

PAEDIATRIC NURSING PRACTICE MANUAL
SECTION 7

CARE OF THE CHILD WITH A RESPIRATORY CONDITION

7.4 CARE OF THE CHILD WITH A TRACHEOSTOMY

7.4.2 CARE OF THE TRACHEAL STOMA

7.4.2.1 MANAGEMENT OF GRANULATION TISSUE ON THE TRACHEOSTOMY STOMA

Aims

1. To promote healing of the stoma with minimal formation of granulation tissue.¹
2. To maintain a patent airway by reducing the formation of granulation tissue.²
3. To prevent further complications from the development of granulation tissue.^{1,3}

Background information

Granulation tissue is fragile and highly vascular with a bright red appearance.^{2,4} Granulation tissue around a tracheal stoma can pose many problems if not treated early:^{2,5}

- obstruction of the stoma resulting in difficult tracheostomy tube changes
- bleeding
- displacement of the tracheostomy tube from the midline position
- airway occlusion or airway stenosis⁶
- delays in decannulation

Key Points

1. Infection and rubbing are the two main causes of tracheal granulation.
2. Optimal stoma care includes techniques to:
 - Maintain a clean and dry environment around the stoma.
 - Prevent rubbing and friction to the tracheal stoma from the tracheostomy tube and neck plate. Recognition of neck plate movement eg. when attached to a ventilator circuit or in a child who repetitively turns their head must be addressed
 - Prevent/reduce the occurrence of infection that is frequently linked to the formation of granulation tissue^{1,3}
 - Recognise the first sign of granulation formation and implement a wound management plan early.
 - Utilise appropriate dressings.
3. Where a specific stoma infection or development of granulation tissue develops, alert the medical staff and liaise with CNC Technology Dependent Children for appropriate medication and wound management plan.

Treatment of Granulation Tissue

Indications:

- Granulation tissue is easily visible
- Granulation becomes vascularised or inflamed
- Bleeds easily
- Granulation grows beyond the wound surface

Treatment Options

Treatment is dependent on the severity and size of the granulation tissue.²

Topical steroids:

Action: aims to reduce oedema and the inflammatory process which enables a uniform and aesthetic healing process.

To use

Prescribed topical steroids can be applied **2-3** times a day to reduce granulations.

Side effects

Prolonged uses of topical steroids are linked to possible atrophy of the skin. Treatment should be limited to a course of four weeks.^{2, 7}

Silver nitrate (AgNO₃) Sticks

Action: Silver nitrate is a broad spectrum, strong caustic agent effective against some antibiotic resistant strains including MRSA and VRE.


It is used for granulation tissue that is smaller than a thumb nail and for stubborn granulation tissue.



Granulation can sometimes disappear after one treatment. Some may require weekly or daily treatments. Stubborn stomal granulation requires daily treatments for up to two weeks. Treatment ceases when granulation has resolved. Granulation tissue does not contain sensory nerves therefore application is not painful

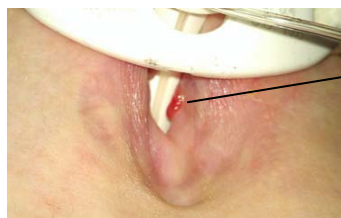
To use – To be prescribed on the inpatient medication chart, however can be *initiated* by **CNC for Technology Dependent Children (TDC)** who can advise and demonstrate this technique.

PROCEDURE	ADDITIONAL INFORMATION
Open the AgNO ₃ container at the end marked 'Open This End'	Small flecks of AgNO ₃ will accumulate at the other end. If the flecks come in contact with the skin although unaffected, the skin will be stained black for up to 2 weeks.
Remove the stick. Do not wet the stick.	Wetting the stick is unnecessary. Avoids the risk of AgNO ₃ entering the stoma. ¹⁰
Press the AgNO ₃ head onto the identified granulation tissue and hold for five seconds.	The AgNO ₃ action depends on how much and for how long the tip is in contact with the granulation tissue.

PROCEDURE	ADDITIONAL INFORMATION
<p>Release and check the discolouration of the granulation.</p> <p>Continue to reapply until the stick is spent or the granulation has adequately changed colour.</p>	 <p>Spent AgNO₃ Stick - minimal silver nitrate remains</p>
<p>More than one stick may be required depending on the area for granulation.</p>	
<p>If required use the other end of the AgNO₃ stick to move a flap of granulation tissue aside to gain access to the base of the tissue for treatment.</p> <p>Wipe away any debris after treatment with gauze or a clean flannel.</p> <p>Ensure no debris enters the trachea.</p>	<p>This does not damage granulation or cause bleeding.</p>
<p>After Treatment:</p> <p>Advise staff and carers that clothing and dressings that come into contact with the stoma will turn black/grey and not to be concerned.</p>	
<p>Side Effects:</p> <ul style="list-style-type: none"> • argyria (permanent blue colouring of skin from a build up of silver in the skin) • chemical burns.⁷⁻⁹ • methaemoglobinemia (increase in methaemoglobin in the blood) 	<p>The instances of these occurring are rare.</p>

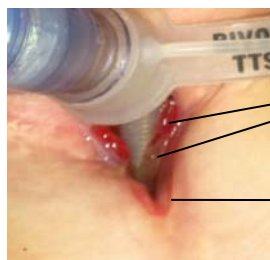
Examples of Granulation area around the tracheal stoma:

1. Small area of granulation tissue:

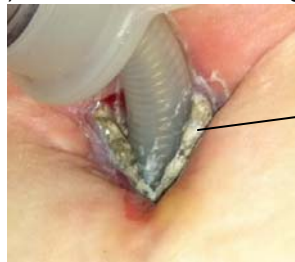


Small area of granulation.
The light pink area around this stoma is healed skin.

2. a) Before Treatment:



Granulation tissue
Epithelialising tissue

b) After Treatment with AgNO₃:

Colour change that occurs with adequate treatment.

Wipe away secretions before treating with AgNO₃ stick as secretions will dissolve the active ingredients.

The very bottom V section of the stoma in diagram (a) has reepithelialising tissue which is different to granulation tissue and should not be treated.

3. AgNO₃ will not work on the stoma which has raised scar tissue or keloid scarring:

When touching these areas the AgNO₃ stick will not turn the tissue the grey colour shown above. Scar tissue is healed and does not have the vascular red colour of granulation tissue.

Surgical intervention

Surgical excision of large granulation tissue is indicated when:

- it becomes obstructive
- causes or is at risk of causing difficult tube changes
- causes difficulty with breathing
- contributes to difficulty maintaining ventilator support.

Surgical management can include:

- external exploration
- electro cautery
- bronchoscope with a CO₂ laser
- bronchoscopic assistance with an excision through the stoma.^{2,3}



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Management of Granulation Tissue on the Tracheostomy Stoma

Care of the Child with a Tracheostomy

Paediatric Nursing Practice Manual (PNPM)

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