**CASE REPORT**

*Cholestyramine Ointment to Treat Persistent Diaper Rash in an Infant*

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The parents of a 7-month-old girl sought the advice of their pediatrician in treating the child’s persistent diaper rash. The rash had initially appeared approximately 3 weeks earlier when formula was first introduced into the baby’s diet. The child began to pass frequent loose stools, and the pediatrician determined that the child was not tolerating the milk-based formula. The physician then recommended that the parents try different types of formula for a few days at a time while noting bowel activity to determine which was most easily digested by the baby.

During this time, the baby had frequent bouts of diaper rash as a result of the loose stools. The child’s caregivers changed her diaper as quickly as possible when soiled and carefully rinsed the diaper area with plain water at each changing. In spite of these efforts, the rash continued to worsen and spread.

**TREATMENT**

*Treating Nausea and Vomiting*

One of the most universally distressing symptoms of illness is nausea, which may or may not be accompanied by vomiting. Nausea and vomiting (or emesis) can occur with pregnancy, as a side effect of medications, or as a result of a gastrointestinal disturbance or other disease state, or it may be caused by environmental factors such as motion sickness. These symptoms tend to leave patients in a weakened or fatigued state, and illnesses with accompanying nausea may require a somewhat longer recovery period.

While commercial medications in many cases can be very effective in treating symptoms of nausea and vomiting, these medications are not appropriate in every situation. For example, a pregnant woman who is working full-time might not be able to tolerate the drowsiness that is a common side effect of promethazine. Another example is a patient who is unable to keep a tablet form down and finds a suppository an unpleasant alternative. In these situations, a compounding pharmacist may be able to provide solutions.

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Compounded treatments for nausea and vomiting are numerous, and offer prescribers tremendous flexibility in meeting the needs of the individual patient. For example, many compounding pharmacies have had great success incorporating promethazine into a transdermal gel, which is applied to a thin-skinned area such as the wrist. This is a very popular preparation in both pediatric and obstetric/gynecology practices, because it typically is less likely to cause drowsiness and discomfort than the tablet, suppository, or injection forms of promethazine. The gel is easy to apply and portable, and works quickly.

Another setting in which compounding can be of great benefit is hospice care. Because the patient’s comfort and quality of life are the ultimate goals of hospice care, an injection or suppository may not be the optimal way of meeting the patient’s needs. Many hospice patients suffer from nausea and vomiting as well as anxiety, and in these cases especially, compounding can be the answer. One proven solution for hospice patients is a preparation known as Gralla gel. Usually prepared in a Pluronic lecithin organogel (PLO) base, Gralla contains haloperidol, diphenhydramine, metoclopramide, and dexamethasone, and is often packaged in unit-dose topical syringes for easy dosing. Besides curbing nausea, Gralla can relieve anxiety and has a sedative effect. Other similar compounded combinations are possible as well. Potential components of compounded medications for treating nausea and vomiting include the following:

- **D/HT, Antagonists**
  - Metoclopramide
  - Trimethobenzamide

- **5-HT, Antagonists**
  - Ondansetron
  - Granisetron

- **D, Antagonists**
  - Benzimidazole derivatives
  - Chlorpromazine
  - Domperidone
  - Perphenazine
  - Prochlorperazine
  - Promethazine
  - Triethylperazine
  - Triflupromazine

Any of the listed medications may be used alone or in combination to achieve the objective of relieving symptoms of nausea and vomiting. Various dosage forms may be used, including transdermal gels or creams, oral capsules, suppositories, suspensions for administration orally or in percutaneous endoscopic gastrostomy (PEG) tubes, and even rapid-dissolve tablets. Because of the versatility and countless treatment options it affords, as well as the ability to individualize therapy to the needs of the patient, compounded medications for nausea and vomiting should be considered a valuable tool in treating nausea and vomiting of all types.

**CHOLESTYRAMINE OINTMENT TO TREAT PERSISTENT DIAPER RASH IN AN INFANT**

Several barrier creams and ointments were applied in an attempt to heal the rash and quell the baby’s discomfort. White petrolatum, zinc oxide ointment, and lanolin were tried, as was a prescription preparation of 10% boric acid ointment. Various name-brand over-the-counter remedies also were tried, including a preparation known as “butt paste” which includes zinc oxide, Peruvian balsam, and boric acid in a petrolatum base. None of these products yielded any marked improvement.

At a follow-up visit, the pediatrician noted the child’s stool patterns and worsening rash and made a suggestion for a diaper rash treatment he had recently read about. He referred the parents to a local compounding pharmacy for a topical cholestyramine ointment in hopes of binding the bile acids that were causing the pain and excoriation.

Cholestyramine 3.5% was prepared in a white petrolatum base, which was milled thoroughly to reduce particle size and minimize the initially gritty feeling of the ointment. Four ounces of the compound was dispensed, with the doctor’s instructions to apply the medication to the affected area after each loose stool and as needed.

Within 4 hours of the initial application, the rash began to appear considerably less red and swollen. Forty-eight hours after beginning the treatment, the child’s diaper rash was fully healed. The parents continued to use the preparation once or twice daily until the child’s loose stools abated completely, at which point they had no further problems.

**Suggested Reading**


**COMMONLY PRESCRIBED ORAL LIQUID FORMULATIONS, VEHICLES, AND STOCK SOLUTIONS**

Only a small number of oral medications are commercially available in liquid form. Mainly for stability reasons, but also owing to economic motives, pharmaceutical laboratories tend to manufacture drugs in solid oral forms rather than in liquid oral form. Nevertheless, 80% of prescription drugs approved by the US Food and Drug Administration (FDA) for human use are not approved for use in children. Extemporaneous pharmacy compounding fills in this gap and is able to provide appropriate, personalized treatment for children who are in need of a medication that is not commercially available in a suitable form. Examples of oral liquid formulations available from your compounding pharmacist include the following:

- Captopril 1-mg/mL Oral Solution: Therapeutic category—Angiotensin-converting enzyme (ACE) inhibitor
- Dimercaptosuccinic acid (DMSA) 100-mg/5-mL Oral Suspension: Therapeutic category—Chelation agent; antidote to heavy metal intoxication
- Omeprazole 20-mg/5-mL Oral Suspended Solution: Therapeutic category—Antulcer agent; proton pump inhibitor
- Amiodarone 5-mg/mL Oral Suspension: Therapeutic category—Antiarrhythmic agent
- Albendazole 100-mg/5-mL Sugar-free Oral Suspension: Therapeutic category—Broad-spectrum anthelmintic