

Replogle Tube Management

Introduction

A Replogle tube is used in the management of neonates and infants with oesophageal atresia awaiting a delayed repair of their oesophagus. Neonates with long-gap oesophageal atresia may wait up to 4 months until surgical repair of the oesophagus is undertaken.¹

A Replogle tube is used to continuously drain saliva from the upper oesophageal pouch and is positioned 0.5cm above the end of the oesophageal pouch.

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

Aim

To outline the principles of management of infants with a Replogle tube in-situ, on the Neonatal Unit (NNU) of The Royal Children's Hospital.

Definition of Terms

Replogle tube: a double lumen tube, where one lumen is for drainage of saliva and the other functions as an air vent. The Replogle tube is placed in the upper oesophageal pouch and connected to continuous low pressure suction of -15 to -35 cmH₂O (equal to -11 to -25 mmHg) to aspirate saliva and prevent aspiration.

Figure 1: example of a Replogle tube²



ARGYLE™ Replogle Suction Catheter

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: variants of OA with a large gap >4cm between the two ends of the oesophagus. This includes pure OA and OA with a proximal TOF. Neonates with long-gap OA are often managed with a delayed oesophageal repair or oesophageal replacement surgery. See pictures below:



Pure OA



OA with proximal TOF

Indications

The indications for a Replogle tube are to prevent aspiration pneumonia in patients with long gap OA. 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 pneumonia.

Note: Permission must first be obtained from the infant's Surgeon and Neonatal Consultant prior to using a Replogle tube.

Assessment

Assessment of Suitability of Neonate for Replogle Tube:

- Neonates with OA and distal TOF that will undergo an early primary repair of OA/TOF (within first 48 hours) are not to have a Replogle tube insitu (as per Thoracic Surgeons' request). They should have intermittent suction of the upper oesophageal pouch performed. (Refer to the guideline on intermittent suction for neonates with unrepaired oesophageal atresia). **A Replogle tube could be used in these patients if consent is obtained from the Surgeon or Neonatal Consultant.**
- Patient should be >35 weeks gestation, with current weight >2.5kg to enable insertion of a Replogle tube, (a Replogle tube is a size 10 French and is too large for infants below this gestation or weight).
- Assess amount and consistency of oesophageal pouch secretions (if very thick secretions are present, neonate may be unsuitable for Replogle tube suction. Refer to NNU Fellow or Consultant, NNU AUM or Oesophageal Atresia Nurse for advice regarding insertion of a Replogle tube in this situation).

Initial Assessment:

- The length of the oesophageal pouch should be measured with a size 10 Fg Replogle tube by the NNU AUM, Oesophageal Atresia Nurse or Surgical Registrar. This is done by gently passing the Replogle tube into the oesophagus, ideally via the nostril & naso-pharynx (or oro-pharynx if necessary), until resistance is felt. The Replogle tube is then withdrawn slightly (0.5cm) and secured with tape. The measurement of the Replogle tube oesophageal pouch length (from nares or lips) is recorded in the Medical Record and recorded at the patient bedside on the Observation Chart.
- The patient requires:
 - continuous cardio-respiratory and oxygen saturation monitoring
 - assessment of cardio-respiratory status

Ongoing Assessment:

- Ongoing assessment for signs of cardio-respiratory distress/compromise:
 - Apnoea
 - Bradycardia
 - Stridor
 - Use of accessory respiratory muscles
 - Desaturation (SpO₂ <90%)*Indicating the need for immediate and additional oesophageal pouch suction and a problem with Replogle tube patency / suction.*
- Assessment for the need for additional intermittent oesophageal pouch suction including:
 - Secretions not removed with Replogle tube suction
 - Cardio-respiratory distress/compromise (as above).
- Assessment of Replogle tube patency & effective oesophageal pouch suction & adequate clearance of saliva/secretions by ensuring Replogle continuously draining saliva, with no additional intermittent suction required.
- Signs of respiratory distress/compromise should be reported to neonatal registrar/fellow and documented on Observation Chart
- The oesophageal pouch should be re-measured at least monthly (or sooner if indicated) by the Oesophageal Atresia Nurse/NUU AUM or Neonatal Fellow and Replogle tube length in oesophageal

pouch readjusted as necessary. Record date & measurement on Care Management Plan and Medical Record.

Procedure

1. Equipment

“Argyle” Replogle Suction Catheter size 10 Fg

“Atrium” Oasis Dry Under Water Seal Drain (UWSD) Unit 2000ml (no. 3600)

Suction regulator unit

Suction tubing (short length)

3-way tap

10 ml syringe of normal saline (labelled)

Sterile water (bottle)

Brown tape & string

Timer

2. Process

- a) Set up suction tubing and “Atrium” UWSD unit as per “managing chest drain” information booklet. (Connect suction regulator to suction outlet on wall, attach suction tubing to “Atrium” UWSD unit. Set suction control dial to **-15cmH₂O**. Ensure water seal is filled to 2cm line as per instructions.)
- b) Prior to commencing Replogle tube suction for the first time the length of the oesophageal pouch needs to be measured with a size 10 Fg Replogle tube by the Surgical Registrar, Oesophageal Atresia Nurse or NNU AUM. This is done by gently passing the Replogle tube into the oesophagus, via the naso-pharynx, until resistance is felt. The Replogle tube is then withdrawn 0.5cm and secured with tape as per ETT taping.
- c) The measured length of the oesophageal pouch and the Replogle tube length should be documented on the Care Management Plan and in the Medical Record and attached to the patient’s cot.
- d) Connect the Replogle tube to tubing on “Atrium” UWSD unit.
- e) Turn on the suction unit to **-80mmHg** at the wall & ensure “Atrium” suction control dial is set at -15cmH₂O. (suction can be increased to a maximum of -35cmH₂O if required).
- f) Connect 3-way tap to the vent lumen on the Replogle tube. Connect 10ml syringe filled with 0.9% NaCl (normal saline) to end of 3-way tap. Leave 3-way tap open to air. *3-way tap is left continuously open to air.
- g) The Replogle tube is flushed every 15 minutes with 0.5ml 0.9% NaCl, ensuring 0.9% NaCl is seen draining back up the Replogle tube. Set the timer for 15 minutes.
- h) Document on Fluid Balance Chart the volume of 0.9% NaCl flushed and amount of drainage in “Atrium” UWSD unit hourly.
- i) Check level of water in suction control chamber on “Atrium” UWSD unit hourly and top up to maintain water level at 2cm.
- j) Ensure Replogle tube remains patent.
- k) If there is no drainage from the Replogle tube or the baby is requiring intermittent oral suction, flush Replogle tube with 0.5ml 0.9% NaCl & check for movement of fluid through the tubing. ***If no movement of fluid through the Replogle, remove Replogle tube, flush, ensure tube is patent and reinsert. If Replogle tube is blocked & blockage cannot be cleared- replace Replogle tube.***
- l) Change the Replogle tube and “Atrium” UWSD unit weekly, or earlier if necessary. Document changes on Care Management Plan.
- m) Ensure a spare Replogle tube is at the bedside at all times.

- n) The initial Replogle tube should be inserted by experienced medical staff, NNU AUM or Oesophageal Atresia Nurse. Subsequent tubes may be inserted by experienced nursing staff.

Family Centred Care

It is the responsibility of the clinician caring for the infant with a Replogle tube to ensure that the parents understand the rationale for the intervention, as well as potential complications.

Companion Documents

- *Guideline for intermittent oesophageal pouch suction in infants with unrepaired oesophageal atresia.*
- *Guideline for Sham feeding infants with unrepaired long-gap oesophageal atresia.*

Links

- *Parent support groups*
 - www.rch.org.au/oara
 - 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.

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Wallis, M. 2009. 'Clinical Guideline Replogle Tube, Care of'. Great Ormond Street Hospital, London, accessed, November 8, 2010, http://www.gosh.nhs.uk/clinical_information/clinical_guidelines/cpg_guideline_00088