TOPICAL APPLICATION OF SILVER NITRATE FOR TREATMENT OF HYPERGRANULATION TISSUE AT THE TUBE SITES

PURPOSE

Outlines the steps for application of silver nitrate to treat hypergranulation tissue at tube and stoma sites.

POLICY STATEMENTS

Silver nitrate is applied to hypergranulation tissue once daily for up to 5 days or until resolution of hypergranulation tissue, whichever occurs first.

Silver nitrate is generally used as a last resort to treat hypergranulation tissue when other options (e.g. topical steroid cream) have been ineffective.

SITE APPLICABILITY

Applicable to all clinical areas within BCCH and SHHC.

PRACTICE LEVEL/COMPETENCIES

RNs/LPNs may apply silver nitrate to hypergranulation tissue following an assessment by or consultation with the general surgery nurse clinician or physician confirming the presence of hypergranulation tissue.

DEFINITIONS

Hypergranulation tissue is believed to occur as a result of an extended inflammatory response. It may be caused by a reaction to the tube - the body is in fact "walling off" the tube. Pressure, moisture and friction may also contribute to the development of hypergranulation tissue. Hypergranulation tissue is the body's way to fight the tube - the body does not think the tube belongs there.

Hypergranulation tissue:
- is not harmful.
- is red, moist and bleeds when rubbed.
- oozes a yellow, sticky drainage.
- can affect how the device fits in the stoma.
- is common in the first 3 months.

Silver nitrate is available as a caustic 'pencil' which is an applicator stick where the tip contains 95% silver nitrate which is fused with 5% potassium nitrate. The pencil is inexpensive, easily available and application requires minimal technical skill. The silver nitrate works by acting as a strong oxidizing agent. In aqueous solution, the silver cation of this salt, Ag(I), is readily reduced to neutral silver metal, Ag(O), resulting in the release of free radicals. The chemical stress that accompanies this reaction will oxidize organic matter, coagulate tissue and destroy bacteria.

EQUIPMENT

- Silver nitrate applicators
- Wash cloth and towel or gauze to clean and dry the site
- Barrier cream (i.e. Vaseline or petroleum jelly)
- Cotton tipped applicators
- Gauze with a keyhole cut out (or trach/drain gauze) to place around the site after application
# TOPICAL APPLICATION OF SILVER NITRATE FOR TREATMENT OF HYPERGRANULATION TISSUE AT THE TUBE SITES

- Non-sterile gloves
- Sterile or distilled water

## PROCEDURE | Rationale
---|---
1. **CONFIRM** presence of hypergranulation tissue in consultation with the general surgery nurse clinician or primary care physician. | Important to differentiate hypergranulation tissue from infectious process and to treat appropriately.

### These are some examples of what hypergranulation may look like:

2. **EXPLORE** with the family if the child has experienced hypergranulation tissue in the past, how it was treated and the outcome of treatment. | Helps to determine what interventions were successful. Engages patient and family in care.

3. **OBTAIN** prescriber order for silver nitrate sticks and frequency of application. The usual order is silver nitrate to hypergranulation tissue once a day for 5 days. | Medication orders that meet safe prescribing practices promote patient safety.

4. **ASSESS** skin integrity prior to use of silver nitrate. | If skin is excoriated, another form of treatment may be indicated. Consult general surgery nurse clinician or primary care physician for treatment alternatives.

5. **GATHER** supplies. | Facilitates completion of procedure in a timely manner.

6. **IDENTIFY** patient using two client identifiers | Failure to correctly identify patients prior to procedures may result in errors.

7. **EXPLAIN** procedure. | Reduces child and family’s anxiety. Evaluates and reinforces understanding of previously taught information and confirms consent for procedure.

8. **PERFORM** hand hygiene and **DON** gloves. | Routine infection control practices; reduces transmission of microorganisms.

9. **CLEAN** area around stoma with mild soap
and water or as per home routine and DRY well.

10. **APPLY** a layer of barrier cream (i.e. petroleum jelly, zinc oxide, diaper rash cream) on the skin surrounding the hypergranulation tissue. Do not apply barrier cream to the hypergranulation tissue.

11. **MOISTEN** the tip of the silver nitrate stick with sterile or distilled water.

   **NOTE:** If there is excess moisture from the tissue, you may not need to dip the silver nitrate stick in water, as the excess moisture from the tissue will activate the medication.

   *do not use normal saline as this will deactivate the silver nitrate.

12. **TOUCH** the silver nitrate applicator tip to the hypergranulation tissue; do not touch the healthy skin around the hypergranulation tissue. One stick is usually sufficient per application. The granulation tissue will turn gray-white in color, immediately.

   **NOTE:** Application of silver nitrate may sting, especially in those children with sensitive skin. However, some children have no problems with the application.

   ![Silver nitrate applicator](image)

**NOTE:** If the child does not tolerate the course of treatment of silver nitrate (i.e. takes a long time to settle post, grabbing at tube site, discomfort present despite medication(s) given), the child may need another form of treatment for the hypergranulation tissue. Stop the course of treatment with silver nitrate. Discuss other options with the general surgery nurse clinician or the primary care physician.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.</td>
<td><strong>APPLY</strong> a dressing around the device/stoma as needed. Protects clothing from being stained with the silver nitrate.</td>
</tr>
<tr>
<td>14.</td>
<td><strong>MAINTAIN</strong> skin around the stoma as clean and dry as possible. Helps prevent further skin irritation.</td>
</tr>
<tr>
<td>15.</td>
<td><strong>STABILIZE</strong> the tube or adaptor to clothing or abdomen. Prevents further irritation of the stoma site and further growth of tissue.</td>
</tr>
<tr>
<td>16.</td>
<td><strong>REMOVE</strong> supplies and dispose in the garbage bin. Routine infection control practices; reduces transmission of microorganisms.</td>
</tr>
</tbody>
</table>

Policy #: BCCH Children’s Hospital and Youth Health Policy Manual Effective Date: 2017-09-20 Page 3 of 4
TOPICAL APPLICATION OF SILVER NITRATE FOR TREATMENT OF HYPERGRANULATION TISSUE AT THE TUBE SITES

17. **REPEAT** application once daily for up to 5 days or as directed by physician’s orders.

18. **DISCONTINUE** application within 5 days or when hypergranulation tissue has disappeared, whichever occurs first.

**Recommended application schedule.**

**DOCUMENTATION**

**DOCUMENT** in appropriate records (inpatient careplan, nurses notes, MAR):
- Date/time of application (indicate start/stop date on inpatient care plan)
- Condition of tissue surrounding tube prior to use
- Patient’s response to application
- any other pertinent actions or observations

**REFERENCES**


