

STRONG CHILDREN'S RESEARCH CENTER

Summer Research Scholar

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ABSTRACT

Title: *“Ingestion of Multiple Magnets in Kids: A Look at Clinical Management at a Single Tertiary Care Center”*

Background: Foreign-body ingestions are a frequent cause of Emergency Department visits and hospitalization of children. However, magnets have been increasingly known to cause many of the most problematic cases. The initial signs and symptoms of magnet ingestion are often vague, leading to a delay in diagnosis and treatment. When multiple magnets are separated within the gastrointestinal tract, they can attract each other, resulting in fistulae, multiple perforations, infection, and bowel necrosis. Alternatively, they may not be able to progress past the cecum due to their weight. So far, no studies we know of have compared the ingestion of two magnets with the ingestion of more than two magnets. Adverse outcomes are usually associated with ingesting more than two magnets or ingesting two magnets at different times. Treatment options range from conservative therapy with laxatives to invasive procedures such as endoscopy or surgery. There is no consensus on how long to continue conservative treatment or when to pursue invasive interventions in asymptomatic children who appear to be otherwise healthy.

Objective: This study sought correlations that could safely decrease the length of hospital stay and change our inpatient management of pediatric ingestion of multiple magnets. We aimed to correlate the clinical characteristics (patient demographics, history, symptoms) and magnet features with the type of inpatient management (conservative, endoscopic, or surgical). We specifically wanted to analyze the adverse outcomes and management between the ingestion of two magnets versus the ingestion of three or more magnets. Finally, we aimed to assess whether bowel prep or diet status may also affect the type of management and time to invasive intervention.

Results: We found a significant p-value ($p=0.0636$) between the frequency of invasive procedures done between those patients who ingested exactly 2 magnets compared to those who ingested 3 or more. This suggests that invasive procedures are less likely to be performed on 2 magnet ingestions compared to more. Of the procedures, 61.54% were colonoscopies for 2 magnet ingestions, while only 50% of more than 2 ingestions got the procedure. However, this was not significantly different between the two groups. There was a significant p-value of 0.0112 when comparing a clear liquid diet and NPO to time until the procedure was done. Patients who were NPO had a procedure done much quicker. While there was no significance between time until procedure and age group, there were more 6-11-year-olds admitted (18) for magnet ingestions than those younger (9) or older (7).

Conclusion: While there were some significant values in the study, a larger sample size would be beneficial to confirm the findings. Previous inpatient management has been more hesitant in performing a procedure for 2-magnet ingestions than for 3 or more. Further research would allow for more confidence in changing inpatient management and lowering hospital stays by quicker management for patients with 2 magnet ingestions.

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