


ORIGINAL ARTICLE

Endoscopy and Procedures

Endoscopist experience with pediatric recurrent and intentional foreign body ingestion (RIFBI): Management considerations and future directions

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Funding information

None

Abstract

Objectives and Study: Accidental foreign body ingestion (FBI) is a common pediatric referral concern. In contrast, recurrent and intentional FBI (RIFBI) is infrequent and associated with greater endoscopic and surgical intervention in adults. Although pediatric guidelines exist for FBI, the risk and therapeutic implications of RIFBI are not addressed. An anonymous international survey on pediatric gastroenterologist experience with RIFBI was distributed.

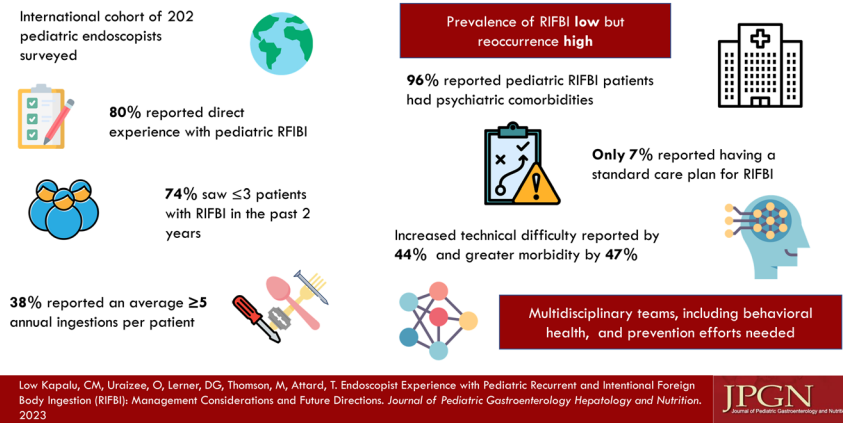
Methods: A 33-item REDCap® survey was distributed via email to pediatric gastroenterologists identified through mailing and email lists obtained from pediatric gastroenterology professional organizations.

Results: During 9–12/2021 we accrued 202 completed surveys. Respondents were from 27 countries and across the career span. Eighty percent reported experience with RIFBI; 74% reported seeing ≤ 3 patients with RIFBI within the past 24 months and 4% reported seeing ≥ 6 . Of those who treated RIFBI, 38% reported an average number of annual ingestions per patient was ≥ 5 . Frequent morbidity but not mortality was reported.

Half reported adherence to FBI guidelines. Later-career endoscopists treated RIFBI more aggressively than accidental ingestion. Ninety-six percent noted that patients with RIFBI had psychiatric comorbidities. Providers at academic medical centers reported referring to behavioral health more than those in other settings.

Conclusion: Most gastroenterologists surveyed reported encountering RIFBI several times a year and in patients with psychiatric comorbidities. Greater likelihood of adverse outcomes associated with endoscopy was reported. Most reported referral to behavioral health and few had RIFBI management protocols. A broader spectrum of psychologic comorbidities in the pediatric population with RIFBI, notably depression and autism spectrum disorder, were reported.

Survey of endoscopist experience with pediatric recurrent and intentional foreign body ingestion (RIFBI)



KEYWORDS

behavioral health, endoscopy, foreign body, multidisciplinary collaboration

1 | INTRODUCTION

Foreign body ingestion (FBI) is predominantly a pediatric complaint with almost all cases in children being accidental and occurring between the ages of 6 months and 6 years. Medical management of FBI is influenced by the physical characteristics of the object, location of the object at time of evaluation, and the presence or absence of symptoms and medical comorbidities. Special consideration is given for sharp objects, high powered magnets and button batteries due to the increased risk of serious, ingestion-related injury. In contrast, recurrent and intentional FBI (RIFBI) is described in all ages but its distinguishing characteristics, including nuances in management are poorly understood.

In adults, RIFBI is defined as the repeated consumption of inedible objects, typically in the context of self-harm, psychosis, or disruption of institutionalization.¹ In these groups, RIFBI often involves ingestion of long or sharp objects with the intent to escape a non-preferred setting,² sometimes with significant time delay from ingestion to presentation. Intentional ingestion is occasionally associated with suicidal intent as indicated in the scant literature. Psychiatric comorbidity often complicates management of FBI and discharge for these patients,³ contributing to the increased cost including hospitalization.⁴ Many adults who are treated for RIFBI are in the justice or residential systems that refuse reentry until the item has passed or been removed.⁵

There are several reviews of RIFBI in adults and special populations but even fewer in pediatrics. In one retrospective review, the most ingested item in adults in a lower sociodemographic population with mostly intentional ingestion was a toothbrush.³ Destro and

What is Known

- RIFBI in adults is associated with psychiatric comorbidity, increased treatment complications, and high treatment cost
- Little is known about RIFBI in pediatrics and how intentional ingestion impacts endoscopic management

What is New

- Our international survey suggests that while prevalence of RIFBI in pediatrics is low, reoccurrence is high (e.g., 1/3 respondents reported seeing RIFBI patients presenting with ≥ 5 ingestions annually)
- Psychiatric comorbidities, including multiple morbidities, are overwhelmingly present in pediatric RIFBI
- High rates of morbidity are reported in treatment of RIFBI
- Coordinated multidisciplinary care, including behavioral health, may help to reduce recurrence

colleagues focused on 16 neurologically impaired children with FB ingestion who underwent endoscopy.⁶ Their cohort included 13 patients with autism, and a subgroup with repeated ingestion. Surgery was eventually needed in two patients and one patient with recurrent ingestion died from septic shock complicating multiple intestinal perforations.

Recognizing the dearth of background characterization of this population, we performed a brief literature

review and conducted an investigator-initiated anonymous survey on current experience with RIFBI in the pediatric gastroenterology community. Specific study aims included a literature review to identify areas of concern and survey determination of provider experience with pediatric RIFBI, common psychiatric comorbidities in this population, as well as defining patterns in management of RIFBI across career stage and treatment setting. Given the limited literature, including mostly case reports, we hypothesize that pediatric gastroenterologists will report limited experience with RIFBI in children.

2 | METHODS

2.1 | Literature search

A literature search was conducted using EMBASE and Medline databases via our institutional library. Studies were included if they included participants 21 years or younger, were available in English for review, and included key search terms. See Table 1 for summary of literature review.

2.2 | Survey

Before survey dissemination, the study was deemed exempt and approved by the Institutional Review Board (IRB) of the first and senior authors.

2.2.1 | Materials

Authors created a 33-item REDCap© cross-sectional survey to assess provider experience with treatment of RIFBI in pediatrics. The survey was iteratively refined through multidisciplinary expert review (study authors: C. L. K., D. L., and M. T.) and included questions related to participant demographics, evaluation and treatment, use of societal guidelines^{12,13} (linked and embedded in the survey) and behavioral health comorbidities and treatment.

2.2.2 | Participants

Members of both the European Society of Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) and the North American Society for Pediatric Gastroenterology, Hepatology & Nutrition (NASPGHAN) were invited to participate. Inclusion criteria included pediatric gastroenterologist or hepatologist or trainee member of these organizations, have conducted at least one endoscopy in the past 6 months to ensure current practice, able to read and answer

questions in English and consented to participate in the survey. Convenience sampling was utilized.

2.2.3 | Procedures

Invitations to participate were sent in three waves approximately 1 month apart: Direct e-mail solicitation to NASPGHAN and ESPGHAN Endoscopy Committee members in wave 1, request for participation with survey link in the ESPGHAN monthly newsletter in wave 2, and direct e-mail solicitation through the NASPGHAN membership list in wave 3. An email list was generated from the NASPGHAN membership directory and all members with valid email addresses were invited to participate in the study. Data was collected between September and December 2021. When the target sample of 200 participants was achieved, data collection was manually discontinued per the outlined IRB protocol.

Descriptive statistics (see Table 2) were provided to characterize the data set and respondent characteristics. Cross-tabulation analyses were performed to evaluate relationships between career stage, practice setting, and endoscopy committee membership and key variables outlined in study aims. All statistics were completed utilizing IBM SPSS Statistics Package 28.

3 | RESULTS

3.1 | Literature search

We summarized the literature on pediatric (≤ 21 years old) patients with RIFBI, which included case reports and small series, in Table 1. The literature suggests a broad spectrum of ingested objects with magnets, button batteries, sponges, and metal and plastic objects amongst the most common, albeit this is likely influenced by the related need for endoscopy and complications warranting case report. The scant research suggests a consistent association with psychiatric comorbidity in pediatric RIFBI. Psychiatry/psychology consultation and follow up was erratic.

Thus, pediatric patients with RIFBI potentially present with complex interrelated factors (e.g., developmental differences, psychiatric comorbidities, and secondary gain) that result in challenges to health care teams that need to be proactively identified and addressed. Better understanding of these nuances can guide treatment decision making and inform future management guidelines. We proposed elsewhere a behavioral algorithm for management of pediatric RIFBI based on psychiatric comorbidities and drivers of ingestion¹; however, current guidelines are lacking recurrence prevention recommendations.

TABLE 1 Literature summary—pediatric recurrent intentional foreign body ingestion.^{7–11}

Year	Citation	Age	Gender	Ingested items	Mental health Dx	Behavioral intent/ driver	Medical/surgical intervention	Additional measures	Outcome
2011	Zganjer et al. ¹¹	16	F	Sponge, EKG leads, multiple others	Depression	SI, Suicide attempt	Initial supportive care, NG decompression, bowel resection	None	Repeat ingestion during hospitalization
2016	Kienzle et al. ⁹	Teen	M	Zippers, small plastic and rubber objects, clothing, bandages	Non-specified psychosis	SI, secondary gain	Psychotropic medication intervention	Constant observation, room sweeps, offering alternatives, distraction	Repeated attempts to ingest during hospitalization
2020	Low Kapalu et al. ¹	17	M	Plastic utensils, combs, toothbrushes, pens, magnets, batteries, coat hanger	PTSD, Other specified disruptive, impulse-control and conduct disorder	Boredom, secondary gain	Endoscopic foreign body removal, advanced endoscopic techniques, fluoroscopy, laparoscopy, gastrostomy	1:1 supervision when asleep and 2:1 supervision when awake, room sweeps, means restriction, psychiatry consult	Return to residential psychiatric facility
2020	Low Kapalu et al. ¹	4	M	25-30 magnetic beads across 2 hospitalizations	Autism spectrum disorder, developmental delay	Pica in child with developmental delay, sensory seeking	Endoscopic FB removal, intraoperative fluoroscopy, laparoscopy	Routine supervision; parent education	Discharged home
2020	Low Kapalu et al. ¹	15	F	Magnets, batteries, coins, plastic utensil, screws, metallic bolt, button	Bipolar disorder, anxiety, recurrent suicide attempts, psychosis, conduct disorder	SI, secondary gain, mood disorder	Endoscopic FB removal	Means restriction, 1:1 24/7 supervision, psychiatry consult, social work consult	Discharged to acute inpatient psychiatric facility for stabilization, then return to residential psychiatric facility
2021	Destro et al. ⁶	13	F	Button battery, sponge, hair, fibers	None reported	Unknown	Endoscopic FB removal	Not reported	Pancreatitis
2021	Destro et al. ⁶	14	M	Sponge, bezoar, plastic objects, fishing line	Autism spectrum disorder, developmental delay	Pic in a child with developmental delay, sensory seeking/habit	Endoscopic FB removal	Not reported	Death secondary to septic shock from multiple intestinal perforations
2021	Al Shaabi et al. ¹⁰	15	F	Knife, other metal objects	Schizophrenia, intellectual disability	Suicide attempt	Fluoroscopy, Laparoscopy	None	Transfer to psychiatric hospital because of high risk suicidal ideation and poor insight

Note: Patients aged 1–21 year old.

Abbreviations: FB, foreign body; NG, naso-gastric; PTSD, post-traumatic stress disorder, SI, suicidal ideation.

3.2 | Survey

Two hundred and four participants responded to the survey (Supplemental Digital Content) and two hundred and two participants met inclusion criteria. We estimate an approximate survey completion rate of between 7% and 8% based on current NASPGHAN and ESPGHAN full membership (physician, fellows and emeritus members) numbers (Approximately 2803). Respondent characteristics are summarized in Table 2. The majority were from North America (78%) and practicing in a freestanding or embedded academic children's hospital setting (86%) and more than 75% were mid- or late-career. They were evenly divided between self-reported current or past members of a societal endoscopy committee and nonmembers.

Almost all respondents (97%) were confident in their ability to identify RIFBI, citing (82%) documentation in the medical record as a resource. The remainder relied on patient and caregiver report or prior endoscopy experience with the patient to identify RIFBI. Most gastroenterologists (80%), reported treating at least one patient with RIFBI ever and the majority had treated 1 (31%) or 2 patients

TABLE 2 Respondent demographics.

Practice location		
North America	161	79.7%
South America	2	1.0%
Europe	29	14.4%
Asia	5	2.5%
other	5	2.5%
Practice setting		
Academic freestanding children's hospital	105	52.5%
Academic children's hospital within an adult hospital	67	33.5%
Private practice	19	9.5%
Other	9	4.5%
Missing	2	1.0%
Career stage		
Trainee	11	5.4%
Early career	37	18.3%
Mid-career	82	40.6%
Late career	72	35.6%
Endoscopy Committee ^a membership		
Yes	103	51%
No	99	49%

^aSelf-reported member of the NASPGHAN or ESPGHAN Endoscopy Committees.

(30%) in the previous 24 months. The frequency distribution of average number of ingestions per patient is displayed in Figure 1B. Most affected patients were reported to present with 2–4 ingestions (63%) per year, whereas an alarming 9% presented with greater than 10 ingestions per year (Figure 1B).

Ninety six percent of respondents indicated that in their experience, pediatric RIFBI patients had known psychiatric comorbidities. The most common psychiatric comorbidities (Figure 1D) reported included depression (62%), anxiety (47%), bipolar disorder (42%), oppositional defiant or conduct disorder (44%), autism spectrum disorder (38%), personality disorder (35%), post-traumatic stress disorder (31%) and intellectual disability (32%), with providers often reporting multiple psychiatric comorbidities.

The vast majority of respondents (93%) indicated that their practice setting does not have a standardized protocol or care plan for the management of RIFBI.

3.3 | Behavioral health consultation

Approximately 70% of respondents indicated that referral to psychology and/or psychiatry is standard practice at their institution following presentation for RIFBI. Of those who refer to behavioral health, 15% refer for inpatient consultation only, 9% for outpatient consultation only, and 70% for both. Six percent were unsure of the modality of behavioral health referral.

3.4 | Endoscopic management

Forty-four percent of respondents reported that RIFBI was viewed as more technically difficult than treatment of routine accidental ingestion (AI) and 47% of participants reported that RIFBI endoscopy was more likely associated with complications compared with endoscopy for AI. Most respondents (55%) however, reported that the pattern of recurrent ingestion did not influence medical management decisions including adherence to societal guidelines for treatment of FBI. While participants indicated that endoscopic management was more technically difficult and associated with more complications, most respondents reported treating RIFBI similarly to (61%) or more aggressively (10%) than AI. More aggressive treatment may include hospitalization or lower threshold to recommend endoscopic management rather than waiting to see if the item passes spontaneously.

Aside from hospitalization (77%), the most common adverse outcomes from RIFBI reported are summarized in Figure 1C. Bleeding complications were reported by 14% of respondents. Surgery for FB removal was reported by 25% of respondents, 8% reporting visceral perforation. There were no deaths

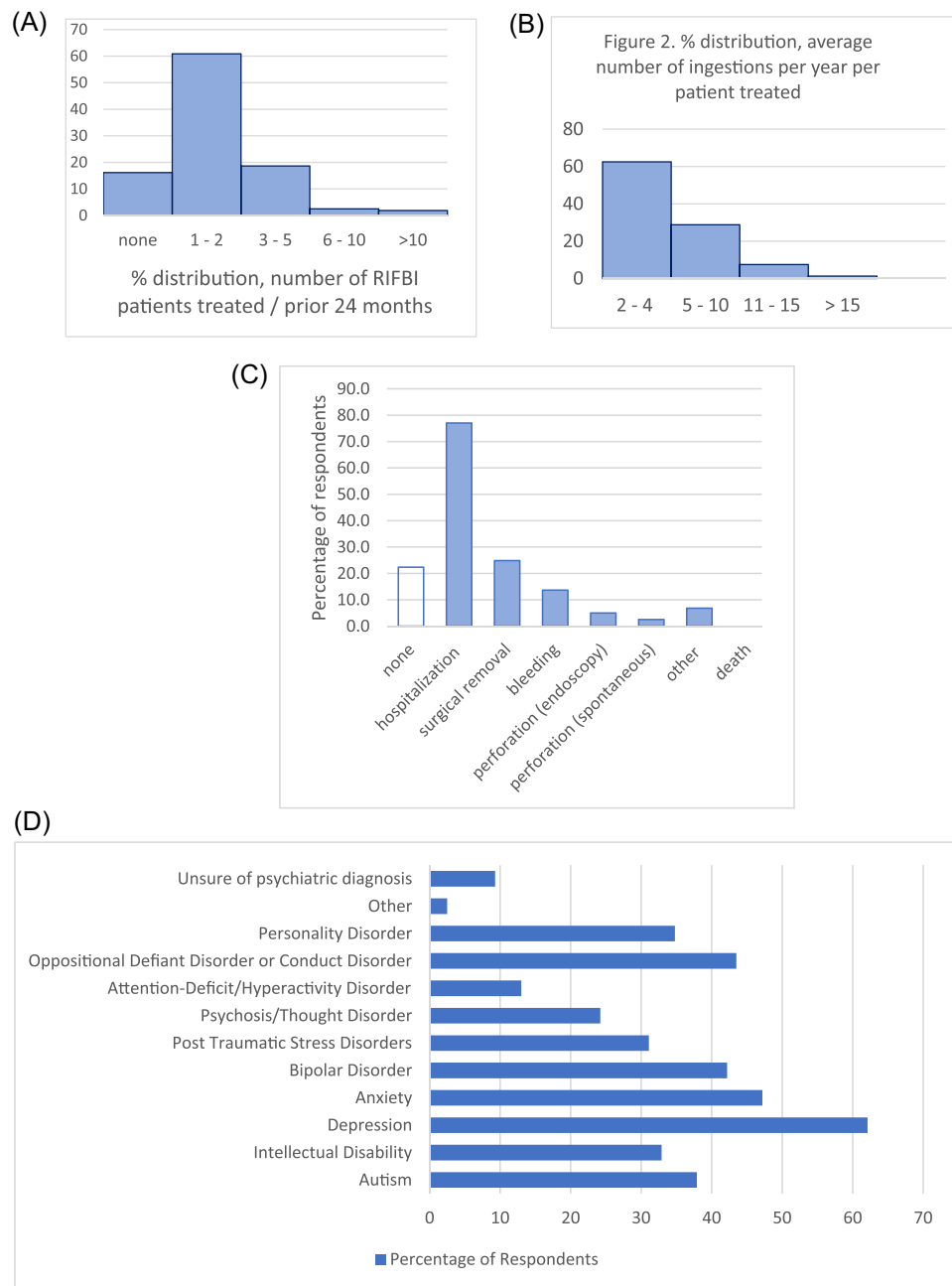


FIGURE 1 (A) Number of RIFBI patients treated in prior 24 months per respondent. (B) Average number of ingestions per year per patient. (C) Reported complications related to treatment of RIFBI in pediatrics. (D) Frequencies of psychiatric comorbidities of all patients with RIFBI treated by respondents. *Percentages above represent the percentage of respondents who had treated at least one patient with RIFBI who also had these psychiatric diagnoses. RIFBI, recurrent and intentional foreign body ingestion.

reported and 22% of respondents indicated that their patients experienced no complications whatsoever.

3.5 | Crosstab analyses

3.5.1 | Career stage

Providers at all career stages were similar in self-reported adherence to society guidelines regarding

pediatric FBI management, $\chi^2(3, N = 202) = 6.89$, $p = 0.076$, and reported experiencing similar complications when treating RIFBI, $\chi^2(6, N = 161) = 3.94$, $p = 0.685$. There was however a significant difference in treatment approach based on career stage, $\chi^2(25.70, p = 0.002)$, with a greater proportion of late career respondents reporting treating RIFBI more aggressively (61.9%) compared to trainee (9.5%), early career (9.5%) and mid-career endoscopists (19.5%).

3.5.2 | Practice type

There was no relationship between work setting and adherence to societal endoscopy guidelines (χ^2 3.00, p NS) or the existence of an institutional standardized RIFBI treatment protocol, (χ^2 3.15, p NS). A significant relationship between practice setting and referral to behavioral health was found, (χ^2 18.950, $p = 0.004$), with a greater proportion of endoscopists at academic medical centers reporting referral to behavioral health compared to those in private practice or other settings.

3.5.3 | Committee membership

Endoscopy Committee members and nonmembers similarly adhered to Society Guidelines, (χ^2 0.98, p NS), reported no difference treating RIFBI and AI (χ^2 3.80, p NS), did not perceive management of RIFBI to be more difficult than AI, (χ^2 1.05, p NS), and noted a similar likelihood of complications, (χ^2 2.501, p NS).

4 | DISCUSSION

This is the first attempt to survey pediatric gastroenterologists' experience with RIFBI. Our cohort reflects the experience of mostly mid- and late-career endoscopists, predominantly from the United States, and working in academic centers. As hypothesized, endoscopists reported experience with pediatric RIFBI in their clinic settings. They reported infrequent exposure to patients with RIFBI, averaging one to two patients over the past 24 months, with each patient presenting with an average of 2–4 ingestions per year. Alarming, more than a third of respondents reported treating RIFBI patients who presented with ≥ 5 ingestions per year, indicating that while the prevalence may be low, reoccurrence is high.

Only 10% of respondents reported treating RIFBI more aggressively than routine AI. Most respondents did not modify their management, specifically their adherence to established guidelines in the case of intentional ingestion. Alarming, more than a third of respondents noted that their patient(s) with RIFBI required surgery for FB removal or perforation complicating ingestion or endoscopy. The literature on adults suggests that intentionally ingested foreign bodies are more likely to be high risk (sharps, batteries) compared to AI,⁷ perhaps due to patient knowledge of which objects are more likely to warrant transfer and admission. This may account for the higher proportion of late career endoscopists (60%) in our study reporting more aggressive management of RIFBI when compared to trainees, early, and mid-career respondents (10, 10, and 20%, respectively). Awareness of the possible increased likelihood of complications and surgery

should be factored into the overall treatment approach to RIFBI and a more aggressive approach may be justified.

High rates of psychiatric comorbidities seen in adults presenting with RIFBI were also reported in this survey. Despite 96% of respondents indicating that pediatric RIFBI patients had pre-existing psychiatric diagnoses, often multiple morbidities, current guidelines for the treatment of routine FBI do not address behavioral management in this psychiatrically complex sub-population.

Furthermore, the psychiatric comorbidities in children and adolescents may be different than those identified in adults; however, the limitations of our study do not allow us to draw definitive conclusions due to relying on provider recall of patient diagnoses. The most common endoscopist reported psychiatric diagnoses for pediatric patients with RIFBI included depression, anxiety, and oppositional defiant disorder. Differences in psychiatric comorbidities between adults and youth with RIFBI may be due to the later age of onset of several psychiatric conditions (e.g., psychosis and personality disorders emerging in young adulthood). Palta et al. advocated for the need for behavioral interventions to decrease intentional ingestion in patients with psychiatric comorbidities to prioritize resource utilization.³ While rare, behavioral recommendations are emerging regarding preventative efforts to reduce subsequent ingestions.^{14,15} We have previously published a behavioral treatment algorithm for the management of pediatric RIFBI,¹⁴ dividing ingestions by behavioral phenotype and providing unique treatment pathways for each. Some evidence of a similar decision-making pathway in hospitalized or incarcerated adults exists, with outpatient management suggested if medically and psychiatrically stable.¹⁶ Most survey respondents reported referral to behavioral health following presentation for RIFBI, with those in academic medical centers referring at a higher rate than those in private practice or other settings. This may be due to integration of mental health services within academic medical centers and a lack of community mental health and social work services.¹⁷

4.1 | Study limitations

This study is an anonymous survey and subject to recall that can be distorted by time and provider awareness. This may influence the relative distribution of outcomes (e.g., psychiatric comorbidities, rates of RIFBI) but, less likely the spectrum of possibilities. Response bias may also influence the generalizability of our results. By virtue of our effort to include as many practicing gastroenterologists as possible worldwide, it is difficult to accurately assess our population size. We were most successful in eliciting participation from

current and past Endoscopy Committee members and those from academic medical centers; perhaps reflecting our participation solicitation techniques (e.g., membership lists, endoscopy committee invitations, and a society published newsletter) and respondent engagement in professional societies. While the content of our survey or related hypotheses were not shared with endoscopy committee members, we did seek their support before dissemination, possibly contributing to response bias reflected in the high number of committee members participating in the study. We capped our survey size, acknowledging that most responses to online solicitations would return within 5–7 days of the request. This may have limited the response rate to our survey and encouraged participation by those most involved in pediatric gastroenterology organizations. Nonetheless, it appears that given the robust participation from Endoscopy Committee members and the similarity in responses between members and non-members, our observations reflect the reported experience of seasoned pediatric endoscopists, which would ultimately be the most insightful subgroup to survey regarding treatment of this relatively rare presentation.

4.2 | Study implications

Despite the limitations, this study is a first step in better understanding the evaluation and treatment of pediatric patients with RIFBI. As is the case with adults, our study found that pediatric gastroenterologists encounter RIFBI, note complications associated with treatment, and indicate a high rate of psychiatric comorbidities. Our results can inform future societal management guidelines for this special population including a focus on rapid evaluation and treatment, pre-procedure planning, and a multidisciplinary approach to treatment, including a standard behavioral health referral for prevention assistance.

Consideration of concrete behavioral health management strategies to prevent ingestion during hospitalization and post discharge may be beneficial in the next set of FBI guidelines and help to address the resource gap in lower resourced communities.

RIFBI patients present unique challenges to the system, demanding complex care coordination, often when it is at its weakest, that is, after-hours and with rotating consultants. Admission and treatment models have been utilized in adult health care facilities; however, the application of such strategies in children requires consideration of ethical, legal and developmental factors¹ associated with treating minors and the evaluation of efficacy of such procedures. It is clear from our survey that adverse outcomes are perceived to be significantly more common in this population. We do not know how behavioral guidelines we have suggested in the past can

influence the trajectory of this problem when implemented on a wide scale.¹ Future rigorous studies reviewing medical records of patients presenting with RIFBI and prospective studies implementing behavioral health recommendations are needed.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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REFERENCES

1. Low Kapalu CM, Ibrahim N, Mentrikoski JM, Attard T. Pediatric recurrent intentional foreign body ingestion: case series and review of the literature. *J Pediatr Gastroenterol Nutr.* 2020;71(2):232-236. doi:10.1097/MPG.0000000000002757
2. Ribas Y, Ruiz-Luna D, Garrido M, Bargalló J, Campillo F. Ingested foreign bodies: do we need a specific approach when treating inmates? *Am Surg.* 2014;80(2):131-137. doi:10.1177/000313481408000220
3. Palta R, Sahota A, Bemarki A, Salama P, Simpson N, Laine L. Foreign-body ingestion: characteristics and outcomes in a lower socioeconomic population with predominantly intentional ingestion. *Gastrointest Endosc.* 2009;69(3 Pt 1):426-433. doi:10.1016/J.GIE.2008.05.072
4. Huang BL, Rich HG, Simundson SE, Dhingana MK, Harrington C, Moss SF. Intentional swallowing of foreign bodies is a recurrent and costly problem that rarely causes endoscopy complications. *Clin Gastroenterol Hepatol.* 2010;8(11):941-946. doi:10.1016/J.CGH.2010.07.013
5. Sahn B, Mamula P, Ford CA. Review of foreign body ingestion and esophageal food impaction management in adolescents. *J Adolesc Health.* 2014;55(2):260-266. doi:10.1016/J.JADOHEALTH.2014.01.022
6. Destro F, Caruso AM, Mantegazza C, et al. Foreign body ingestion in neurologically impaired children: a challenging diagnosis and management in pediatric surgery. *Children.* 2021;8(11):956. doi:10.3390/CHILDREN8110956
7. Zong Y, Zhao H, Sun C, et al. Differences between intentional and accidental ingestion of foreign body in China. *BMC Gastroenterol.* 2020;20(1):90. doi:10.1186/S12876-020-01224-Z
8. Litovitz TL, Klein-Schwartz W, White S, et al. 2000 annual report of the American association of poison control centers toxic exposure surveillance system. *Am J Emerg Med.* 2001;19(5):337-395. doi:10.1053/AJEM.2001.25272
9. Kienzle A, Warner V. Intentional foreign body ingestion: what do we know and how can we help? *Nursing.* 2016;46(4):23-24. doi:10.1097/01.NURSE.0000481436.25049.22
10. Al Shaaibi R, Al Waili I. Laparoscopic retrieval of ingested foreign body. *Oman Med J.* 2021;36(3):e264. doi:10.5001/OMJ.2021.35
11. Žganjer V, Žganjer M, Čizmić A, Pajić A, Župančić B. Suicide attempt by swallowing sponge or pica disorder: a case report. *Acta Medica (Hradec Kralove).* 2011;54(2):91-93.
12. Kramer RE, Lerner DG, Lin T, et al. Management of ingested foreign bodies in children: a clinical report of the NASPGHAN endoscopy committee. *J Pediatr Gastroenterol Nutr.* 2015;60(4):562-574. doi:10.1097/MPG.0000000000000729
13. Thomson M, Tringali A, Dumonceau JM, et al. Paediatric gastrointestinal endoscopy: european society for paediatric gastroenterology hepatology and nutrition and european society of gastrointestinal endoscopy guidelines. *J Pediatr Gastroenterol Nutr.* 2017;64(1):133-153. doi:10.1097/MPG.0000000000001408
14. Kapalu CL, Lantos J, Booser A, Thomson M, Attard T. Preventing self-harm from repeat Foreign-Body ingestion.

- Pediatrics*. 2020;145(1):e20191515. doi:10.1542/PEDS.2019-1515
15. Poynter BA, Hunter JJ, Coverdale JH, Kempinsky CA. Hard to swallow: a systematic review of deliberate foreign body ingestion. *Gen Hosp Psychiatry*. 2011;33(5):518-524. doi:10.1016/J.GENHOSPPSYCH.2011.06.011
 16. Palese C, Al-Kawas FH. Repeat intentional foreign body ingestion: the importance of a multidisciplinary approach. *Gastroenterol Hepatol (N Y)*. 2012;8(7):485-486.
 17. Tovian SM. Interdisciplinary collaboration in outpatient practice. *Professional Psychol*. 2006;37(3):268-272. doi:10.1037/0735-7028.37.3.268

How to cite this article: Low Kapalu CM, Uraizee O, Lerner DG, Thomson M, Attard T. Endoscopist experience with pediatric recurrent and intentional foreign body ingestion (RIFBI): management considerations and future directions. *J Pediatr Gastroenterol Nutr*. 2024; 1-9. doi:10.1002/jpn3.12114