

Allergic Proctocolitis in the Exclusively Breastfed Infant

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Abstract

Allergic proctocolitis (AP) is an immune mediated gastrointestinal disorder. Many antigens are associated with this disorder with the most common being cows milk protein. Other food proteins such as soy, eggs, wheat are also implicated. It usually presents as rectal bleeding but can also present with irritability and diarrhea. The condition is seen mostly within the first few weeks of life and resolves by late infancy. Its characterized by inflammation of the distal colon in response to one or more food proteins through a mechanism that does not involve immunoglobulin E. This condition is often overlooked in the outpatient setting in differential diagnosis leading to extended suffering of the infant and family which can subsequently lead to unnecessary, expensive and invasive testing. AP can affect both breastfed and formula fed infants. As in the patient presented here, more commonly AP is in exclusively breastfed patients due to a reaction to maternal dietary proteins which are transferred via lactation. The rate of breastfeeding has been rising over the years due to the benefits and will continue to rise. This will likely cause an increase in the number of cases of AP. Misdiagnosis, misinformation, and lack of support will delay the treatment of AP and can continue to prolong this easily-treatable condition. It is essential that physicians, nurses, dietician, lactation consultants and all others involved in the care of breastfed infants are educated in recognizing this condition as well as educating parents that breastfeeding can be continued and be safe and beneficial for the baby with restriction of maternal diet to the offending agent.

History

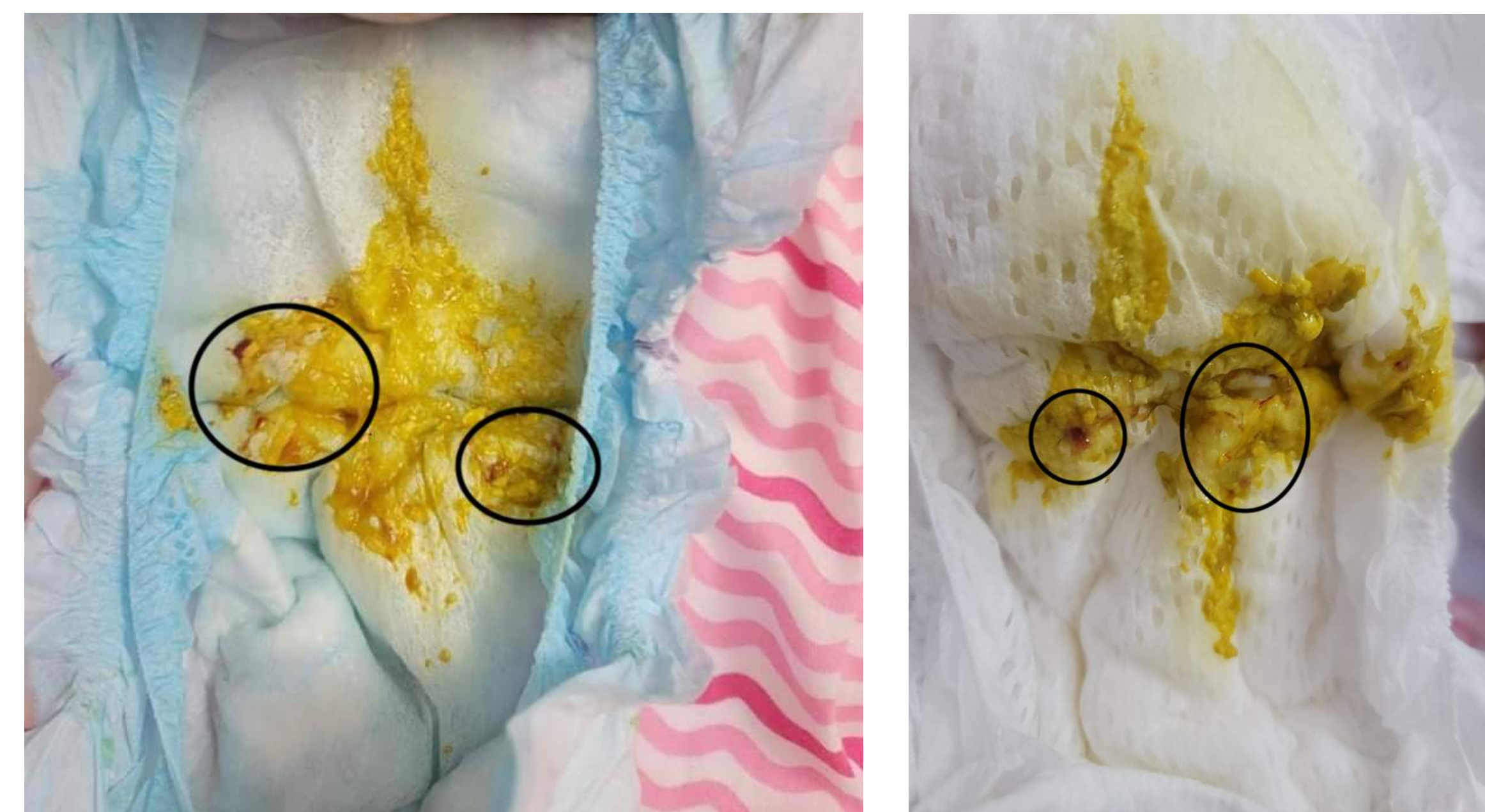
In this case report, we present a 39-week-1-day old neonate born via normal spontaneous vaginal delivery to a 28-year-old G1P1001. On day number one of life, KA was breastfeeding every 3 hours for 15 minutes. On day number 4 of life, per parents, KA had vomiting, shortness of breath, and irritability. KA was brought in for an evaluation and symptoms were presumed to be secondary to neonatal reflux. Patient continued to regain weight appropriately. On day number 17 of life, KAs parents began to endorse KA to be arching back, regurgitating breastmilk, and having seedy stools. Concern for milk allergy was prompted. Guaiac was performed, and iFOBT was negative. On day number 23 of life, KA returned to the outpatient office accompanied by parents who were endorsing yellow-mustardy stools. On day number 30 of life, KA was brought to the emergency department for bloody stools. iFOBT in the ED was positive. Patient was presumed to be having non-IgE mediated milk protein allergy and the mother was informed to stop breastfeeding. Elemental Nutramigen was recommended at this time and an iFOBT is planned for follow-up in 2-3 months.

Physical Exam

On August 4th, day of life three, the patient presented to the outpatient clinic appointment. In general, there were no signs of acute distress, newborn was well-developed and well-nourished. The anterior and posterior fontanelles were open and flat. The newborn's eyes showed normal conjunctiva, and mild scleral icterus. Also of note, there was normal nasal mucosa, no ankyloglossia, no cleft lip, no cleft palate, and normal oropharynx. No clavicular crepitus was palpated. The newborns lungs were clear to auscultation with no grunting. The patients heart was at a regular rate and regular rhythm, with no murmurs appreciated. The patients abdominal exam yielded positive bowel sounds, the abdomen was soft and nontender to palpation, with no masses. Also of note, the umbilical stump was clean, dry, and intact. The patients spine exam showed a small tuft of hair on her lower spine. As for the patients skin, ruddiness of face was noted with slight jaundice of the chest and abdomen. There was also a diffuse blanchable macular rash across the arms, chest and face. Patient had negative Ortolani and Barlow maneuvers. Neurologically, newborn reflexes were present and normal, specifically the patient had upgoing Babinski bilaterally with positive suck, Moro, and grasp reflexes. Lastly, patient was noted as having behavior appropriate for age.

On August 25th, day of life 24, the patient was seen in the emergency room. In general, the patient was in no acute distress, she was well-developed and well-nourished. On examination of her head, her anterior and posterior fontanelles were open and flat. Patients eyes showed normal conjunctiva, with no scleral icterus. The patient had normal nasal mucosa, with no ankyloglossia, no cleft lip, and no cleft palate. On the patient's lung exam, she was clear to auscultation, with no grunting. On examination of the patients heart, the patient was noted to have a regular rate and regular rhythm without murmurs appreciated. On the patients abdominal exam, the patient had positive bowel sounds auscultated, noted to be non-tender to palpation, without abdominal masses. Examination of the spine yielded a small tuft of hair on the lower spine. Neurologically, newborn reflexes were present and normal; specifically the patient had upgoing Babinski bilaterally and positive suck, Moro, and grasp reflexes. Lastly, the patient was noted as having behavior appropriate for age.

Images



Pathophysiology

Allergic proctocolitis in the breastfed infant is a cell-mediated non-IgE hypersensitivity disorder of the distal large bowel characterized by mucosal edema, focal epithelial erosions, and eosinophilic infiltration of the epithelium and lamina propria. Major cause of allergic proctocolitis is the passage of dietary proteins into maternal milk which is responsible for the majority of cases. Elimination of the offending agents results in cessation of symptoms in 72-96 hours. In severe cases, dietary restriction for 2-4 weeks may be needed before an improvement is noticed. Upon review of a published series of 95 breastfed infants with bloody stools, 65% were due to maternal ingestion of cow's milk, 19% to egg, 6% to corn, and 3% soy. Allergic proctocolitis is sometimes observed within families, suggesting a genetic predisposition may play a role in pathogenesis.

Evaluation and Diagnosis

The initial evaluation of the exclusively breastfed infant with bloody or occult heme-positive stools should include a comprehensive history and physical examination. Emphasis should be placed on obtaining a strong family history of allergy, which would place the infant at a higher risk of developing allergy. Generally, the presenting symptoms are any combination of rectal bleeding, increased streaks of mucus in the stool, and/or increase in stool output. Hard or firm stools with blood streaks are more typical of other problems such as anal fissures. If there is any question of blood in the stool, testing the stool for occult blood will help confirm the presence of bleeding. Serial testing of stools for occult blood is not necessary unless there are concerns for anemia which is uncommon in infants with allergic proctocolitis of infancy. Lab testing is not necessary in well-appearing infants, however, microscopic examination of the stool and a CBC may reveal PMNs, typically eosinophils, in the stool. Peripheral eosinophilia may also be present. Skin prick testing for IgE antibodies to foods are not recommended for isolated symptoms of proctocolitis. Allergic proctocolitis is almost always a clinical diagnosis, based upon typical presenting symptoms that resolve upon withdrawal of the presumed food antigen. Colonoscopic evaluation is reserved for patients with unusual symptoms such as constipation, diarrhea without gross visible bleeding, or severe rectal bleeding or anemia despite a trial of cows milk elimination diet.

Treatment

Upon diagnosis of severe cases, breastfeeding should be immediately stopped for 3-5 days while the mother pumps and eliminates. Elimination of cows milk and butter from the mother's diet should be first. This includes milk and butter from goats, sheep, or camels due to the risk of cross reactivity between these antigens. During these 3-5 days, the mother should be dumping her breastmilk to effectively remove any remnant of the offending allergen from her milk. Temporary use of elemental nutramigen formula can be used during this time period. Elimination of cow's milk protein necessitates careful reading of ingredient lists. All food with casein or whey must be eliminated. Interesting food with lactose as an ingredient may be continued. Symptoms may take 1-2 weeks to resolve after initiation of elimination diet. Symptoms in infants with gross blood in stool, indicative of active colitis, may take longer. Most infants respond to CMP elimination. If after 2 weeks of CMP elimination, symptoms have not resolved, then elimination of soy and eggs are the next step. In the case of continued symptoms despite adherence to a full elimination diet, hydrolyzed formula would be the next option. However, this may be difficult for some families as typical costs for hydrolyzed formulas are more than twice the cost of standard formula. Switching to soy based formulas are generally not recommended because children allergic to CMP are also usually allergic to soy as well. 5% of infants continue to bleed even after hydrolyzed formula and require switching to amino acid based formulas. Mothers of children whose proctocolitis resolves after elimination of CMP, can begin reintroduction of cows milk or other suspected antigens at approximately one year of age. In some cases, mothers may attempt reintroduction as early as 6 months with the supervision of an allergist. Infants who were on amino acid based formulas may be switched to hydrolyzed formula for 1-2 months before returning to milk based formulas. Reintroduction for mothers who are still breastfeeding should be gentle and calculated. Mothers should add one ounce of cow's milk to her diet per day for 5 days and monitor the infant's response. If at any point hematochezia returns, resumption of the elimination diet should commence. In younger siblings of children with history of FPIAP (food protein-induced allergic proctocolitis), mother's should attempt to feed without elimination diet or continue to feed with standard formulas unless symptoms appear. Although the risk of FPIAP is higher in siblings, it should not be assumed that they too will require intervention preemptively.

Patient Outcome

Patient is now four-months-8-days of age with appropriate growth and development. Patient is tracking along the 50th percentile for height and 75th percentile for weight. Patient's bloody bowel movements have resolved. Parents are consistent with follow-up at the Family Practice outpatient Office. Parents endorse that since the ER visit in September 2021, the patient has been receiving both formula-feeds and breast-feeds most days; however, some days the patient is solely breastfeeding. Baby is calm with breastfeeding and continues to breastfeed without side effects every 3-4 hours daily spending 15-20 minutes feeding per breast. Formula supplementation is with lactose-free, hypoallergenic formula. Exclusive breastfeeding is within reason as the mother is following a diet that is free of cows milk protein and soy protein. Parents have been encouraged to continue to increase breastfeeding gradually. Special consideration going forward is in regard to the mother's diet; of note, the patient may begin to tolerate traces of cow's milk protein and we recommend reintroducing cows milk protein to the mother's diet when the patient is 6 months of age.

Discussion

This case review highlights an exclusively breastfed newborn with allergic proctocolitis which was diagnosed at an early stage to prevent severe complications such as failure to thrive. Importance of a good physical exam and evaluation of stool for blood is an important aspect of this diagnosis which often can be missed resulting in worsening of the condition. Importance of education in this condition is key. The usual recommendation is to completely stop breastfeeding, however, as seen in this case, elimination of breastfeeding is not needed but elimination of the offending agent can cause success and improvement of the condition. This patient has been successfully breast feeding and has been tolerating it without any blood stools for >1 month while mother avoids cow milk protein agents along with supplementation of hydrolyzed formula.

Conclusion

There is no need for immediate use of amino acid or extensive hydrolyzed formulas in the first stage of blood in stool, perhaps discontinuing allergenic food in mothers could be the primary measure. Continuing to breastfeed without the offending agent will not only help the newborn continue to receive maternal immunity via antibodies through maternal milk but also improve the allergic proctocolitis symptoms as well as help patients thrive and gain weight.

References

1. *UpToDate*. https://www.uptodate.com/contents/food-protein-induced-allergic-proctocolitis-of-infancy?search=allergic%20proctocolitis&source=search_result&selectedTitle=1~27&usage_type=default&display_rank=1#H7335074. Accessed 10 Dec. 2021.
2. Presumed Allergic Proctocolitis Resolves with Probiotic Monotherapy: A report of 4 cases
 1. <https://pubmed.ncbi.nlm.nih.gov/32853787/>
 2. <https://doi.org/10.1016/j.janai.2020.08.021>
 - 3.



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