respiratory distress/compromise indicating the need for immediate & more frequent suction including:
  - Apnoea
  - Desaturation (SpO<sub>2</sub> < 90%)
  - Bradycardia
  - Stridor
  - Use of accessory respiratory muscles
  - Increased respiratory rate or effort
  - Nasal flaring
  - Restlessness or circumoral cyanosis
  - Audible secretions
  - Visible secretions

***If any of the above signs are present, the infant should receive immediate oesophageal pouch suction & more frequent suction should be undertaken.***

***Signs of respiratory distress/compromise should be reported to the neonatal registrar and documented on observation chart***

## **Procedure**

### **1. Equipment**

- Suction Catheter Fg. 10 for initial measurement of oesophageal pouch length.
- Suction Catheters Fg. 8 & Fg. 7
- Suction regulator unit
- Suction tubing (long length)
- Suction tubing (short length)
- Suction Canister
- Timer
- Tray
- Container for sterile H<sub>2</sub>O.

### **2. Process**

- a) Set up suction tubing & canister as per instructions.  
[Connect suction regulator to suction outlet on wall. Connect short suction tubing from suction regulator to canister & long tubing to suction catheter].
- b) The length of the oesophageal pouch & suction length should be confirmed by the Surgical Registrar, Oesophageal Atresia Nurse or experienced NICU Nurse/AUM if initial oesophageal pouch suction is undertaken by the bedside nurse or NNU registrar.
- c) Subsequent suction of the pouch is to the same length ie. 1 cm above the distal end of the oesophageal pouch to prevent trauma to the blind end of the oesophageal pouch.
- d) A size 8 Fg suction catheter (size 7 in premature neonates) is used to intermittently aspirate the oesophageal pouch. Intermittent suction is performed approximately 5-30 minutely or more frequently if necessary.
- e) This suction technique is continued for the duration of the preoperative hospital stay. Less suction may be required if the neonate is asleep or quiet. **Time between suctioning should not exceed 30 minutes due to the risk of aspiration of saliva.**
- f) The timing of suction should be set to prevent desaturations, bradycardias, increased work of breathing and audible secretions in the oesophageal pouch from occurring. Therefore intermittent suctioning may need to be as frequently as every 2-5 minutes.

- g) The frequency of suction should be documented in the Inpatient Progress Notes by nursing staff each shift.
- h) Change the suction catheter at least each shift or more frequently if required.
- i) Change the suction canister & tubing weekly or PRN. Document on Care Management Plan and Nursing Care Plan.
- j) Ensure spare suction catheters size Fg. 7, 8 & 10 are at the bedside at all times.

### Special Considerations

As the neonate gets older (ie. > 6 weeks of age if born at term) he/she may require oxygen saturation monitoring only; this should be assessed individually for each patient by the Neonatal Consultant.

**Long-gap OA:** These babies are nursed on the NNU for a number of weeks to months, prior to repair. The oesophageal pouch should be remeasured by the Oesophageal Atresia Nurse or AUM monthly (or sooner if required), to assess growth of the upper oesophageal pouch & to recalculate required length of pouch suction. This new suction length will then be displayed on the baby's cot & recorded in the Care Management Plan.

Please note: *For those infants with long-gap OA, a decision may be made to use a Replogle tube to provide continuous low pressure suction of the oesophageal pouch. (Refer to the guideline on Replogle Tube Management. (Infants with a Replogle tube insitu may still require intermittent oesophageal pouch suctioning PRN)*

### Family Centred Care

It is the responsibility of the clinician caring for the infant with intermittent oesophageal pouch suction to ensure that the parents understand the rationale for the intervention, as well as potential complications.

### Companion Documents

- Guideline: Replogle tube management
- Brochure: Oesophageal Atresia & Tracheo-Oesophageal Fistula: A guide for parents.
- Brochure: Long-gap Oesophageal Atresia: A guide for parents.

### Links

- [www.rch.org.au/oara](http://www.rch.org.au/oara)
- [www.tofs.org.uk](http://www.tofs.org.uk)

### References

Hawley, AD & Harrison D. 'Suctioning Practices for the upper oesophageal pouch in infants with unrepaired oesophageal atresia in Australia and New Zealand.' P105. *Perinatal Society of Australia and New Zealand Annual Congress* March 2003, Hobart, Australia.

Hawley, A. 2001. Long-gap Oesophageal Atresia – A Nursing Perspective. *Journal of Child Health Care*. 5 (1). Pp.19-25.

Hawley A, Whitelaw, J. (2000). Congenital Abnormalities. In: LaTrobe University (eds). *Management of Acute Conditions in the Newborn, Part 2*. pp1-34. LaTrobe University, Melbourne.

Telfer, H.M. and McDonnell, G.E. (1991). Nursing Care. In Beasley, S.W., Myers, N.A., and Auldish, A.W. (eds). *Oesophageal Atresia*. Chapman & Hall Medical, London, pp. 265-274.