

## Types of Wounds

- Acute: heal quickly, transient cause, lack impediments to healing
  - Lacerations, abrasions, punctures, burns, surgical incisions
- Chronic
  - Pressure ulcers, neuropathic ulcers, ischemic ulcers, inflammatory (chronic disease, cancer)



## Treatment Goals

- Wound bed prep for healing
  - Debridement of dead tissue and exudate: autolytic (safe/slower), enzymatic, **biosurgical**, mechanical (WTD-out of favor), sharp/surgical
- Well **vascularized** with minimal exudate
- Dressing that facilitates healing
- Skin edges **fresh** to allow epithelial cells to migrate

## Topical Therapy Principles

- Remove dead tissue
- Absorb excess exudate
- Facilitate autolytic debridement
- Maintain **moist wound surface**
- Minimize pain
- Protect peri-wound skin
- Thermal insulation
- Protect from trauma



## Moist Wound Healing

- Migration of cells more effective
- Cells can perform needed tasks
- Growth factors and chemo-attractants better able to interact with target cells
- Pain minimized
- Less scar tissue



## Topical Dressings



- Fillers
  - Absorptive: calcium alginate +/- silver
  - Hydrating: balm
- Covers
  - Hydrogel, mepilex, polymem



## What Keeps Wounds From Healing?

- Ischemia
  - All wound healing needs adequate perfusion
- Edema
- Lack of moist healing
- Trauma



**APNO-  
NO-NO-  
NO**



Image: YourSassyGrandma

## IATROGENIC: APNO-NO-NO!

- Misuse of topical agents/antiseptics
- Steroids
  - Inhibit macrophages, lymphocytes, decrease antibody production, diminish antigen processing
- NSAIDs interfere with platelet activation, angiogenesis, collagen production

### How to Make APNO: The Recipe

All Purpose Nipple Ointment is a common combination that requires a prescription. If you have a prescription device and have a doctor who believes this medication can help, she can provide you with a detailed prescription. Certain pharmacies, known as compounding pharmacies, can also provide this medication. You will receive the mixture yourself, but you still need a prescription. Here's what you need to make:

1. Bacitracin (bacitracin) 2% ointment (not cream) 30 grams. Bacitracin is the antibiotic. It treats infections of the skin with bacteria. If you are not able to get bacitracin, you can use bacitracin. However, bacitracin does not work as well.
2. Dimethicone (dimethicone) 10% ointment 30 grams. Dimethicone is the anti-inflammatory. It treats swelling, lifting, dryness, redness, and general irritation of the skin from constant friction and/or moisture. Your doctor can give you a prescription for this medication, or you can purchase it over the counter.
3. Miconazole powder to make a final concentration of 2% miconazole. This ingredient is the antifungal. It treats yeast and fungal infections. You will need a prescription for miconazole prescription and over-the-counter. According to Dr. Newman, if miconazole is used as a powder, it is best to mix it with dimethicone anyway and just include the two statements. It is also better to choose an anti-fungal powder over an ointment because it will give you an anti-fungal powder over an ointment because it will give you a more potent anti-fungal. The final concentration of the miconazole and dimethicone will stay longer.
4. Optional: It may be helpful to add **lignocaine** powder so that the final concentration of lignocaine is 2%. (Optional is a pain reliever.)

Combine all the ingredients in equal parts. Once the mixture is complete, you should have approximately 60 grams or one ounce of APNO.

## IATROGENIC Continued

### General Measures

1. Nipples can be warmed for short periods of time after each feeding, using a hair dryer on low setting.

2. Nipples should be exposed to air as much as possible.

3. When it is not possible to expose nipples to air, plastic dome-shaped breast shells (not nipple shields) can be worn to protect your nipples from rubbing by your clothing. Nursing pads keep moisture against the nipple and may cause damage that way. They also tend to stick to damaged nipples. If you leak a lot you can wear the pad over the breast shell.

- Poor application techniques (tapes)
- Drying of wound
- Reduction of wound temperature with dressing changes
- Trauma from aggressive cleaning
- Fibrinous exudate bathing the wound



**Poll:**  
Which are  
Infected?



None!

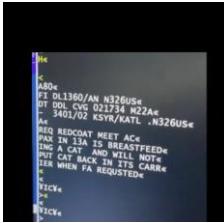


Poll: What About This?



**NEWS**  
**Woman Allegedly Breastfeeds Cat on Delta Airlines Flight**

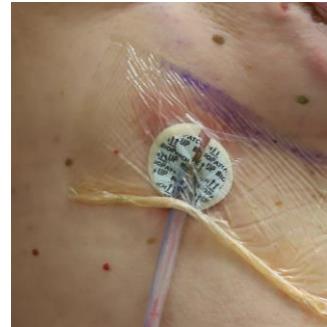
By ALI SLADE ON 11/02/21 AT 10:27 PM EST

Nope,  
Not Infected

However, a TikTok account from flight attendant Ainsley Elizabeth appears to refer to the incident, with a video posted on November 2 claiming that "security met the flight because a woman was breastfeeding her cat."

"This woman had one of those, like, hairless cats swaddled up in a blanket so it looked like a baby," Ainsley Elizabeth said in a follow-up video posted on November 13. "Her shirt was up and she was trying to get the cat to latch and she wouldn't put the cat back in the carrier. And the cat was screaming for its life."

This?

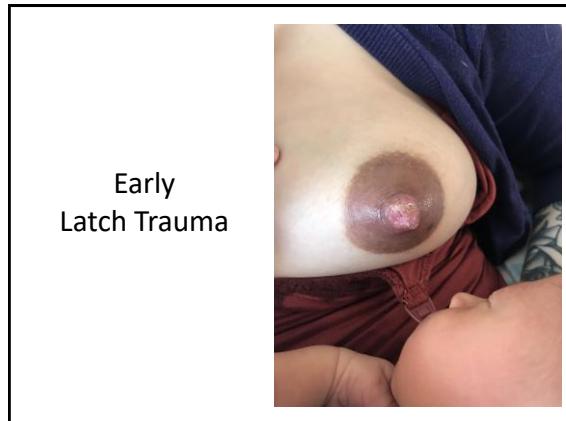
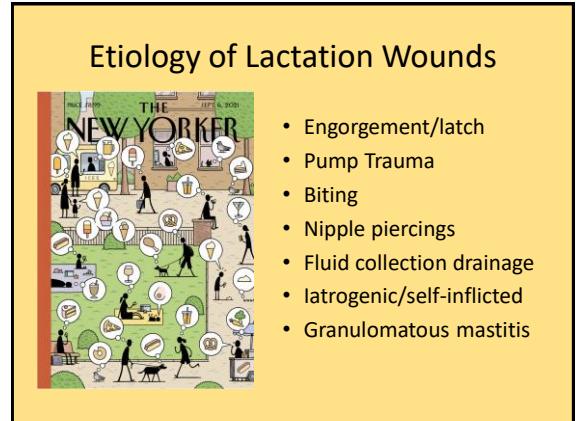


Nope



What About These Drain Sites?





Infant Biting



Nipple Piercings



Image: All About Class

Drainage Site Wounds



Iatrogenic/Self-Inflicted



Granulomatous Mastitis



Treatment



Pump trauma



What Would  
You Do?

### Ischemia/Strangulation Rx

- Be wary of lubricants like coconut oil – can allow mom to turn up suction to dangerously high levels
- Limit duration of time pumping
- Proper suction
- Proper flange fit
- Take a break from pumping and hand express



## Superficial Ulcerations Tx



COMPREHENSIVE INVITED REVIEW

## Wound Dressings and Comparative Effectiveness Data

Adult Soothing<sup>®</sup> Mark S. Gordon and Nancy L. Tomaszewski<sup>1</sup>

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Significance: Injuries to the breast provide a unique challenge, as wound healing is a critical component of successful lactation. The goal of this article is to review the evidence available to answer the question, "What is the best way to manage a wound on the breast during lactation?"

What is Known: The management of acute and chronic ulcerations is challenging, as the wound must be managed in a manner that does not interfere with lactation. The evidence to date suggests that the use of moist wound management, including hydrogel dressings, can be effective in managing these wounds.

What is New: The evidence to date suggests that the use of moist wound management, including hydrogel dressings, can be effective in managing these wounds.

Conclusion: There is an emerging trend of moist dressing use.

Critical Issues: There is an emerging trend of moist dressing use.



- It's simple: MOIST, CLOSED wound healing!
- Note that hydrogel products marketed for lactation state to not use with balm
- However, a benefit of hydrogel in general is its ability to be "used in conjunction with topical medications"

"Hydrogel bases therefore offer great potential, as they can easily be combined with various substances that facilitate wound healing and/or have anti-inflammatory properties to promote healing in chronic wounds. However, there is still a lot of educational work to be done by the treating physicians to make patients aware of these benefits and to establish ideal moist wound management as a standard approach even for minor wounds."

Sara Röther<sup>1</sup>, Werner Voigt<sup>1</sup>Andreas Winter<sup>1</sup>, Germany

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## Remove Exudate/Biosurgical Debridement



## Pump Trauma Causing Abscess Rx

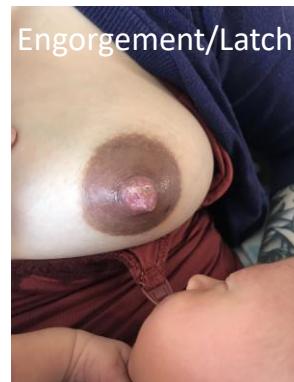
- Drain it
- Place stab incision and drain site AWAY from areola if possible
- Hand express and feed baby at breast if possible



## DON'T SOAK THE NIPPLE IN SALT WATER!



## Engorgement/Latch

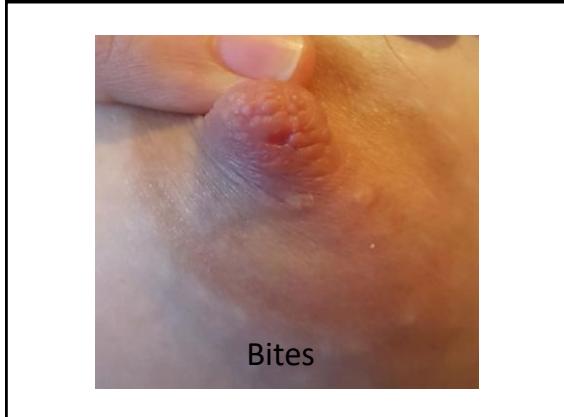




### Latch Trauma Rx



- Treat engorgement
  - Ice, lymphatic drainage, do not remove excess milk
- Treat hyperlactation
  - Babies continue to clamp with high flow
- Adjust position
- Treat trauma with moist/closed healing versus fillers if cratered/exudate



### Bite Trauma RX

- Dirty wound, no suturing, glue, or tape-> close by secondary intention with basic wound care support



## Nipple Piercing Site Trauma Rx

- Wound care if ulceration or cratering
- Hematoma: moist heat for spontaneous drainage
- NSAID for pain
- Aspirate/stab incision if large



## What Will You Do With This?



## DO NOT PACK

- Gets soaked with milk immediately
- Keeps wound persistently open
- Excessive granulation tissue
- Prolonged healing time



## Do NOT PUMP

- Fistula and hypertrophic granulation tissue formed
- A rare time to use silver nitrate on hypertrophic granulation on areola



Consequence of patient told to “pump to empty”



Milk fistula in area of pump trauma



Everything closes eventually with appropriate management (2.5 weeks s/p drain)



Iatrogenic/Self-Inflicted Scar Tissue



Leave Alone!



Granulomatous Mastitis



## Treatment

- Past
  - Antibiotics
  - Oral steroids
  - Surgical debridement, drains and chronic wounds
- Present
  - Intralosomal Kenalog injections
  - Methotrexate or azathioprine if they progress
  - ?Humira



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**CASE REPORT** **Open Access**

**Management of idiopathic granulomatous mastitis in lactation: case report and review of the literature**

Hannah W. Komfeld<sup>1</sup> and Karmen B. Mitchell<sup>2</sup>

**Abstract**

**Background:** Idiopathic Granulomatous Mastitis (IGM) is a benign chronic inflammatory breast condition that involves the common breast disorders breast carcinoma and breast abscess. It can form breast masses, fistulas, and fluid collections, resulting in breast induration with retraction and nipple areolar complex (NAC) inversion. IGM most commonly occurs in lactating women, but can also occur in non-lactating women and in the postpartum period. Despite the prevalence of this disease, no current literature describes an approach to managing IGM.

**Case presentation:** A 38-year-old G3P1 patient of Native American origin presented to her obstetrician at 7 months postpartum with worsening left breast swelling and redness. She underwent a mammogram, ultrasound and core needle biopsy, which were all negative for breast carcinoma. She was then referred to the breast surgeon who performed an ultrasound-guided stereotactic biopsy of the left breast. Due to the contraindication of breastfeeding after local steroid injection, she was placed on oral methotrexate and was able to continue breastfeeding. She was then referred to the rheumatologist for further evaluation.

**Conclusion:** Idiopathic Granulomatous Mastitis is a challenging chronic inflammatory breast disease that affects women primarily in the reproductive years, with a higher incidence in patients of Hispanic, Native American, Black, and Asian descent. This case report highlights the importance of early diagnosis and treatment in the lactating population to facilitate the treatment of IGM in the non-lactating population, and propose considerations for treating breastfeeding women affected by IGM. Future research is needed to further elucidate the pathophysiology of IGM. This case report demonstrates that intralosomal injection of steroid can provide significant symptomatic relief to patients. A regimen of GM and oral methotrexate was able to manage her symptoms and allow her to continue breastfeeding. The decision to wean the affected breast if individualized care should be provided, with consideration given to the following side effects of systemic steroids, the need to wean a breast being treated with intralosomal steroids, and augmentation of milk production.

**Keywords:** Breastfeeding, Idiopathic granulomatous mastitis, Methotrexate, Lactation, Single breast lactation, Steroid injections, Lactation problems, Imaging, Postpartum, Infertility, Inflammation

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## Azathioprine



3 months PP; drain placed and AZA started

Day 3 after 14F seroma cath

Day 11

## Summary of Treatment Principles



## Treatment: Behavioral

- Avoid pump
  - Not physiologic
  - Suction levels
  - No infant bacterial exchange or mechanical debridement
  - Risk adding additional complications from pump
    - Mastitis, plugging, blebs
- Hand expression
- Side lying or laid back nursing



## Treatment: Wound Care

- **KEEP IT SIMPLE**
- Treat it like a burn
  - Keep moist, cover 2/4
  - Use fillers (polymem) for cratering and cover for closed healing
  - Silver nitrate rarely for hypertrophic granulation tissue
  - PRN 0.1% triamcinolone for limited period of time for extreme pain



## Wound Care DON'Ts

- NO
  - Hairdryers
  - “Letting it dry out”
  - Moist washcloths (unless you are purposely trying to open up the skin)
  - Soaking in salt
  - Topical antibiotics or antifungals
  - Tapes, glues, bandages
  - Shells, silverettes, anything else that increases nipple edema by constricting areola/nipple base
  - Sterilizing with alcohol and other drying agents
  - PICKING!
  - APNO-NO-NO!



Image: Exotic Pasties

## Don't Close a Dirty Wound Primarily

- Vast majority of wounds on nipple/areola are dirty
- Large laceration with knife with presentation immediately: clean, close primarily
- Do not suture, dermabond, tape closed any wound on the breast or nipple!



## P.S. These are NOT Wounds



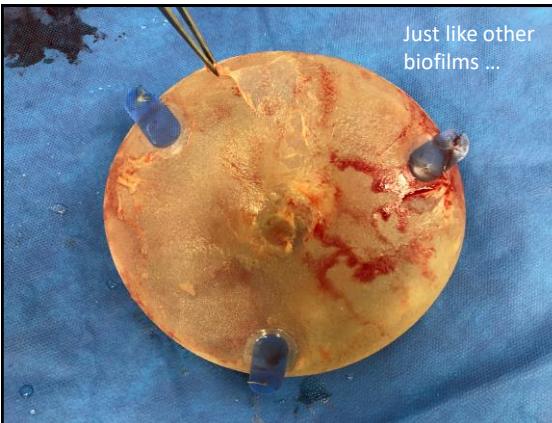
## Subacute Mastitis

- Imbalance of natural breast flora akin to vaginal yeast infection or bacterial vaginosis
- May have history of previously treated acute mastitis
- Nipples/latch can be very tender and have scabbing, blebs, biofilm; underlying breast pain and plugging



Egash et al JHL 2006, Milk Mob 2015

Just like other biofilms ...



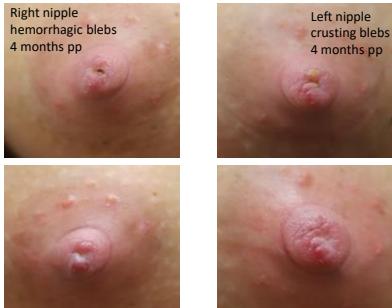
## Subacute Mastitis Treatment



- Breastmilk culture
- Antibiotics
- Lecithin to emulsify milk
- Treat hyperlactation
- Probiotic

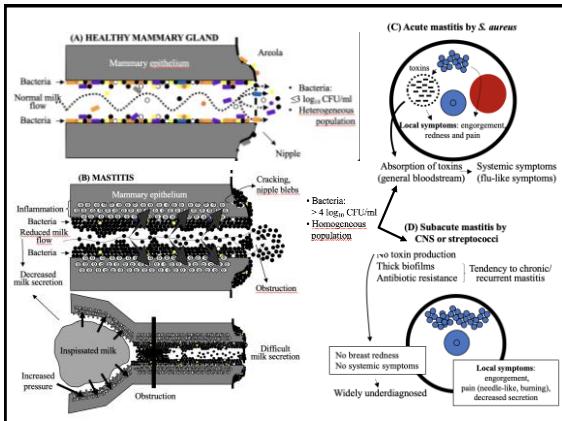
Egash et al J Human Lact 2006, Milk Mob 2015

## Treatment with Antibiotics



Resolved 5 months pp after 30 days azithromycin

## Nipple Blebs are NOT Trauma



## “Cracked Nipple” (NOT Trauma)



## Bleb Treatment



- Treat hyperlactation
- Treat subacute mastitis
- 0.1% triamcinolone to bleb
- Sunflower or soy lecithin by mouth
- DO NOT PICK and unroof!

## Vasospasm Requires Warmth, Not Wound Care



## Vasospasm



## “Lady Mittens”



Image: Hothomestead

## Dermatitis

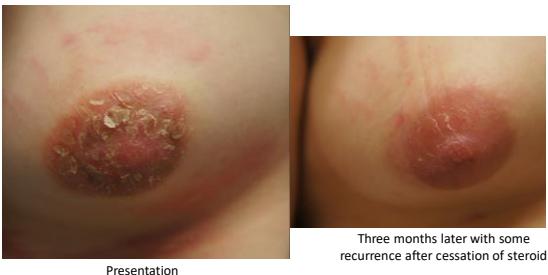
- Assess allergies
  - Baby medication or food
  - Laundry detergent
  - Breast pad material
  - New nursing bra
  - Pump parts
  - Nipple crème, topical abx
- Tx
  - Remove allergen
  - 0.1% triamcinolone



## 36 Hours After Steroid Crème!



## Not a Wound or Infection!



**Dermatitis Treatment**

After two weeks 0.1% triamcinolone creme

Berens et al ABM Protocol # 26

**Dermatitis with Secondary Skin Ulceration from Contact Irritant (Nystatin)****One Week Later s/p Steroid****Nipple Adenoma (May Bleed, Not a Wound)**

- Benign proliferative process of lactiferous ducts
- Presents with nipple nodule, nipple erosion, nipple discharge

**Treatment of Nipple Adenoma: Excise and Protect from Trauma****Syringomatous Adenoma, Pyogenic Granuloma**

- Laser, excision with coagulation, silver nitrate



### Paget's

- Starts on nipple and moves to areola
  - Eczema is opposite
- Stages
  - Early: red, shiny
  - Intermediate: roughened nipple
  - Late: flattening of nipple, scaly erythematous lesion
  - Very late: complete loss of nipple



### Breast Cancer Recurrence



### Hyperkeratosis

- Thickening of stratum corneum (outer layer skin) usually with abnormal quality of keratin
- Tx
  - Calcitrene (synthetic derivative of Vitamin D, calcitriol)
  - Keratolytic moisturizer (urea or lactic acid)
  - Laser definitive



### Herpes



### Treatment of Herpes/Shingles

- Avoid contact on that breast
- Keep covered until lesions scab over
- Express and discard on affected breast
- Nurse on contralateral breast
- Antiviral medications are safe



