Principal Investigator: Ronald Hirschl, MD

IRB Project Title: Granulation tissue at G tube site: treatment with Kenalog vs chemical cauterization with Silver Nitrate vs soap washcloth abrasion

Site(s) where study will be performed: C.S. Mott Children's Hospital

Protocol Version 1.0

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PROTOCOL

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1.0 Introduction - Background and Rationale: Hypergranulation tissue surrounding gastrostomy tube sites in pediatric patients is a significant problem. This tissue may cause drainage or bleeding that bothers patients and parents. Numerous methods of treatment are used for treatment of hypergranulation tissue, but no data exists to support one method of treatment over another. We plan to perform a prospective randomized trial of three different therapies (silver nitrate cauterization, topical kenalog, and soapcloth abrasion) to identify the best treatment modality. Steroids topically or by intralesional injection has been used to control granulation or hypertrophied scars/keloid. A pertinent reference pertaining to the use of kenalog are as follows:

Lahiri A, Tsiliboti D and Gaze NR.Experience with difficult keloids.
British J of Plastic Surgery. 2001; 54(7):633-635

We will follow the patients via office visit at four and eight weeks after initiation of therapy. Measurements of the granulation tissue and photographs will be obtained pre treatment and at each post treatment visit. In addition parents will be asked to fill out a pre and post treatment survey regarding improvement in symptoms. We plan to enroll 120 patients total with the intention of having 40 participants in each group.

2.0 Hypothesis/Key Questions: The aim of this study is to prove that kenalog treatments are equal or superior to conventional cauterization with silver nitrate or use of soapcloth abrasion in reducing granulation tissue which forms following insertion of a feeding gastrostomy tube. We will perform measurements, use photographs and survery parents to answer this question.

3.0 Objectives: Evaluate the use of Kenalog vs Silver nitrate cauterization vs soapcloth abrasion around gastrostomy tube sites to reduce the development of granulation tissue.

We will follow the patients via office visit at four and eight weeks after initiation of therapy. Measurements of the granulation tissue and photographs will be obtained pre treatment and at each post treatment visit. In addition parents will be asked to fill out a pre and post treatment survey regarding improvement in symptoms. We plan to enroll 120 patients total with the intention of having 40 participants in each group.

4.0 Selection of Patients

4.1 *Inclusion Criteria (list):* birth - 17 years of age, granulation tissue present around gastrostomy tube site for at least 1 week

4.2 *Exclusion Criteria (list): allergy to any of the potential medications (silver nitrate or kenalog), Non-english speaking patients will be excluded due to inability to effectively communicate study details, risks and benefits.*

4.3 *Age Range:* 0-17 years of age

5.0 Study Methodology:

Prospective, randomized study utilizing children ages birth to 17 years, with granulation tissue present around their gastrostomy tube for at least one week. Patients will be randomized to one of the three treatment groups in equal numbers. Once the inclusion criteria are met, informed consent will be obtained from the parent and randomization will occur. Patients will be randomized to either Kenalog (0.5% ointment three times a day for three weeks) or cauterization with silver nitrate (three times a week for three weeks) or abrasion/washing with a soap washcloth (once daily for three weeks). At the end of the three week period, if granulation tissue is still present, the patients will undergo a rest period of one week, followed by another three week course. These children will be followed at four weeks and eight weeks via clinic visits. At the clinic visits, photographs and measurements will be obtained and parent surveys completed.

6.0 Study Methods

6.1 *Source (location) of records or patients to be recruited::* Patients presenting to the Pediatric surgery service at Mott Children's Hospital either as an inpatient or outpatient, for treatment of granulation tissue at their gastrostomy site. The patients and their parents will be interviewed and the prospect of participating in this clinical trial will be discussed with them in a private consultation room where they will have opportunities to question the trial and protocol.

6.2 *Describe how the charts to be reviewed will be identified:* Patients meeting criteria will be identified through department specific queries from case schedules.

6.3 *Describe who will identify charts to be reviewed:* The study team

7.0 Confidentiality of data

7.1 *Describe how data (both paper and electronic) will be stored to safe-guard confidentiality (e.g. in a locked cabinet, password protected computer):* All electronic data will be kept on password protected, encrypted devices within the University of Michigan system which meet current security standards. Any paper records utilized during this review will be kept in a locked cabinet within the Pediatric Surgery research space and/or PI's office.

7.2 *Specify who will have access to harvested patient data:* Access will be given to personnel approved by the IRB.

7.3 *Clarify long harvested patient data will be stored and how it will be destroyed when no longer needed:* We plan to keep this data for future use as this data will contribute to a future project. The data obtained will help to inform future projects and may be included as we further investigate this cohort/disease.

8.0 Consent Process (if applicable):

Written comprehensive consent will be obtained in a face to face manner in the clinic or patient's hospital room at the initial encounter. Ages 0-6 will are requesting a waiver of assent. If the child is 7-9 years of age or older and neurologically intact, informed assent will also be obtained from the child at that time via oral script. and children 10-17 will provide written assent, with children 10-14 assenting on the written assent document and children 15-17 assenting on the consent document, which one parent provides parental permission on.

For patients who are 7 years old or older and without neurological impairment and who have age appropriate neurodevelopment assent will be obtained. For children less than 7 years of age or with neurological impairment, a request for waiver of informed assent is requested, as this would not be feasible. The oral assent will be used and we will ask the child to "teach back" the information to ensure their understanding.

9.0 Risks and Benefits:

9.1 ***Overall Risks:***

Breach of confidentiality: Breach of confidentiality is not expected, though is always a risk despite measures the study team takes to mitigate the risk.

Silver Nitrate:

Very hazardous in case of skin contact (irritant), of ingestion. Hazardous in case of skin contact (permeator), of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (corrosive). The amount of tissue damage depends on length of contact. The parents of the children will recieve instructions on administration of the drug and the duration of contact with the skin. Therefore, likelihood of causing further injury will be minimal. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering when a prolonged exposure is done. Education will be given to the parents regarding application and therapy. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Prolonged exposure mayresult in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. There is no anticipated exposure of the respiratory system to the silver nitrate as this is being used only on the abdominal portion

of the skin at the gastric tube site.

Kenalog:
Infrequent is a possible mild eye irritant
Rapidly absorbed through skin, repeated exposure may cause skin dryness or cracking. May be harmful if absorbed through skin. The drug used in the concentration for the study has not been shown to be harmful to skin. Education regarding the potential side effects, application and skin care will be given to the parents. May cause damage to organs through prolonged or repeated exposure if swallowed. May cause damage to organs through prolonged or repeated exposure if inhaled. The drug is being used for topical application and will not be near the respiratory tract. Target Organs adrenal glands, bone, muscle, gastrointestinal tract, immune system, eyes, nervous system, skin, female reproductive organs, (embryo/fetus) Signs and Symptoms Chronic: muscle weakness, muscle pain, bone fractures, infection, oedema, headache, difficulty sleeping, vertigo, restlessness, euphoria, mental disturbance, depression, anxiety, mood changes, seizure disorders, nosebleeds, cough, fever, nausea, vomiting, anorexia, gastrointestinal disturbance, sore throat, dry mouth, taste disturbance, speech difficulty, congestion, redness and swelling of eyes, vision changes, facial swelling, skin thinning, acne, redness and swelling of skin, hives, bruising, superficial burning sensation, tingling. Medical conditions aggravated include: Diabetes, Liver disorders, infection, immunodeficiency, hypertension, myasthenia gravis, osteoporosis, peptic ulcer, psychotic disorders, colitis, kidney disorders. These are infrequently seen in children, and mostly seen in adults.

Soapy washcloth: There are no foreseeable risks involved with using soapy washcloth as an arm in this study.

9.2 *Benefits:*
This study may provide improved knowledge about the best way to treat granulation tissue in the future. In addition, the benefit of treatment of each patient's granulation tissue outweighs the risk of adverse effects of the treatment.

10.0 Statistical Considerations
ANOVA and Chi square tests will be used to evaluate the differences between the three treatment groups. Actual measurements of the granulation site, blinded evaluation of the pictures and analysis of pre and post surveys will be incorporated into the data analysis.