



Challenging the Challenge: Severe Mixed FPIES/IgE Reaction During Baked Egg Oral Food Challenge



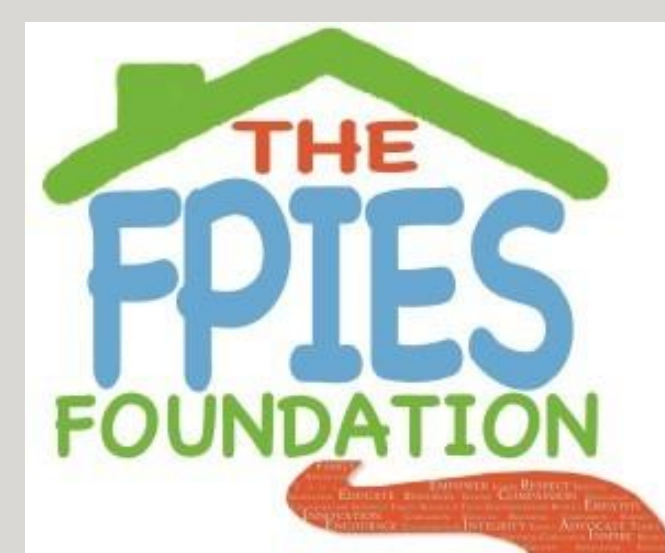
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Background and Objective

Background
Food protein-induced enterocolitis syndrome (FPIES) is a non-IgE-mediated food allergy characterized by delayed gastrointestinal symptoms, typically occurring 1-4 hours after ingestion. Diagnostic criteria include:

- Repetitive vomiting with associated systemic features such as lethargy, pallor, hypotension, hypothermia, or diarrhea.

A subset of patients exhibits mixed (atypical) FPIES, in which IgE sensitization to the same trigger food coexists, complicating diagnosis and management, particularly during oral food challenges (OFCs), as reactions may include features of both IgE- and non-IgE-mediated responses.



Objective
To highlight a severe mixed FPIES/IgE reaction during a baked egg OFC and discuss implications for nursing surveillance, emergency preparedness, and escalation planning.

Case Presentation

Patient Profile
5-year-old female with history of egg-related FPIES with IgE sensitization
Current avoidance: egg, milk, soy, peanut, tree nuts, legumes

Relevant History
10/2020: Passed baked egg OFC
7/2022: Failed egg FPIES challenge (delayed vomiting, lethargy)
Skin Prick Testing: Prior egg wheal 3 mm
Specific IgE: Elevated to multiple foods

- Egg allergenicity varies by preparation, as extensive heating (baked egg) can reduce protein allergenicity and be tolerated, whereas less-heated forms (stovetop egg) are more likely to provoke reactions in IgE-mediated allergy.

Oral Food Challenge
Baked egg muffin administered in escalating doses every 15 minutes with a full serving ingested without immediate reaction
~2 hours post-ingestion: pallor, lethargy, abdominal and neck pain with progression to repetitive emesis despite oral ondansetron

Reaction and Management

Acute Reaction
Persistent vomiting, lethargy, mild hypotension following epinephrine with concern for mixed FPIES/IgE-mediated reaction

Intervention	Expected Response (Based on Standard Protocols)	Actual Response in This Case
PO Ondansetron	Stops vomiting within 15–30 min	No improvement – vomiting continued x4 episodes
Epinephrine	Rapid improvement in neck pain, pallor, and systemic symptoms	Minimal to no effect –remained pale, lethargic, continued vomiting
IV Steroids	Reduce inflammatory cytokine cascade and improve systemic symptoms	Required admission for continued monitoring – lethargy persisted despite intervention
IV Fluids	Supportive care resolves hypotension, fatigue	Required ongoing monitoring and admission due to persistent lethargy

Diagnostic & Therapeutic Challenge
Reaction demonstrated features of both delayed GI shock (FPIES) and systemic symptoms suggestive of IgE-mediated involvement
Standard single-pathway treatments were insufficient

Clinical Implications/Conclusions

Nursing & Clinical Implications

- “There is limited evidence to guide the management of atypical or overlapping FPIES phenotypes, and treatment strategies may need to be individualized.” – International Consensus Guidelines for FPIES
- Mixed phenotypes may rapidly destabilize during OFCs
- Continuous nursing assessment is critical for early recognition
- OFC protocols should include escalation pathways for dual-mechanism reactions
- Emergency preparedness checklists should be standardized

Future Directions

- Identify predictors of mixed reactions prior to challenge
- Develop escalation algorithms for refractory reactions
- Encourage multicenter reporting to expand evidence base

Key References

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