

Children's Mercy Kansas City

SHARE @ Children's Mercy

Research Days

GME Research Days 2021

May 11th, 11:30 AM - 1:30 PM

Evaluation Of A Symptom-based Algorithm For Managing Battery Ingestions In Children

James Fraser

Children's Mercy Hospital

Follow this and additional works at: <https://scholarlyexchange.childrensmercy.org/researchdays>



Part of the [Higher Education and Teaching Commons](#), [Medical Education Commons](#), [Pediatrics Commons](#), and the [Science and Mathematics Education Commons](#)

Fraser, James, "Evaluation Of A Symptom-based Algorithm For Managing Battery Ingestions In Children" (2021). *Research Days*. 6.

https://scholarlyexchange.childrensmercy.org/researchdays/GME_Research_Days_2021/researchday2/6

This Poster Presentation is brought to you for free and open access by the Conferences and Events at SHARE @ Children's Mercy. It has been accepted for inclusion in Research Days by an authorized administrator of SHARE @ Children's Mercy. For more information, please contact library@cmh.edu.

EVALUATION OF A SYMPTOM-BASED ALGORITHM FOR MANAGING BATTERY INGESTIONS IN CHILDREN

Submitting/Presenting Author (must be a trainee): James A. Fraser, MD

Primary Email Address: jafraser@cmh.edu

Medical Student

Resident/Psychology Intern (≤ 1 month of dedicated research time)

Resident/Ph.D/post graduate (> 1 month of dedicated research time)

Fellow

Primary Mentor (one name only): Shawn D. St. Peter, MD

Other authors/contributors involved in project: Kayla B. Briggs, MD, Wendy Jo Svetanoff, MD MPH, Thomas Attard, MD, Tolulope A. Oyetunji, MD, MPH

IRB Number: 17080482

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):

Pediatric Surgery Research Fellow, primary author

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background/Objectives/Goal: Complications from battery ingestion in the pediatric population are becoming more severe due to the emergence of stronger and smaller batteries. We previously established a symptom-focused, evidence-based algorithm for battery ingestion and seek to evaluate this protocol to investigate its safety and potential cost benefit. (Figure 1)

Methods/Design: Following IRB approval, all radiographs performed for foreign body ingestion between 2017-2020 were reviewed. All button battery ingestions were included to evaluate an institutional symptom-based algorithm emphasizing observation over intervention.

Results: Review of 2,237 foreign bodies series demonstrated 44 button battery ingestions. Median age at ingestion was 3.8 years [2.5,5.2]. Locations of batteries on presentation were esophagus (14%), stomach (64%), small bowel (14%), and colon (9%).

All esophageal batteries (n=6) were managed per protocol with immediate endoscopic retrieval. Twenty-eight patients presented with gastric batteries; ten (36%) were not managed per protocol. All ten patients were asymptomatic on presentation; however, admitted for observation and serial x-rays. Of these ten patients, six had imaging within twelve hours of presentation that demonstrated transpyloric migration of batteries, and four underwent EGD, with 50% retrieval rate and migration of the battery by the time of intervention. All small bowel batteries (n=6) and three of four asymptomatic colon batteries were managed per protocol; one patient had imaging within 12 hours that demonstrated passage of the battery.

In total, eleven of forty-four patients (25%) were not managed per protocol; however, if adherent to our protocol would not require admission, short interval imaging, or intervention and provide a median cost reduction of \$1,553 [\$152, \$3,938] (p=0.04) with identical outcomes.

Conclusions: Adherence to a symptom-based protocol for conservative management of battery ingestions beyond the gastroesophageal junction is safe with minimal complications or need for admission, serial imaging, or intervention, and may provide potential cost benefit.

Battery Ingestion Treatment Algorithm

