Nia's Painful Breast: Breast Anatomy, Lactation, and Mastitis

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Part I – Breast Anatomy

Nia didn't notice any changes at first. She was too tired, too busy, and too focused on other parts of her body. The days after hospital discharge had been full of crying, diapers, spit-ups, endless costume changes (both for her and her week-old son), sleepless nights, and an onslaught of visitors eager to give advice. Her body ached, the abdominal incision pulling every time she rolled over in bed or got up to feed the baby. She was still a little lightheaded when she stood up too quickly, and the swelling in her feet, though better than before the C-section, made it hard to get around.

When Leo's tiny foot kicked out and struck her right breast, Nia was surprised at how much it hurt. When he finally fell asleep, she unlatched him, lay him safely on his back in his bassinet, and went to look at herself in the mirror. Sure enough, an area of her right breast was dark, warm, firm, and tender to touch. It was no wonder Leo had been able to elicit pain. Nia sighed. She would have to call the office for her obstetrician/gynecologist (OB/gyn), although she dreaded it. Her follow-up appointment was not for another week, and the staff always seemed rushed and dismissive.

Questions

- 1. What is the function of the mammary gland?
- 2. Describe the location and anatomy of the prepubertal mammary gland.
- 3. Describe the structural changes that occur to the mammary gland during:
 - a. Puberty
 - b. Menstruation
 - c. Pregnancy

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Part II — Lactation

As she dialed Dr. Ahmed, her OB/GYN, Nia tried to remember the specifics of how many times Leo fed that day and when her breast symptoms started. Breastfeeding had been difficult from the beginning. The C-section was unplanned, and Nia was unable to put Leo to the breast until several hours after he was born. Then Leo needed some formula to raise his blood sugar. It took several days for Nia's milk to come in, days of Leo screaming while popping on and off the breast, unsatisfied. And now that the milk had arrived, it was almost like it was too much. Leo would cough, choke, and spit up. When he would unlatch, the milk would still be spraying, and Nia was leaking constantly between feeds. At least the breast pump she ordered through her health insurance finally came in the mail. Seeing an opportunity to collect and freeze extra milk for her return to work, Nia had started pumping several times a day between feeds. Keeping up with the feeding and the pumping and the washing of the pump parts was an around-the-clock endeavor, but Nia knew the benefits of breastmilk and was determined to make it work. But now she had this awful breast swelling and tenderness. And as she spoke to the triage nurse. Nia noticed she was shivering. A quick temperature check

confirmed it: 103 °F (39.4 °C). She had a fever on top of everything else.
Questions
1. Which hormones are involved in lactation?
2. Describe the positive feedback loop of lactation.
3. What is colostrum? How does it differ from transitional and mature milk?
4. What is meant by "milk coming in" (lactogenesis 2) and on what day does this usually occur?
5. How much milk does an infant need per day?
6. Nia has an oversupply of milk. Why might this have happened?
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Part III - Mastitis

Thankfully, Nia was able to get a same day appointment with her OB/GYN. After taking her history and performing a physical exam, Dr. Ahmed explained that Nia had developed a condition called mastitis. She reassured Nia that mastitis was quite common and quite treatable. Nia left the OB/GYN office with a prescription for an antibiotic, instructions to take an anti-inflammatory several times a day, and a scheduled follow-up appointment with a lactation consultant, Maria.

Questions

1. What	is	mastitis?
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2. What are some risk factors for mastitis?

3. How is mastitis treated?

Part IV — Knowledge Application

Nia followed up with Maria, the lactation consultant, the very next day. She was feeling better since starting her antibiotic and taking some ibuprofen. Also, Nia's mom had come over to hold Leo while Nia slept, which was immensely helpful for her mental health.

Maria first congratulated Nia on breastfeeding. She reviewed some health benefits of breastfeeding for the mother and infant. These include decreased incidence of infection, asthma, diabetes, childhood cancer, and sudden infant death syndrome (SIDS) in the infant. And for the mother, breastfeeding reduces the risk of hypertension, type 2 diabetes, certain cancers, and autoimmune disease.

Maria reassured Nia that breastfeeding is inherently challenging. She reminded Nia that women who undergo C-sections tend to struggle more with breastfeeding initiation, including a delay of lactogenesis 2 ("milk coming in"). Experts think this is due to the stress of the surgery on mother and baby, physical recovery, delayed first suckling, inadequate suckling, and decreased oxytocin production. She also empathized with Nia that her fatigue was difficult and normal. Breastfeeding is a significant routine change and challenge to normal adult sleep, particularly when recovering from labor and vaginal delivery or C-section. The American Academy of Pediatrics suggests newborns should have unrestricted access to the breast and feed 8–12 times or more per 24 hours. At 20 minutes or more per feed, this is intensive care requiring individual and systemic support systems; many women do not have access to this type of support.

Maria then worked with Nia on weaning the pump and starting block feeding to reduce her milk oversupply. She also reassured Nia that it was completely safe and therapeutic to continue breastfeeding Leo while her infection resolved. Most importantly, she reaffirmed to Nia that she was doing a fantastic job feeding her baby and that problems with breastfeeding initiation are both common and manageable. Nia's fever abated within 24 hours, and within a few days, her mastitis was fully gone! Nia continued to see the lactation consultant throughout the next few weeks and then would troubleshoot via phone in the months to come. Nia was able to complete her goal of breastfeeding Leo exclusively until six months old, and he weaned naturally at two years old, just as was recommended by the World Health Organization and the American Academy of Pediatrics.

Ouestions

 Other than the listed health benefits, what are other benefits of breastfeeding 	1.	Other than	n the listed	l health	benefits,	what are	other	benefits o	f breast	feeding	?
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2. Name some challenges of breastfeeding. How might socioeconomic and cultural factors influence breastfeeding practices? Brainstorm solutions to breastfeeding challenges.