

Case Series

Rectal Foreign Body Trauma in Western Australia: A 15 Year Case Series

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Abstract

Aim: Rectal Foreign Body (RFB) is a common presentation to emergency with a broad spectrum of clinic severity from emergency department removal to surgical intervention. Research on the severe end of the clinical spectrum is lacking and our aim was to investigate RFB presentations requiring admission and surgical intervention.

Results: A total of 16 patients met inclusion and exclusion criteria. All were male with age 21 to 80 (mean 46.5). Presentation included retained RFB (6/16, 37.5%), bleeding (3/16, 18%), pain (2/16, 12%) or becoming impaled (5/16, 31%). The RFB included household items (9/16, 56%) sexual devices (3/16, 18%), industrial products (2/16, 12%) and a tree branch (1/16, 6%). Imaging was performed in 9 cases with 6 plain XR and 3 CT scans. Surgical management was trans-anal in 7 (43%), via laparotomy with or without stoma in 6 patients (37%), laparoscopic stoma formation in 1 (6%), transfer to a private hospital 1 (6%) and observation only in 1 (6%). Hospital length of stay ranged 1 to 35 days with mean of 7.7 days.

Conclusion: Despite being a common and usually minor condition RFB can also present with significant injury requiring major surgery. This is an important presentation for clinicians to be aware of as given the social stigma delayed presentation or vagueness on history does occur. Severe complications from RFB, including perforation, results in increasing complexity of management potentially requiring bowel resection and stoma formation.

Keywords: Anorectal trauma; Colorectal surgery; Trauma surgery

Introduction

Rectal Foreign Body (RFB) is a common presentation to emergency departments worldwide. Although there is little incidence data available in the literature, a recent review by Bhasin and Williams [1], reported 3500 RFBs that required removal in hospital between 2010 and 2019 in the NHS. Notably there was an observed trend of increasing incidence in this time period with 291 reported in 2010 and 518 in 2019. A range of foreign bodies have been described from food items through to a tool box [2], although the most commonly reported are sex toys [3]. This possibly reflects the most commonly recorded motivation of insertion being for sexual gratification however in most studies the reason for the insertion is not recorded [3], which likely represents the focus of clinicians being on the prompt diagnosis and management which the presentation warrants. Early diagnosis and appropriate management are critically important because of the risk of severe injury which can lead to peritonitis due to perforation [4]. Management options range from simple extraction with the aid of proctoscopy in the ED through to laparotomy with resection and stoma formation [4]. While many studies exist looking at the broad topic of rectal foreign body there is limited information regarding the severe end of this broad spectrum condition, the present study

examined cases of rectal foreign body trauma causing significant trauma that were managed at the State Trauma Centre from 2005 to 2020. The outcomes of this case series will be useful to clinicians by helping them better understand the potential complications and significant complications of RFB.

Materials and Methods

A retrospective case series identifying Western Australian cases of anorectal trauma was conducted with data collected from January 1st, 2005 to December 31st, 2020.

Inclusion criteria consisted of adult patients presenting with either penetrating anal trauma or injury from traumatic rectal foreign body insertion to Western Australian hospitals. Only cases that required admission to hospital and required surgical management were included. Exclusion criteria were patients aged less than 18 years, cases where RFB was not confirmed and cases managed with simple extraction in an emergency setting with no complication.

Cases were extracted from within the Western Australian State Trauma Registry. ICD codes were used to identify cases and then cross-checked with a separate local patient information database to ensure inclusion criteria were met.

Patient records, electronic and physical were reviewed to collect epidemiological data (age and gender), basic biochemistry as well as mechanism and injury patterns. Inpatient investigation and management data were collected to clarify imaging and management pathways. Hospital length-of-stay and outpatient clinic follow-up was recorded. The Clavien-Dindo scale was used to measure complications encountered 30 days post index admission.

Statistical analysis was completed using Stata v17 (Stata Corp, College Station, Texas) and Microsoft Excel (Redmond USA) software. Approval was given by the local institutional review board (GEKO).

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Results

A total of 16 patients met the inclusion and exclusion criteria. All patients were male (100%) with an age distribution of 21 to 80 years old, (mean 46.5). Presentation was most commonly a self-presentation with complaint of RFB (6/16, 37.5%). Other presentations including self-presentation with bleeding (3/16, 18%), pain (2/16, 12%) or being brought by ambulance with fall and becoming impaled (5/16, 31%).

The time from insertion to presentation was only documented in 4 cases with 2 cases of less than 12 hours and 2 cases of greater than 24 hours since insertion.

A variety of different objects were noted. Household items such as a door handle, bottle brush made up the majority (9/16, 56%) followed by sexual devices (3/16 18%) industrial products such as posts (2/16 12%) and a tree branch (1/16, 6%).

Investigation with bloods and imaging was reviewed. The admission Hemoglobin level ranged from 111 to 162, mean 141 while admission white cell count ranged 7.1 to 25.6, mean 15.3. Imaging was performed in 9/16 cases (56%). The most common imaging was plain abdominal X-Ray (6 cases) that revealed a RFB in 4 cases, a RFB with perforation in 1 case and in 1 case the RFB was not seen. An Abdominal CT scan was performed in 3 cases, 1 case showing a RFB with perforation.

Management consisted of seven cases of trans-anal management, 4 cases with removal of the RFB, 2 cases where no RFB was found and 1 case of RFB removal and repair of tear. Six patients required a laparotomy, 4 with extraction of the RFB and primary closure and 2 cases of removal, resection and stoma formation. One patient had laparoscopic de-functioning stoma formation, one patient was transferred to a private hospital for management and one patient was managed non-operatively for rectal haematoma. Post operative complications occurred in 4 patients, 2 patients with Clavien-Dindo grade 2 and 2 patients with grade 3 complications. Patient length of stay ranged from 1 day to 35 days with a mean of 7.7 days. Nine patients required follow-up post discharge.

Discussion

The present study aimed to characterize cases of rectal foreign body trauma in the Western Australian population between 2005 and 2020. Our entire cohort was male, tended to be in their fourth decade of life, and most commonly presented due to the foreign body rather than a complication such as bleeding. Most commonly the foreign body was a household item however sex toys were also highly represented. Time to presentation was rarely documented but when it was it was either less than 12 hours or between 24 and 48 hours. In terms of investigations, haemoglobin was shown to be within normal limits whereas white cells tended to be elevated. Abdominal X-ray was the most commonly used imaging modality. The most frequently occurring management options were equally trans-anal removal or extraction with primary closure of injury. Main length of stay was approximately one week, four of our patients had complications recorded, and nine required follow-up.

A majority male cohort was unsurprising as this is a common finding within the RFB literature where studies have reported men as making up between 2/3 [5] and 6/7 [3] of the population. Little has been said about why there is such a skew however it may be underlined by differences in preferences between sexes or perhaps that women are more risk averse. An average age of 46.5 is similar

to that observed in the United States and Sweden each of which has an average age in the 40s of patients presenting with RFB. Regional differences have been observed however for example in Japan the average case is in their 60s. [6]. One possible explanation for this is that different regions have cultural differences in sexual practice [6].

The most common reason for presentation was retained foreign body however others presented for reasons such as PR bleeding and abdominal pain. These alternative presenting complaints are of clinical significance because patients may not be forthcoming with why they have attended the ED due to embarrassment. This can lead to prolonged workup and delays in diagnosis [7]. Time until presentation was rarely recorded with only two cases reported to have been less than 12 hours and two being between 24 and 48 hours. Again, this is clinically important information as there are implications to delays in treatment for possible associated injuries such as perforation.

Our data set demonstrates a wide variety of RFBs ranging from sex toys through to a steel bar. Such diversity is somewhat characteristic of this presentation [2]. Our most commonly inserted items were "household items" followed by "sex toys" which have previously been reported as the most frequently removed item [3]. It is possible that a grouping of "household items" as used by our group is overly encompassing and therefore captured a disproportionate number of RFBs.

Basic diagnostic blood tests such as haemoglobin and white cell count on admission do not tend to be reported in the literature on RFBs which tends to emphasise more specific imaging modalities such as CT [8]. Our findings are interesting nonetheless, for example, an average haemoglobin of 141 (range 111-162) suggests that cases did not tend to be associated with significant haemorrhage in spite of several presenting due to ongoing PR bleeding. A white cell count which was on average elevated (mean 15.3, range 7.1 to 25.6) presumably reflects a trauma-related stress response. The most commonly utilized imaging modality was abdominal X-ray and CT was used three times. This seemingly judicious use of CT is interesting as it has previously been recommended as the gold standard of screening for full thickness rectal wall injury if used in combination with Rigid Proctoscopy (RP), with resulting sensitivity of 97%. The study in question however was only published in 2018 which is at the tail end of the time period of our data set [8]. It is worth mentioning, furthermore, that in the referenced study, CT alone only had a sensitivity of 34%, and only reached a sensitivity of 97% when combined with RP which by itself had an impressive sensitivity of 94% for full thickness rectal wall injury.

Amongst our cases management ranged from conservative management through to laparotomy with resection and stoma formation. The most common were equally trans-anal removal and extraction with primary closure. A diversity of management options has previously been reported and likely represents how heterogeneous RFB is as a presentation. It is notable that there are few formalized guidelines on management for RFB although one group has recently found that operative management of partial thickness rectal injury from RFB is associated with longer length of stay and therefore recommend operative management only in cases of full thickness injury [6].

The majority of our patients did not have post-operative complications and the four who did were evenly split between type 2 and type 3 on the Clavian-Dindo scale. Our average length of stay

was approximately one week (7.7 days) and this is notable from a financial perspective with comment previously having been made on the costliness of this presentation [1]. Most of our patients were followed up, the exact nature of which was not characterised however it may reflect the fact that the majority underwent active management and four had recorded complications.

The strengths of our study included the large catchment from the State trauma registry as well as uniformity in data collection and categorisation. Although this data is important and useful, it is important to note the limitations of our study. This was a limited case series of a low number of patients. Therefore, it is difficult to draw meaningful relationships let alone causality. Beyond this, the Western Australian dataset is hardly representative of global trends and as such our outcomes should be interpreted with caution.

The present study has provided important descriptive information on patients presenting to Western Australian Hospitals for RFB. This is an important presentation for clinicians to understand for several reasons. The social stigma associated with RFB can lead to delayed presentation or vagueness on history. As evident from our data set this can have dramatic implications for patient's potentially needing major surgery up to and including resection and stoma formation. Further, even with successful management patients are exposed to the risk of associated complications as was the case with four of our cohort.

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