

What is the Real Cause of Vomiting? A Case Report of a 6-Year-old Child with Risperidone Poisoning

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Abstract

Background: Risperidone is an atypical antipsychotic commonly prescribed for attention deficit hyperactivity disorder (ADHD) in children. An overdose can lead to significant gastrointestinal, cardiovascular, and neurological complications.

Case Presentation: We report a case of a 6-year-old boy with ADHD who inadvertently received a full tablet of risperidone every 8 hours instead of the prescribed 1/8 tablet daily. He presented to the pediatric emergency department with lethargy, shortness of breath, and chest pain after the third dose. Upon examination, he was unconscious but had stable vital signs. Initial management consisted of supportive treatment, monitoring vital signs, and fluid therapy.

Clinical Course: After 24 hours, the child regained consciousness but he developed persistent nausea and vomiting, occurring five times at half-hour intervals. Further evaluation, including an abdominal ultrasound, revealed ileocolic intussusception. The condition was successfully treated with an enema reduction, and the child was subsequently discharged in good health.

Discussion: The vomiting in this case was likely multifactorial, stemming from risperidone's side effects and the occurrence of intussusception, a rare but serious complication. This case underscores the importance of careful dosing education for caregivers and vigilance in monitoring for gastrointestinal complications in pediatric patients after medication overdose.

Conclusion: Prompt recognition and management of the complications arising from medication errors are crucial for ensuring positive outcomes in pediatric patients. Further education for parents and healthcare providers about medication dosages and potential side effects is warranted to prevent similar incidents.

Key Words: Intussusception, Pediatric, Poisoning, Risperidone.

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1- INTRODUCTION

Risperidone is an atypical antipsychotic commonly used to treat conditions such as Attention Deficit Hyperactivity Disorder (ADHD). This case report discusses a 6-year-old boy who experienced risperidone poisoning due to a dosing error, highlighting the clinical presentation, management, and complications associated with the overdose.

2- CASE PRESENTATION

A 6-year-old boy diagnosed with ADHD was prescribed risperidone at a dosage of 1/8 tablet daily. However, due to a misunderstanding, his mother administered one full tablet every 8 hours. Following the third dose, the child presented to the pediatric emergency department with complaints of lethargy, shortness of breath, and chest pain.

2-1. Initial Examination

Upon examination, the child was found to be unconscious. The vital signs were as follows:

- Blood Pressure: 120/70 mmHg
- Pulse Rate: 106 beats per minute
- Temperature: 36.5 °C
- Respiratory Rate: 22 breaths per minute
- Oxygen Saturation: 97%

Physical examination revealed normal heart and lung sounds, with a soft and non-tender abdomen. The neurological assessment indicated medium-sized pupils responsive to light. The ECG was normal except for a slight tachycardia. CBC and biochemistry tests come back normal.

2-2. Diagnosis and Management

The child was diagnosed with risperidone poisoning and was treated supportively. Vital signs were closely monitored, and cardiorespiratory support

was provided as necessary. Due to the mild nature of the poisoning, aggressive medical interventions were not needed, and the child received fluid therapy.

After 24 hours, the child regained consciousness, and his vital signs normalized. However, he started experiencing nausea and vomiting, which occurred five times at half-hour intervals. Despite the vomiting, the abdominal examination remained normal.

2-3. Further Investigation

Due to persistent vomiting, an urgent abdominal and pelvic ultrasound was performed, revealing ileocolic intussusception. This condition occurs when a part of the intestine telescopes into an adjacent segment, potentially causing obstruction and ischemia.

2-4. Treatment of Intussusception

The intussusception was successfully reduced with an enema. A follow-up ultrasound the next day showed that the intussusception had resolved, and the child was discharged in good general condition.

3- DISCUSSION

In the case of the 6-year-old boy who inadvertently overdosed on risperidone, several important factors contributed to his clinical presentation, particularly the episode of vomiting, which warrants deeper exploration.

3-1. Mechanism of Risperidone Overdose

Risperidone, an atypical antipsychotic, functions by antagonizing dopamine (D2) and serotonin (5-HT_{2A}) receptors. Overdose can lead to various neurological and gastrointestinal effects, including:

- Sedation and Lethargy: As seen in this child, excessive dosage can cause

significant sedation, lethargy, and altered mental status.

- **Gastrointestinal Disturbances:** Common side effects of risperidone include nausea, vomiting, and abdominal discomfort. However, in this case, the vomiting episodes may not solely be attributed to the medication (1-6).

3-2. Complications from Overdose

While the initial symptoms of poisoning were consistent with the pharmacological effects of risperidone, further complications arose due to the overdose. The child experienced repeated vomiting, which occurred after the initial stabilization, and suggested underlying issues.

- **Ileocolic Intussusception:** This serious condition involves a part of the intestine folding into itself, potentially obstructing the bowel and causing significant complications. Intussusception is more common in children and can be precipitated by various factors, including:

- o Recent abdominal infections
- o Structural anomalies
- o Previous gastrointestinal surgery

In rare instances, medications, even those like risperidone, can contribute to gastrointestinal disturbances leading to intussusception, especially if they alter gut motility or increase visceral hypersensitivity (1-7).

3-3. Relationship between Vomiting and Intussusception

The timing and nature of the vomiting observed (repeated episodes at half-hour intervals) are crucial in understanding the child's condition:

- **Symptoms of Intussusception:** This condition typically presents with intermittent abdominal pain, nausea, and vomiting. The occurrence of repeated vomiting in the context of intussusception suggests that the bowel obstruction was

significant enough to cause these gastrointestinal symptoms.

- **Initial Examination Findings:** An initial soft abdomen with no tenderness could lead to a misinterpretation of the child's condition. The absence of localized pain or rigidity does not rule out the presence of intussusception, as the initial signs might not always be definitive. (8-10)

3-4. Management Strategies

The management of this case included the following steps:

- **Immediate Supportive Care:** As the child presented with poisoning symptoms, supportive care was paramount. Monitoring vital signs and fluid therapy supported recovery from the central effects of the overdose.

- **Focused Diagnostic Imaging:** Given the persistence of vomiting, proactive abdominal imaging was crucial. The timely ultrasound that diagnosed intussusception reinforced the importance of considering anatomical and functional gastrointestinal complications in pediatric poisoning cases.

- **Non-surgical Reduction:** The successful reduction through enema was a non-invasive strategy that highlights the effectiveness of conservative management for intussusception, especially in cases without signs of perforation or significant compromise (12-13).

The vomiting observed in this case can be attributed to various factors related to the risperidone overdose and subsequent intussusception. While risperidone can cause gastrointestinal side effects, the acute vomiting episodes were likely exacerbated by the development of ileocolic intussusception, a known complication that can occur in children. The timing of the vomiting following the poisoning and the normal abdominal examination initially suggest that the vomiting was secondary to the mechanical

obstruction caused by the intussusception rather than a direct effect of the medication.

4- CONCLUSION

This case illustrates the importance of accurate medication dosing and the potential consequences of overdose in pediatric patients. It highlights the need for vigilance in monitoring for complications such as intussusception, especially in children presenting with gastrointestinal symptoms after medication errors. Early recognition and intervention are crucial for favorable outcomes in cases of drug poisoning and its complications.

5- REFERENCES

1. Cheng-Shannon J, McGough JJ, Pataki C, McCracken JT. Second-generation antipsychotic medications in children and adolescents. *Journal of Child & Adolescent Psychopharmacology*. 2004 Sep 1;14(3):372-94.
2. Pagsberg AK, Tarp S, Glintborg D, Stenstrøm AD, Fink-Jensen A, Correll CU, et al. Acute antipsychotic treatment of children and adolescents with schizophrenia-spectrum disorders: a systematic review and network meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2017 Mar 1;56(3):191-202.
3. Cohen D, Bonnot O, Bodeau N, Consoli A, Laurent C. Adverse effects of second-generation antipsychotics in children and adolescents: a Bayesian meta-analysis. *Journal of clinical psychopharmacology*. 2012 Jun 1;32(3):309-16.
4. Page CB, Calver LA, Isbister GK. Risperidone overdose causes extrapyramidal effects but not cardiac toxicity. *Journal of clinical psychopharmacology*. 2010 Aug 1;30(4):387-90.
5. Vial T, Patat AM, Paret N, Boels D, Torrents R, Nisse P, et al. Risperidone medication errors in children: an analysis of French poison centres data. *Clinical Toxicology*. 2019 May 4;57(5):362-7.
6. Farnaghi F, Eini P, Gachkar L. Antipsychotic Drug Poisoning in Children Under 12 Years Old in Loghman-Hakim Hospital During 2016-2022. *International Journal of Medical Toxicology and Forensic Medicine*. 2024;14(03).
7. Isbister GK, Buckley NA. The pathophysiology of serotonin toxicity in animals and humans: implications for diagnosis and treatment. *Clinical neuropharmacology*. 2005 Sep 1;28(5):205-14.
8. Jiang J, Jiang B, Parashar U, Nguyen T, Bines J, Patel MM. Childhood intussusception: a literature review. *PloS one*. 2013 Jul 22;8(7):e68482.
9. Applegate KE. Intussusception in children: imaging choices. In *Seminars in roentgenology* 2008 Jan 1 (Vol. 43, No. 1, pp. 15-21).
10. Bines JE, Ivanoff B. Acute intussusception in infants and children: incidence, clinical presentation, and management: a global perspective. *World Health Organization*; 2002.
11. Marrakchi S, Laridi A, Bouanane R, Allali N, Chat L, El Haddad S. Acute colocolic intussusception: A rare pediatric presentation. *Radiology Case Reports*. 2025 Jan 1;20(1):505-8.
12. Battung S, Mariana N, Habar TR, Faruk M. A 5-year retrospective evaluation of invagination cases: A single-centre experience. *Medicina Clínica Práctica*. 2021 Apr 1;4:100233.
13. Shavit I, Levy N, Dreznik Y, Soudack M, Cohen DM, Kuint RC. Practice variation in the management of pediatric intussusception: a narrative review. *European Journal of Pediatrics*. 2024 Nov;183(11):4897-904.