CASE 1

Since we brought her home she has had a stuffy nose and always sounds like she has head congestion. At night it is substantially worse. We have tape recorded the sounds of her breathing and gasping and it is horrible. I have been told she has reflux. She is on Zantac and it seems to have helped with her initial symptoms: breastfeeding every 45 minutes to an hour; all day long, spitting up large quantities of milk, crying, screaming, red rimmed eyes (not all the time), green poop, exploding poop, lots of gas, a big hard belly, poor flexibility in her legs (she can’t get her legs up over her hard belly to see them). She still has green poop and has poop in every diaper and still spits up and still has exploding poop but not as bad or as often. The congestion in her nose is still on-going. We have gone through 3 bottles of saline nasal drops and most of the time when we try to syringe her nose, nothing comes out and nothing is visible in her nose, but you can hear it in her right way.

She keeps her eyes closed but whines and fusses and struggles to breathe and mouth breaths and eventually cries out and I feed her and then she is better. When I’m feeding her she seems to breathe just fine. The doctor has her sleeping in her bouncy seat since she was a few weeks old. During the day the congestion sounds are virtually gone and she can sleep in any position without a problem. Today I called again and my doctor’s nurse asked me about a cow’s milk allergy and if I am eliminating cow’s milk from my diet along with caffeine, broccoli, cauliflower, onions, and garlic. She recommends trying a “bland diet” and my doctor returns to the office.
Milk and milk products are in virtually everything in my pantry and fridge. I have been pumping and storing my breast milk for weeks and now the idea that it may be bad because I was eating cow’s milk really makes me sad.

I am very emotional and frustrated and overwhelmed. I need some guidance and support and a diagnosis. Is it reflux or a cow’s milk allergy?

CASE 2

My son cries extremely hard... his face & head turn dark red, he cries to a silence (then will take 1 or 2 high pitched gasps for air), kicks his legs, flails his arms, will grab at his face and will have tears coming out of his eyes & sometimes streaming down the sides of his face. Is it possible that my breast milk is the problem? I’ve heard of rare cases where the mother’s breast milk can cause the infant extreme discomfort. I am at the point where I am tempted to try some formula for a feed and see if there is any change in his gassiness. I know that breast milk is best and I do want to continue w breastfeeding but if it’s causing him all the pain that he appears to be in then I just can’t continue to put him through this. Please, please, please, is there ANYTHING else that can be done to help alleviate gas pain in infants? We can’t stand to see him go through this pain several times each day!

TIMING: NEWBORN

MEDICATION WITHDRAWAL
METHADONE
- Causes Neonatal Abstinence Syndrome (NAS): withdrawal symptoms in infants including CNS hyperirritability and autonomic nervous system dysfunction
- Infants who are not breastfed are more likely to have severe NAS

SUBUTEX (BUPHENORPHINE)
- Cases: all small numbers with conflicting data
- All suggest that the amounts in human milk are small and unlikely to have negative effects on the developing infant
- However, infants exposed during pregnancy required significantly less morphine for the treatment of NAS, a shorter period for NAS treatment and a significantly shorter hospital stay than those infants exposed to methadone
  (Jones, NEJM, 2010)

BREASTMILK AND NAS
- Methadone and Buphenorphine are compatible with breastfeeding
- Infants of breastfeeding mothers had significantly reduced mean NAS scores, delayed onset of withdrawal, decreased need for medication and shorter hospitalizations than formula-fed infants.
- Breastmilk is unlikely to ameliorate all the symptoms of NAS
  Abdel-Latif, Pediatrics, 2006
SSRI

- Prozac (fluoxetine) longest half-life reports of fussy babies, less weight gain
- Paxil (paroxetine) RID= 1.25%, neonatal withdrawl
- Citalopram (citalopram) RID= 5.5%
- Lexapro (escitalopram) RID= 5.3%

SSRI DISCONTINUATION SYNDROME

- Muscle tone regulation disorders: hypertonia, tremor, myoclonus, shivering
- Irritability, excessive crying
- Sweating
- Feeding problems
- In one study, 30% of neonates exposed in utero to SSRI developed discontinuation symptoms within 48 hours after birth.

NORMAL NEWBORN BEHAVIOR
JOHN B. WATSON 1928

Treat them as though they were young adults. Dress them, bathe them with care and circumspection. Let your behavior always be objective and kindly firm. Never hug and kiss them, never let them sit on your lap. If you must, kiss them once on the forehead when they say goodnight. Shake hands with them in the morning. Give them a good pat on the head if they have made an extraordinary good job of a difficult task.

SKIN TO SKIN

• Biochemistry
  – Cortisol.
  – When an infant attempts to cope with a stressful situation, the hypothalamic-pituitary-adrenal axis is activated.
  – Salivary cortisol levels show a close correlation with plasma cortisol.
  – Salivary cortisol level is markedly influenced by physiologic and psychologic stress.

Takahashi et al, 2010

SKIN TO SKIN AND STRESS

• Salivary cortisol levels were significantly lower between 60 and 120 min after birth in infants who were skin to skin, continuing for more than 60 min compared with infants placed skin to skin for 60 min or less.
• More skin to skin = less infant stress.
SKIN TO SKIN TIMING

- Skin to skin at birth led to the stability of the heart rate earlier than skin to skin care initiation only once the baby had been evaluated under the warmer.
- Besides increasing temperature, many other beneficial effects may be associated with heart rate stability immediately after birth.

Takahashi et al., 2010

SKIN TO SKIN AND MOM’S RESPONSE

- The mothers wanted to give their newborn child the best possible care and the skin-to-skin care started a positive spiral.
- A mutual interaction developed which acted as a generator releasing energy to the mother who wanted to continue the practice which in terms increased mother–infant affinity.

Dalbye, 2011

SKIN TO SKIN

- A human baby, like any mammal, has a natural habitat: in close contact with the mother (or father).
- When a baby or any mammal is taken out of this natural habitat, it shows all the physiologic signs of being under significant stress.
- A baby not in close contact with his mother (or father) by distance (under a heat lamp or in an incubator) or swaddled in a blanket, may become too sleepy or lethargic or becomes disassociated altogether or cry and protest in despair.
SKIN TO SKIN

- With skin to skin contact, the mother and the baby exchange sensory information that stimulates and elicits "baby" behavior: rooting and searching the breast, staying calm, breathing more naturally, staying warm, maintaining his body temperature and maintaining his blood sugar.

ONE MONTH OLDS

ORGANIC CAUSES

FUSSY BREASTFED INFANT

- Reflux
- Food allergy, especially cow's milk protein
- Food sensitivity
- Colic
- A 21st century understanding of normal newborn behavior
GER AND GERD

- Passage of gastric contents into the esophagus with or without regurgitation and vomiting
- GER is a normal physiological process occurring several times per day in healthy infants, children, and adults
- Most of these episodes are <3min in the postprandial period and are asymptomatic
- GERD is present when GER causes symptoms

NATURAL EVOLUTION OF REGURGITATION
HEGAR ET AL. ACTA PAEDIATRICA 2009

PREVALENCE OF REGURGITATION BY FEEDING

- Prevalence of regurgitation was smaller in exclusively breastfed infants
- All dropouts because of excessive symptoms were in the partially breastfed group
- Others [Miyazawa et al., 2002, Martin et al., 2002] did not find a difference with feeding method
- Reflux is accepted as a manifestation of cow milk protein allergy
- In active sleep, breastfed infants demonstrate GER of significantly shorter duration than formula-fed infants [Heacock et al., 1992]
**DIAGNOSIS**

- In infants and toddlers, there is no symptom or symptom complex that is diagnostic.
- What if reflux was a symptom and not a disease? A symptom of:
  - Overfeeding
  - Fast flow
  - Cow’s milk protein intolerance

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**TREATMENT - PPI**

- Randomized controlled trials and systematic reviews have demonstrated a lack of efficacy of PPIs, specifically in young infants.
- Furthermore, emerging evidence also suggests that PPIs are not as benign as once thought, with newer data implicating a potential association of PPIs with an increased risk of respiratory tract infections, gastrointestinal infections, bone fractures, hypomagnesemia, and the occurrence of rebound hyperacidity after discontinuation of PPI therapy.


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**UNEXPLAINED CRYING/DISTRESSED BEHAVIOR**

- Reflux IS NOT a common cause of unexplained crying or distressed behavior in otherwise healthy infants.
- Medications not helpful, potentially not safe.
- Thickening breastmilk doesn’t work.
- Think symptom (and then treat that).
COLIC

An infant “who, otherwise healthy and well-fed, has paroxysms of irritability, fussing or crying lasting for a total of three hours a day and occurring on more than three days in any one week for a period of three weeks.”

Wessel et al. Pediatrics, 1954

COLIC

• Increase at 6 weeks of age
• Most frequent in late afternoon or evening
• Similar rates regardless of socioeconomic status
• Usually resolves at 3 months of age

ETIOLOGIC HYPOTHESES

• Feeding schedules
• Food sensitivity or allergy
• Immaturity of gut function and dysmotility
• Maternal smoking
• Psychosocial: maternal-infant interaction, infant temperament
“Colic, “Overfeeding”, and Symptoms of Lactose Malabsorption in the Breast-Fed baby: A Possible Artifact of Feed Management?”

- Cases of irritability and slow weight gain due to scheduled time at breast
- Describes “oversupply” or “overfeeding syndrome”

M.W. Woolridge Lancet 1988

OVERSUPPLY IS...

- Nasal congestion
- Frequent feedings
- Loose, explosive stool
- Frequent detachment from breast
- Biting and other “adaptive” behaviors
- Excessive weight gain
- Potentially Failure to thrive
- Frustrating
- A common cause of weaning

OVERSUPPLY IS NOT JUST...

- Maternal diet
- Reflux
- Yeast
TREATMENT

- One breast until the baby is finished—no switching or artificial time limits
- Change position when nursing—biologic nurturing
- Breast massage
- Pump "to comfort"
- ?probiotics
- ?milk elimination
- Sage
- Medications
FOOD SENSITIVITY

- Taste is developed long before delivery
- Breastmilk provides an array of flavors
- Anecdotes about certain problematic foods, but no consistent evidence of fussiness from maternal food choices in otherwise healthy children.

Beauchamp, Mennella Early Flavor Learning and its Impact on Later Feeding Behavior
http://www.danoneenstitusu.org.tr/pdf/proceedings_iuguassu.pdf#page=29

WHAT THE BABY KNOWS

The areola of the breast contains Montgomery's glands; glands which secrete a substance, the odor of which is important to the latching behavior of newborns. The composition is similar to that of amniotic fluid and both act as "chemosignals" that help the baby figure out who mom is and how to respond to her.
FETAL BRAIN DEVELOPMENT

- Creating neural pathways involves creation of synapses, and pruning of non-used neurons
- This can be good or bad, depending on the experiences of the newborn

NEWBORN DEVELOPMENT

Maintenance of critical levels of tactile input is important for normal brain maturation

NEWBORN DEVELOPMENT

- Quality sensory stimulation makes the brain able to think and regulate
- Negative experiences (both absence of good and presence of bad) have long lasting effects
EXPECTATIONS

• Proximal care
  – Frequent waking in the night
  – Expectation of parent co-regulation
  – Close physical contact
  – Unpredictable and frequent feeding at the breast

Post-partum depression can make a huge impact here

21ST CENTURY EXPECTATIONS

• Distal care
  – Early independence
  – A novel environmental pressure: one for which we have not adapted
  – Less likely to be settled
  – Routine feeds: possible failure to thrive
  – Increased crying
  – Lactation failure

FOR THE CLINICIANS

• Crying emerges from a complex interplay of cultural, psychosocial, environmental and biologic factors.
• Even if we identify a possible cause, there may not be a linear cause/effect relationship.
FOR THE CLINICIAN

- Assess for early treatable factors
- Reassure family that the problem is self-limiting
- Inform parents about resources (organic disturbances, maternal health, feeding management, infant temperament)
- Support parents as they weigh what they consider to be manageable or appropriate strategies to experiment with