# Implementing The Food Ladder For Tolerance Acquisition In A Pediatric Case With Food Protein-Induced Enterocolitis Syndrome

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## ABSTRACT

**Background:** Food protein-induced enterocolitis syndrome (FPIES) is a non-IgE-mediated food allergy predominantly diagnosed in infancy and early childhood. The acute form is characterized by symptoms such as repetitive vomiting, pallor, diarrhea, and, in severe cases, hypovolemic shock following ingestion of the allergen food. To date, the only traditional treatment is strictly eliminating allergens in food. However, unlike prolonged elimination strategies, applying a food ladder (milk ladder) approach, commonly used in IgE-mediated food allergies, may facilitate earlier tolerance acquisition in selected FPIES cases.

**Case Presentation:** A 5-month-old female infant presented with projectile vomiting, coughing, fatigue, and subsequent diarrhea approximately 2 hours after consuming yoghurt. The presence of projectile vomiting, lethargy, and diarrhea prompted a preliminary diagnosis of non-IgE-mediated FPIES. In contrast, the combination of vomiting and coughing raised clinical suspicion of IgE-mediated anaphylaxis, which is defined as IgE-mediated. Following comprehensive clinical and laboratory evaluation, a diagnostic oral food challenge (OFC) confirmed a diagnosis of acute, early-onset, severe, and atypical FPIES triggered by milk protein. After maintaining a strict milk protein elimination diet for over 1 year, two separate OFCs with unprocessed milk were conducted to assess the development of tolerance, both of which yielded adverse outcomes that were related to FPIES. Subsequently, a stepwise reintroduction protocol based on the food ladder (milk ladder), consisting of milk products processed at varying degrees, including extensively baked, fermented, and eventually unprocessed forms, was implemented, resulting in the successful acquisition of tolerance (cake, yoghurt, milk, respectively).

**Conclusion:** In IgE-mediated food allergies, the food ladder (milk ladder) is a well-established approach to induce tolerance. Although FPIES represents a non-IgE-mediated hypersensitivity, current evidence supporting such stepwise reintroduction strategies in this context remains limited. Prolonged and unnecessary elimination of allergen foods can have significant repercussions on the child's nutritional status and the family's psychosocial well-being, ultimately impairing quality of life. Our case highlights the potential utility of the food ladder (milk ladder) as an effective strategy for achieving tolerance in patients with non-IgE-mediated FPIES, offering an alternative to unnecessarily prolonged food restrictions. J Pediatr Health Care. (2025) *XX*, 1−8

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**KEYWORDS**

Food protein-induced enterocolitis syndrome, oral food challenge, food ladder, milk ladder, tolerance

**ABBREVIATIONS**

| | |
|---|---|
| ED | emergency department |
| FPIES | food protein-induced enterocolitis syndrome |
| IV | intravenous |
| OFC | oral food challenge |
| PTP | prick-to-prick test |
| SPT | skin prick test |

## INTRODUCTION

Food allergies are more prevalent during the first 2 years of life, affecting approximately 8% of children in this age group (Elghoudi & Narchi, 2022). Based on their pathogenesis, allergic reactions are classified as IgE-mediated, non-IgE-mediated, or mixed types. An IgE-mediated reaction is a type of hypersensitivity reaction that typically manifests within minutes after exposure to an allergen. Clinically, it presents findings such as urticaria, angioedema, bronchospasm, gastrointestinal symptoms, and anaphylaxis and the diagnosis can be confirmed with serum or skin testing.

Non-IgE-mediated reactions are delayed-type hypersensitivity responses that occur without allergen-specific IgE antibodies. They typically develop hours to days after exposure and may present with involvement of the skin, gastrointestinal tract, or respiratory system. FPIES is one of the non-IgE-mediated food allergies, and its prevalence and incidence remain clearly defined (Barni et al., 2021). The cumulative incidence in infants is estimated to range between 0.015% and 0.7% (Australia and Spain, respectively). In the United States, the prevalence of FPIES has been reported as 0.51% in infants and 0.22% in adults. Studies conducted in Israel, Spain, and Australia have reported the incidence of FPIES as 0.34%, 0.35%, and 0.015%, respectively (Hwang et al., 2009; Nowak-Wegrzyn et al., 2019; Mehr et al., 2017).

FPIES is a rare food allergy typically diagnosed in infancy, though it can also occur in adults. FPIES is considered the most common non-IgE-mediated food allergy worldwide (Meyer et al., 2020). FPIES may present in either acute or chronic forms. The chronic form typically arises from ongoing or repeated exposure to the offending food and is characterized by persistent gastrointestinal manifestations, including chronic vomiting, diarrhea, and failure to thrive. Acute FPIES typically presents with protracted vomiting and pallor 1 to 4 hours after ingestion of the food allergen, followed by diarrhea within 5 to 10 hours. The clinical spectrum ranges from repeated episodes of vomiting to life-threatening shock accompanied by hypotension, with similar symptoms recurring if there is re-exposure to the same food allergen. These symptoms may occasionally lead to misdiagnosis, with patients being treated for conditions such as anaphylaxis or acute gastroenteritis. In the first 6 months of life, the most common food allergens are milk and soy protein, whereas, after 6 months, eggs, grains, vegetables, fruits, and fish become more prominent allergens as complementary food is introduced. This variability is further influenced by the nutrition specific to each country's culture (Infante et al., 2019; Metbulut et al., 2022).

The diagnosis is based on the clinical and laboratory criteria defined by Nowak-Węgrzyn et al. (2017). In suspected cases, diagnostic oral food challenge (OFC) tests may be utilized to confirm the diagnosis (Nowak-Węgrzyn et al., 2017). Acute FPIES are classified according to the age at onset, the type of food sensitivity, the period of symptom development, and the severity of clinical presentation (Mathew et al., 2022) (Table 1).

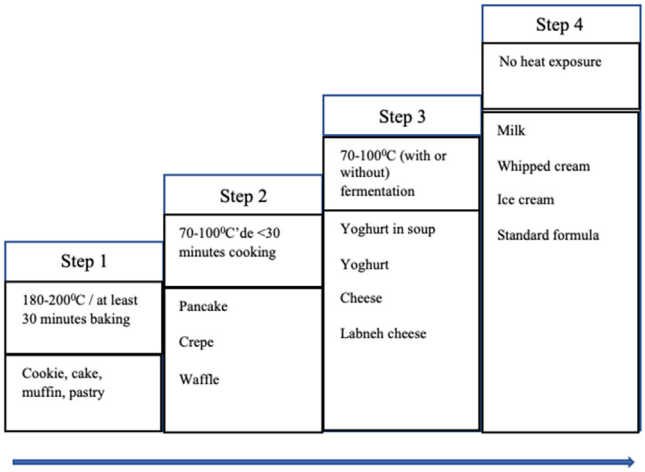
Following the diagnosis of FPIES, the only traditional treatment is the strict elimination of the allergen food from the diet. Allergen food is typically avoided for an average duration of 12 to 18 months, after which an OFC is performed to assess the development of tolerance (Meyer et al., 2017). In cases where major dietary staples such as milk, egg, and grains are the triggering allergens, nutritional deficits and failure to thrive may occur due to inadequate intake. Additional challenges include poor adherence to dietary

**TABLE 1. Types of FPIES, Clinical Features, and Manifestations**

| Types of FPIES | | Clinical features and presenting symptoms |
|---|---|---|
| Age of onset | Early-onset | <9 months |
| | Late-onset | ≥9 months |
| Severity | Mild-moderate | Repetitive vomiting (1–3 episodes), ± diarrhea, pallor, and mild lethargy |
| | Severe | Repetitive projectile vomiting (≥4 episodes), ± diarrhea, pallor, lethargy, dehydration, hypotensive shock, and metabolic acidosis |
| Symptom onset time and duration | Acute | Vomiting, pallor, lethargy, and diarrhea occur 1–4 hours after food allergen exposure |
| | Chronic | Intermittent vomiting, chronic diarrhea, and poor weight gain |
| Atopic status | Typical | Negative atopy test (including food-specific IgE and SPT/PTP) |
| | Atypical | Positive atopy test (including food-specific IgE and SPT/PTP) |

±: with or without, SPT: skin prick test, PTP: prick-to-prick test.
This table presents a structured sequence for food introduction in children diagnosed with food protein-induced enterocolitis syndrome (FPIES). Adapted from Nowak-Węgrzyn et al. (2017).

**FIGURE 1. Milk ladder. Note. This figure illustrates the progressive introduction of cow's milk–containing foods based on their level of heat processing and protein denaturation. The foods are arranged from most to least heated/denatured, typically used in milk ladders for children with non-IgE-mediated cow's milk allergy. Adapted from Luyt et al. (2014).**




restrictions, accidental ingestion of allergenic foods leading to reactions, and occasional misdiagnosis and mistreatment, such as being managed as acute gastroenteritis or anaphylaxis. These factors contribute to significant psychological stress in the affected child and their parents, ultimately impacting their quality of life (Al-Iede et al., 2023; Luyt et al., 2014).

As is well known, therapeutic approaches to promoting tolerance to allergenic food are frequently employed in IgE-mediated food allergies. One such method involves using a food ladder (milk ladder), in which the suspected identified allergenic protein is administered in progressively less heated forms at defined intervals to gradually increase oral tolerance (Luyt et al., 2014) (Figure 1).

In recent years, the literature has reported cases of FPIES in which the food ladder (milk ladder) approach has been applied. This strategy proposes the gradual introduction of trigger foods in different forms, rather than strict elimination from the diet, as the treatment approach, particularly in cases of early-onset FPIES. It is hypothesized that this method may reduce the risk of sudden and severe reactions due to accidental exposure. In some cases, it has also been reported to contribute to the development of tolerance (Barni et al., 2024; Ye et al., 2023).

In this report, we aim to present the clinical and laboratory findings and the prognostic course of a case diagnosed with milk-induced related FPIES in which a food ladder (milk ladder) was applied to promote the development of food tolerance.

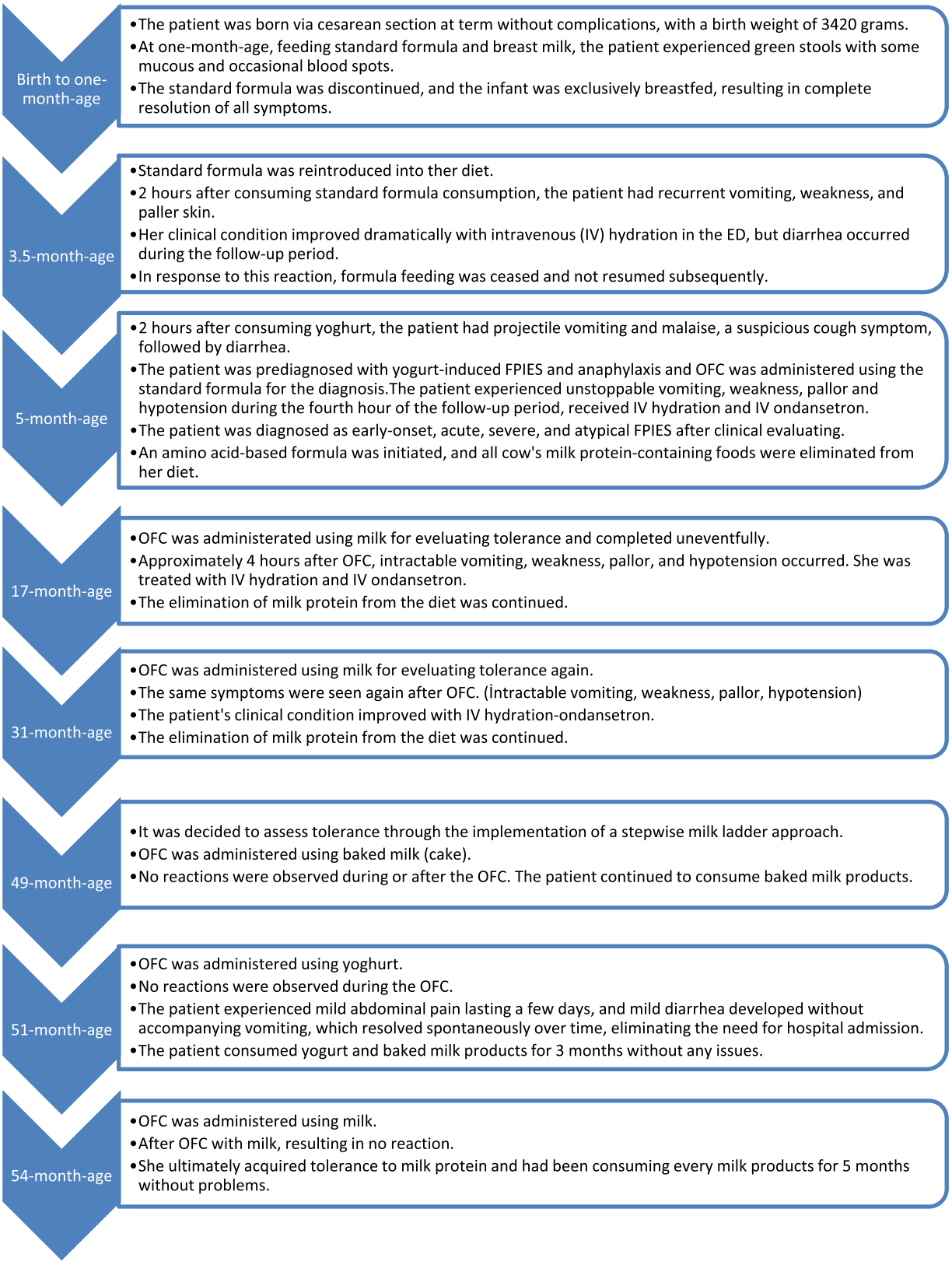
## CASE PRESENTATION

The patient, a 5-year-old girl at the time of this report, first presented to our clinic at 5 months of age during the complementary feeding period (the process of introducing foods while continuing breastfeeding) with symptoms of projectile vomiting, coughing, and fatigue approximately 2 hours after consuming yoghurt, followed by diarrhea. Her medical history included a full-term birth via cesarean section without complications, with a birth weight of 3,420 grams. Her growth trajectory remained consistent with her age with no developmental concerns. There was no known family history of allergic diseases. During the first month of life, she had been fed both standard formula and breast milk but developed green, slightly mucous, and occasionally blood-streaked stools. Consequently, formula feeding was discontinued, and she was fed exclusively breast milk (Figure 2).

At 3.5-months of age, the family reintroduced standard formula into the infant's diet as a nutritional supplement. Approximately 2 hours after the initial standard formula feeding, the patient developed recurrent vomiting, fatigue, and pallor, prompting presentation to the emergency department (ED). Her clinical condition improved dramatically following intravenous (IV) hydration; however, diarrhea developed during follow-up. As a result of this episode, formula feeding was once again discontinued. No similar reactions were reported until the introduction of complementary feeding. On physical examination, her vital signs were stable, height and weight were at the 75th percentile, and systemic examination findings were normal.

It was reported by the family that during the most recent episode, there was no evidence of intercurrent infection and that symptoms such as diarrhea and vomiting did not occur in association with the consumption of any food other than milk and dairy products. Due to the presence of a suspicious cough accompanying vomiting, fatigue, and diarrhea following yoghurt ingestion, the possibility of yoghurt-induced FPIES versus anaphylaxis was considered in the differential diagnosis. This uncertainty was further compounded by the lack of detailed information regarding the medications administered in the ED and the unavailability of the patient's

**FIGURE 2. Timeline of clinical events of the case.**



medical records. Laboratory evaluations revealed no significant abnormalities, including complete blood count and biochemistry. Serological tests demonstrated a milk-specific IgE level of 0.57 kU/L (reference ≤0.35 kU/L), casein-specific IgE <0.01 kU/L, and a total IgE level of 5.23 IU/mL. In light of the elevated milk-specific IgE levels, a prick-to-prick (PTP) test (The prick-to-prick test, which involves applying the fresh food itself directly to the skin, was used to evaluate potential food allergies. Histamine was used as the positive control, and normal saline was used as the negative control. A result was considered positive if the wheal diameter was at least 3 mm larger than that produced by the negative control.) was performed to assess sensitization further. As a result, PTP with milk was negative.

Given the predominance of vomiting episodes triggered by milk protein, atypical FPIES were considered, and an OFC was performed using a standard formula at a dose of 0.3 g/kg of protein, administered in three equal portions at 30-minute intervals. Although OFC was initially without allergic symptoms, after 4 hours, the patient developed 7−8 consecutive, projectile episodes of vomiting, accompanied by fatigue and pallor. No skin involvement, coughing, or tight of breathness were noted. IV hydration and ondansetron (IV) were administered, leading to dramatic clinical improvement. However, diarrhea was reported during follow-up. Simultaneous laboratory tests revealed leukocytosis with neutrophil predominance. Biochemical parameters and stool microscopy were within normal limits. The case was diagnosed as early-onset, acute, severe, atypical FPIES. The patient was placed on a strict milk protein elimination diet and started on an amino acid-based formula. The family was thoroughly instructed on the emergency management measures required in case of an acute reaction (*In patients with a diagnosis of FPIES, the cornerstone of treatment is the avoidance of the trigger food. *In the event of an acute episode at home, physician-recommended use of supportive care with oral rehydration and ondansetron may be considered as part of the management strategy.).

During follow-up, she remained asymptomatic for approximately 1 year while adhering to the elimination diet. To assess the development of tolerance, OFCs were performed at 17 and 31 months of age using milk containing 0.3 g/kg of protein. On both occasions, she did fail to tolerate the milk. As in the previous attack, it developed with intractable vomiting, fatigue, and pallor, and there was no skin involvement or respiratory complaints. Her clinical condition improved after acute treatment, and strict milk protein elimination was continued. Due to the COVID-19 pandemic, the patient temporarily discontinued follow-up but returned to our clinic approximately 1.5 years later while continuing a strict milk-elimination diet.

Although the patient had early-onset, atypical, and severe FPIES—which is typically associated with delayed tolerance acquisition—it was decided to perform an OFC using a milk protein form potentially more tolerable within the food ladder (milk ladder). For this purpose, an OFC was conducted using baked milk (cake) containing 0.3 g/kg of milk protein, which had been heated at 180°C for at least 30 minutes. No adverse reactions were observed during or after the OFC. Two months after successfully tolerating baked milk in the form of cake, the patient underwent an OFC with yoghurt. She remained asymptomatic during observation and was discharged. At her follow-up visit, it was reported that she had experienced mild abdominal pain and transient diarrhea lasting a few days after the yoghurt challenge, without vomiting, which resolved spontaneously without the need for medical intervention. Following this reaction, our patient continued to tolerate and consume all previously accepted foods, including yoghurt. Over the following 3 months, she consumed both yoghurt and baked milk products without any reactions. Subsequently, an OFC with milk was performed, resulting in no reaction. The patient has now been consuming milk and dairy products without any symptoms for the past 5 months, indicating the development of tolerance to milk protein (Figure 2).

## DISCUSSION

Diagnostic and therapeutic procedures for food allergies vary depending on the type of reaction and the patient's clinical presentation. In particular, in IgE-mediated reactions, food ladder (milk ladder) approaches are commonly employed to assess and promote the development of tolerance (Luyt et al., 2014). In this way, the adverse effects of unnecessary and prolonged dietary restrictions can be prevented in patients (Miceli Sopo et al., 2013). However, we believe that experience with this approach remains limited in non-IgE-mediated food reactions.

The traditional approach in managing FPIES involves strictly eliminating the allergen food from the diet, followed by a controlled OFC after a specific period to assess tolerance. However, this strategy may be insufficient in predicting the timing of tolerance acquisition, potentially leading to unnecessarily prolonged dietary restrictions. Moreover, extended avoidance of the food may increase the risk of developing IgE-mediated food allergy, which can result in life-threatening reactions such as anaphylaxis (Barni et al., 2024).

Recently, it has been proposed that using allergen-specific food ladder (milk ladder) steps may promote physiological tolerance in patients diagnosed with FPIES. Although this approach has been less extensively studied in non-IgE-mediated allergies such as FPIES, individualized protocols have shown potential benefits in reducing sensitivity to the offending food, preventing severe FPIES episodes, and supporting the development of healthy eating habits by avoiding unnecessary dietary restrictions. Particularly in chronic and atypical cases, where tolerance is known to develop later, the food ladder (milk ladder) strategy, when implemented under medical supervision, may facilitate more rapid tolerance acquisition compared to traditional elimination-based approaches (Meyer et al., 2017; Ye et al., 2023).

In a 2013 study by Miceli Sopo et al. (2013), it was reported that patients diagnosed with FPIES triggered by milk, egg, and soy could tolerate these foods in baked forms

without eliciting reactions. Similarly, a multicenter study conducted in Australia in 2017 evaluating FPIES cases found that 3.7% of patients with egg-induced FPIES (n = 27) and 16% of those with milk-induced FPIES (n = 75) were able to tolerate the allergen in baked form (Mehr et al., 2017). Furthermore, in a case series of 12 patients diagnosed with milk-induced related FPIES, tolerance to baked milk was assessed and reported successful in 83% of cases (Faitelson et al., 2023).

These findings collectively highlight that, although patients with FPIES may initially fail to tolerate unprocessed milk, they may still be capable of incorporating milk proteins into their diets in baked or fermented forms during earlier stages of dietary reintroduction. Such forms, which undergo structural alterations through processing, may present reduced allergenicity sensitivity. Table 2 summarizes the available literature on the various milk-containing food forms tolerated in patients with FPIES.

In our patient diagnosed with atypical FPIES related to milk protein who had not developed tolerance by age three, we successfully incorporated various forms of milk into the diet. We achieved oral tolerance by implementing a food ladder (milk ladder) guided by clinical experiences reported in the case series from the literature. While the development of spontaneous tolerance could be considered in our patient, who remained out of follow-up for an extended period due to the COVID-19 pandemic, we deem this possibility less likely based on prior clinical experience. This interpretation is further supported by the patient's clinical profile, characterized by early-onset, atypical, and severe FPIES and the recurrence of mild gastrointestinal symptoms (abdominal pain and diarrhea) following the yoghurt challenge. Step 2 of the food ladder was skipped due to the minimal difference in heating temperature compared to the previous step, and to better adapt the protocol to the child's dietary habits. In this case, a stepwise dietary reintroduction was implemented, beginning with extensively baked milk products, followed by fermented milk items, and ultimately unprocessed milk, all of which were tolerated without reactions.

This is the first reported case demonstrating the successful acquisition of milk protein tolerance through a food ladder (milk ladder) in a patient diagnosed with atypical FPIES. Traditionally, strict elimination of the offending food has been the sole therapeutic approach in FPIES management. However, the food ladder (milk ladder) strategy offers a promising alternative by potentially reducing the duration of elimination diets, minimizing the risk of acute and severe reactions, preventing growth delays, and alleviating psychosocial burdens on patients and their families (Meyer et al., 2017).

In our case, all steps were carried out with informed consent. The family reported that as their child could tolerate different dairy products, their anxiety regarding accidental exposures decreased, and they felt more comfortable participating in social settings with their child. In our case, implementing the food ladder (milk ladder) not only facilitated the development of oral tolerance but also contributed to an improved quality of life for the patient and her family. Therefore, under careful medical

**TABLE 2. Case Series of Milk-Induced FPIES and Tolerated Food Forms**

| Study | Number of cases (n) | Foods | Number of cases with atypical FPIES | Earliest age at diagnosis (months) | Age at tolerance of milk protein (months) | Tolerated form | Number of tolerated cases n (%) |
|---|---|---|---|---|---|---|---|
| Miceli Sopo et al. (2013) | 7 | Milk, eggs, soybeans | 2 | 3 | 24 | Baked | 4 (%57) |
| Mehr et al. (2017) | 230 | Milk, eggs, cereals, and others | 12 | 2 | Not reported | Baked | 12 (%16) |
| Faitelson et al. (2023) | 12 | Milk | - | 1 | 8 | Baked | 10 (%83) |

supervision, the food ladder (milk ladder) approach may benefit FPIES cases where tolerance is anticipated to develop later.

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## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

## AUTHORS' CONTRIBUTIONS

H.Y. conceptualization, data curation, formal analysis, investigation, methodology, Project administration, supervision, writing—original draft, writing—review and editing. D.B.B. and G.K. data curation, investigation. Ö.A. conceptualization, investigation, supervision, writing—review and editing. N.U. investigation, supervision, writing—review and editing. All authors read and approved the final version of the manuscript.

## DATA AVAILABILITY

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The case description and the review of the literature were performed following the ethical standards as laid down in the Declaration of Helsinki and its later amendments. Informed consent was obtained from the patient's family. Our institution does not require ethical approval for reporting individual cases.

## CONSENT FOR PUBLICATION

A formal consent was obtained from the family for case description and publication.

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## REFERENCES

Al-Iede, M., Sarhan, L., Alshrouf, M. A., & Said, Y. (2023). Perspectives on non-IgE-mediated gastrointestinal food allergy in pediatrics: A review of current evidence and guidelines. *Journal of Asthma and Allergy, 16*, 279–291. doi:10.2147/JAA.S284825

Barni, S., Giovannini, M., & Mori, F. (2021). Epidemiology of non-IgE-mediated food allergies: What can we learn from that? *Current Opinion in Allergy and Clinical Immunology, 21*(2), 188–194. doi:10.1097/ACI.0000000000000721

Barni, S., Pessina, B., Tóth, V., Sarti, L., Liccioli, G., Tomei, L., Giovannini, M., & Mori, F. (2024). Shift from Cow's Milk Food Protein-Induced Enterocolitis Syndrome to IgE-Mediated Allergy: Case Series and Literature Review. *Pediatric allergy, immunology, and pulmonology, 37*(2), 51–55. doi:10.1089/ped.2024.0023

Elghoudi, A., & Narchi, H. (2022). Food allergy in children: The current status and the way forward. *World Journal of Clinical Pediatrics, 11*(3), 253–269. doi:10.5409/wjcp.v11.i3.253

Faitelson, Y., Yoffe, S., Segal, N., Marcus, N., Greenbaum, E., Shahar-Nissan, K., & Beigelman, A. (2023). Tolerability of baked milk consumption in children with food protein-induced enterocolitis syndrome. *JACI: In Practice, 11*(1), 329–331. doi:10.1016/j.jaip.2022.10.013

Hwang, J. B., Sohn, S. M., & Kim, A. S. (2009). Prospective follow-up oral food challenge in food protein-induced enterocolitis syndrome. *Archives of Disease in Childhood, 94*(6), 425–428. doi:10.1136/adc.2008.143289

Infante, S., Cabrera-Freitag, P., Morales-Cabeza, C., & Alvarez-Perea, A. (2019). Geographical variations in food protein-induced enterocolitis syndrome. *Current Treatment Options in Allergy, 6*, 309–321. doi:10.1007/s40521-019-00234-x

Luyt, D., Ball, H., Makwana, N., Green, M. R., Bravin, K., Nasser, S. M., Clark, A. T., & Standards of Care Committee (SOCC) of the British Society for Allergy and Clinical Immunology (BSACI). (2014). BSACI guideline for the diagnosis and management of cow's milk allergy. *Clinical and experimental allergy : journal of the British Society for Allergy and Clinical Immunology, 44*(5), 642–672. doi:10.1111/cea.12302

Mathew, M., Leeds, S., & Nowak-Węgrzyn, A. (2022). Recent update in food protein-induced enterocolitis syndrome: Pathophysiology, diagnosis, and management. *Allergy, Asthma & Immunology Research, 14*(6), 587–603. doi:10.4168/aair.2022.14.6.587

Mehr, S., Frith, K., Barnes, E. H., Campbell, D. E., & FPIES Study Group. (2017). Food protein-induced enterocolitis syndrome in Australia: A population-based study, 2012-2014. *The Journal of allergy and clinical immunology, 140*(5), 1323–1330. doi:10.1016/j.jaci.2017.03.027

Metbulut, A. P., Özen, S., Kendirci, N., Usta Güç, B., Güvenir, H., Vezir, E., Bahçeci, S., Can, D., Kılıç, M., Çapanoğlu, M., Kılıç, M., Karaatmaca, B., Kocabaş, C. N., Dibek Mısırlıoğlu, E., & Orhan, F. (2022). Evaluation of the Clinical Characteristics of Patients with Food Protein-Induced Enterocolitis Syndrome: A Multicenter Study. *International archives of allergy and immunology, 183*(8), 805–813. doi:10.1159/000522496

Meyer, R., Chebar Lozinsky, A., Fleischer, D. M., Vieira, M. C., Du Toit, G., Vandenplas, Y., Dupont, C., Knibb, R., Uysal, P., Cavkaytar, O., Nowak-Wegrzyn, A., Shah, N., & Venter, C. (2020). Diagnosis and management of Non-IgE gastrointestinal allergies in breastfed infants-An EAACI Position Paper. *Allergy, 75*(1), 14–32. doi:10.1111/all.13947

Meyer, R., Godwin, H., Dziubak, R., Panepinto, J. A., Foong, R. M., Bryon, M., Lozinsky, A. C., Reeve, K., & Shah, N. (2017). The impact on quality of life on families of children on an elimination diet for Non-immunoglobulin E mediated gastrointestinal food allergies. *The World Allergy Organization journal, 10*(1), 8. doi:10.1186/s40413-016-0139-7

Miceli Sopo, S., Buonsenso, D., Monaco, S., Crocco, S., Longo, G., & Calvani, M. (2013). Food protein-induced enterocolitis syndrome (FPIES) and well cooked foods: a working hypothesis. *Allergologia et immunopathologia, 41*(5), 346–348. doi:10.1016/j.aller.2012.06.008

Nowak-Węgrzyn, A., Chehade, M., Groetch, M. E., Spergel, J. M., Wood, R. A., Allen, K., Atkins, D., Bahna, S., Barad, A. V., Berin, C., Brown Whitehorn, T., Burks, A. W., Caubet, J. C., Cianferoni, A., Conte, M., Davis, C., Fiocchi, A., Grimshaw, K., Gupta, R., Hofmeister, B., . . . Greenhawt, M. (2017). International consensus guidelines for the diagnosis and management

of food protein-induced enterocolitis syndrome: Executive summary–Workgroup Report of the Adverse Reactions to Foods Committee, American Academy of Allergy, Asthma & Immunology. *The Journal of allergy and clinical immunology, 139*(4), 1111–1126.e4. doi:10.1016/j.jaci.2016.12.966

Nowak-Wegrzyn, A., Warren, C. M., Brown-Whitehorn, T., Cianferoni, A., Schultz-Matney, F., & Gupta, R. S. (2019). Food protein-induced enterocolitis syndrome in the US population-based study. *The Journal of Allergy and Clinical Immunology, 144*(4), 1128–1130. doi:10.1016/j.jaci.2019.06.032

Ye, L., Wong, T., Lavine, E., Cook, V. E., & Erdle, S. C. (2023). Using the canadian egg ladder in children with food protein-induced enterocolitis syndrome: a case series. *Allergy, asthma, and clinical immunology : official journal of the Canadian Society of Allergy and Clinical Immunology, 19*(1), 87. doi:10.1186/s13223-023-00843-x

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