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Retained Rectal Foreign Body: A Case Report

Viraj Panda[1*] and Faiz Manzar Ansari[1]

[1]Department of Surgery, Maulana Azad Medical College, New Delhi, India.

Authors' contributions

This work was carried out in collaboration between both authors. Author VP managed the case and recorded all findings from presentation to treatment. The case report was written by him. Author FMA helped in proofreading the report. Both authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Background: Rectal foreign body is not an uncommon presentation in the surgical emergency. Its incidence is increasing especially in the Asian urban population. Patients are embarrassed and reluctant to seek medical care thereby delaying management. They have a varied presentation and depending on the size, position of the foreign object and whether there is rectal perforation or not, different approaches may be chosen to remove it.

Case Presentation: Here, we present a young Indian urban male who came to the emergency with complaints of inability to remove a foreign body that he inserted per rectally. Abdominal x-ray did not reveal a foreign body. Non-Contrast Enhanced Computed Tomography (NCCT) showed a foreign body in the rectum and sigmoid colon. Manual removal via proctoscopy and sigmoidoscopy failed. The patient underwent laparotomy, colostomy and removal of the foreign body with subsequent primary repair of the colotomy. Patient was symptomatically relieved and followed up with abdominal x-ray which showed no air under diaphragm. Patient was discharged on post-operative day-8 (POD-8).

Conclusion: A careful history and physical examination with a high index suspicion of perforation is necessary. A creative approach to removal and appropriate short term follow-up to detect delayed perforation are important in a case of retained rectal foreign body.

Keywords: Rectal foreign body; sigmoidoscopy; laparotomy.

**Corresponding author: E-mail: pandaviraj@yahoo.in;*

1. INTRODUCTION

The earliest report of a foreign body in the rectum was in the 16th century by Haft and Benjamin [1]. The incidence of rectal foreign bodies is highest in East Europe [2]. Reluctance to seek medical help and vague history often makes diagnosis difficult. Patients themselves would have made multiple unsuccessful attempts to remove the foreign body. Rectal foreign body management has always been a challenge to surgeons and various techniques and approaches have been devised to remove these impacted objects.

2. CASE PRESENTATION

A 24-year old Indian urban male presented with a foreign body in his rectum and pain in his lower abdomen since 8 hours. The patient had a history of chronic constipation. He had inserted a sponge paint roller per rectally to relieve the constipation. He presented to the emergency after trying to manually remove the object repeatedly. Patient was hemodynamically stable. His abdomen was soft, tender in the hypogastrium, had no free fluid and bowel sounds were audible and normal. A supine lateral and antero-posterior x-ray did not reveal a foreign body or air under diaphragm. Per rectal examination revealed a soft and friable foreign body approximately 8 cm from the anal verge above which the finger could not reach. The anal sphincter tone was normal. Proctoscopy showed multiple rectal ulcers and confirmed the presence of a white foreign object.

Patient was placed in lithotomy and reverse trendelenberg position. Manual removal by hand failed. Proctoscopy guided removal with various clamps with simultaneous pressure on the suprapubic region also failed. Patient was subsequently kept nil per oral, ryles tube and foleys catheter was inserted. Non-contrast enhanced computed tomography (NCCT) showed a well defined elongated 4.7x4.8x15.4 cm iso-to-hyperdense structure in the lumen of the rectum and sigmoid colon. The rest of the large bowel appeared distended with fecal matter and air. There was no evidence of pneumoperitoneum or free fluid in the peritoneal cavity.

Sigmoidoscopy showed a round foreign body in the rectum around 10 cm from the anal verge occupying the whole of the lumen with multiple rectal ulcers distal to it. Foreign body removal was attempted but could not be retrieved. The patient was then prepped for exploratory laparotomy.

Fig. 1. NCCT abdomen showing foreign body in rectum and sigmoid colon (black arrow)

Fig. 2. Sigmoidoscopy showing a white foreign body with rectal mucosal ulcerations

Fig. 3. Foreign body removed from enterotomy made in sigmoid colon

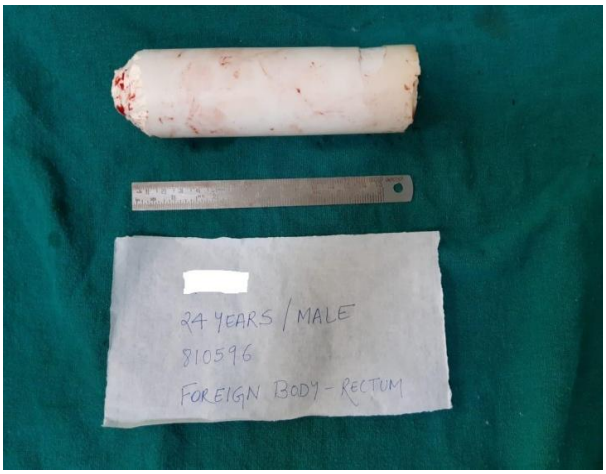

Fig. 4. Foreign body removed from patient's rectum

Examination was performed under general anesthesia and a repeat transanal removal was attempted that also failed. Lower midline incision was made. A distended sigmoid colon was visualised. The large bowel proximal to this was dilated with the small bowel collapsed. The foreign body was massaged rectally but did not migrate downwards. An enterotomy was made just proximal to the foreign body on the sigmoid colon on the antimesenteric border. The foreign object was removed and enterotomy was closed with simple interrupted round body silk 2,0 sutures in two layers. A drain was placed in the pelvic cavity and the abdomen was closed.

The patient was symptomatically relieved. Bowel sounds returned on post-operative day-2 (POD-2). Patient started passing flatus on POD-4. He was orally allowed on POD-4. The drain was removed on POD-5. A repeat abdominal x-ray was done on POD-7 which did not reveal any air under the diaphragm. He was subsequently discharged on POD-8. The patient followed up two weeks after discharge for suture removal. He was passing flatus and feces normally. He had no complaints and there was no complication. He was furthered followed up every 4 weeks for 6 months. Patient had no complication at his last visit.

3. DISCUSSION

The annual incidence of rectal foreign body is 0.13 per 100,000 population [3]. The incidence has been increasing especially among the urban population [4]. Two large case series have been

published on foreign body rectum (approximately 100 cases each from Russia and University of Southern California) [5]. The incidence in Asia is less than East Europe [2]. Patients belong to all age groups ranging from 2 to 90 years with a mean age at presentation being 44 years [5]. There is a bimodal age distribution. There is a peak in the 3rd decade due to anal eroticism or forced insertion. The second peak is in the 7th decade because of prostatic massage and due to manual attempts to break fecal impaction. Foreign bodies are rare in children, are usually related to sexual abuse and should be interrogated [6]. It is more common in males with a male to female ratio of 17-37:1 [5].

Foreign bodies are either introduced per rectally or they migrate down the gastrointestinal tract on being swallowed. Objects are inserted per rectally for multiple reasons. Most commonly it is for autoeroticism. This is followed by the following reasons in decreasing order: concealment of drugs in drug traffickers also known as body-packing, attention seeking behaviour, accidentally, assault and to alleviate constipation [5]. Objects introduced could be fruits, vegetables like eggplant, candles, batteries, marbles, nails, light bulbs, bottles, packets of drugs (body-packing), aerosol canisters, rectal thermometers, broken enema catheter tip, dildos or vibrators. Most commonly encountered objects are bottles and glasses (42.2%) [5]. Objects inserted can be classified as voluntary or involuntary or for sexual or non-sexual reasons (Table 1). They are most commonly voluntary and for sexual reasons. All foreign bodies should be treated as potentially hazardous. Owing to a wide variety of objects and variation in trauma to local tissues and presentation, a systematic approach is required.

Table 1. Classification of objects inserted per rectally [6]

	Voluntary	Involuntary
Sexual	Vibrators & Dildos	Rape/Assault
Non-sexual	Illicit drugs	Psychiatric patients, children

3.1 History and Examination

Patients are embarrassed and reluctant to seek medical care unwittingly delaying the management. The utmost degree of professionalism must be maintained. The doctor must remember these objects may have been inserted under duress, on assault or as a part of a psychiatric disorder. It is essential to be non-threatening and non-judgemental despite their initial history possibly being fabricated [5]. They present after efforts to remove the foreign body themselves fail. A study by Kurer et al. of 53 rectal foreign body cases showed that 58.5% cases presented to the hospital on the same day as foreign body insertion and 32.1% presented 2-7days later. In his study, one patient waited for 6 months [7]. The greatest lapse of time before presentation was 5 years [8]. They may present with vague abdominal pain, rectal bleeding, rectal pain or constipation. In 20% cases, patient or attendant will not initially offer concern of an inserted rectal foreign body as their chief complaint [5]. On examination, foreign may be palpable per abdominally if large enough. The first step of assessment should be to check for peritonitis. There is a 10% incidence of rectal perforation among cases presenting with rectal foreign body [9]. A high suspicion of rectal perforation must be kept in mind. The length of time the object has been retained in the anorectal region is directly related to the risk of rupture and injury to mucosa [6]. A patient with perforation peritonitis would present with severe abdominal pain, vomiting, would be hemodynamically unstable and the abdomen would be rigid with absent bowel sounds. Digital Rectal Examination (DRE) is the most informative as it indicates any damage to anal sphincter if tone is lax and also indicates the proximity of the object to pelvic floor. The anal sphincter tone may be increased due to muscular spasm because of the presence of a foreign body.

3.2 Investigations

Laboratory investigations are done to confirm sepsis in case of perforation. Subsequently, further blood investigations should be done to prepare patient for the operation theatre [1]. Lateral and antero-posterior supine abdominal or pelvic x-ray is done to delineate the foreign body position, shape and size to detect any air under diaphragm i.e. pneumoperitoneum [10]. Organic material may not be observed on x-ray. If perforation peritonitis can't be ruled out, patient should undergo Contrast-enhanced computed tomography (CECT) abdomen as soon as possible. This will delineate the foreign object with greater accuracy. Eftaiha et al classified foreign bodies into high lying and low lying depending on its relation to the recto-sigmoid junction [11]. On complete assessment, rectal injury can be classified based on the AAST scoring (Table 2).

3.3 Treatment

Size, shape and nature of the foreign body should be ascertained before any attempt of removal [13]. The doctor should proceed from the least invasive to the most invasive means of extraction which results in the best chance of success with the lowest risk to the patient. The surgeon needs to consider the suction effect of colon. An attempt to pull out a ball like foreign body is met with a strong counter suction force. In 1934, Pretty demonstrated the effect of colon as a vacuum [4]. Rectal foreign bodies are hard to remove because of the following reasons: (1) Local edema and convulsions of anal sphincter occurs, (2) Foreign bodies get fixed on the pelvic surface of sacrum and anal canal, (3) Inner pressure of rostral portion of intestine becomes negative with extraction of foreign body and (4) foreign bodies are hard to grasp because of attached blood and mucosa [14]. Kingsley A et al reported that foreign bodies in the low or mid rectum up to 10 cm from the anal verge are amenable to transanal removal while those above 10 cm require laparotomy for retrieval [15]. Enemas and stimulants are contraindicated as they may push the foreign body causing further damage rectal wall [5].

3.4 Transanal Removal

Bedside transanal removal is successful in 60-75% cases [5]. Prior to the removal of the foreign body, it is important to keep the anal sphincter lax by pudendal nerve block, spinal anesthesia or intravenous conscious sedation [1]. The patient is kept in high lithotomy in reverse trendelenberg position so that the weight of the intra-abdominal contents aids in extraction [1]. After sufficient lubrication, the anal canal should be gently dilated to three finger breadths. Manual removal is possible if the object is easily palpable. If this fails, procotscope should then be inserted and extraction should be tried with clamps, Foleys catheter for smooth foreign bodies, Sengstaken-Blakemore tube, obstetric forceps or vacuum extractor. Foleys catheter helps to break the vacuum seal created by objects in the rectal vault. Simultaneous suprapubic or sigmoid pressure should be applied to move the object caudally and prevent cephalad migration with difficult to grasp objects [16]. Valsalva manoeuvre is also helpful [5].

Recto-sigmoidoscopy assisted removal is done if the above measures fail, foreign body is sharp, large or is in the proximal rectum or sigmoid colon. 20% cases require endoscopic removal [17]. This option should be the initial means of extraction in case of retained packeted drugs to prevent spillage with blind manual removal. Endoscopy guided removal can be done by polypectomy snare, biopsy forceps, guidewire and balloon dilator [1].

Trans-anal Minimally Invasive Surgery (TAMIS) could also be an option for removal of rectal foreign body. Here, a trocar is inserted into the anus to create a seal for insufflation. Merits are that TAMIS requires a similar skill set as laparoscopy and produces high quality magnified images for mucosal inspection and identification of perforation [9].

3.5 Transabdominal Removal

Manual removal should be tried again under general anesthesia prior to laparotomy as the patient is in complete paralysis with complete pelvic floor relaxation [5]. If the above measures fail or there are signs of perforation, the patient should undergo a trans-abdominal approach of removal. 1% rectal foreign body cases require operative intervention [17]. Objects in the sigmoid colon are 2.5 times more likely to require operative intervention versus those located more distally in the rectum [5]. Lake et al determined that when the foreign body was in the sigmoid colon, 55% cases eventually required laparotomy as opposed to only 24% cases of foreign body retained in the rectum [17]. Predictors of surgical intervention included foreign bodies>10 cm, hard, sharp objects, located in proximal rectum or sigmoid colon [18]. The patient should be placed in Llyod-Davies position [14]. Trans-abdominal approach includes laparoscopy assisted trans-anal removal in which the foreign body is massaged down laparoscopically and the foreign body is removed per rectally. If this doesn't work, the patient should undergo midline laparotomy. The foreign should be massaged distally and removed per rectally, failing which, colotomy is done, foreign body is removed and the opening is repaired primarily. Diversion colostomy or Hartmann's procedure is done if there is fecal peritonitis or if the patient is unstable [5]. Cases with large objects that are tightly wedged in pelvis and can't be removed with laparotomy can undergo pubic symphysiotomy to increase the diameter of the pelvic brim. This is closed by internal fixation [19]. Surgical approach may eliminate dissection planes that increase morbidity and mortality related to injury surrounding structures during object extraction [8]. In short, a case of foreign body rectum can be managed by following the below algorithm.

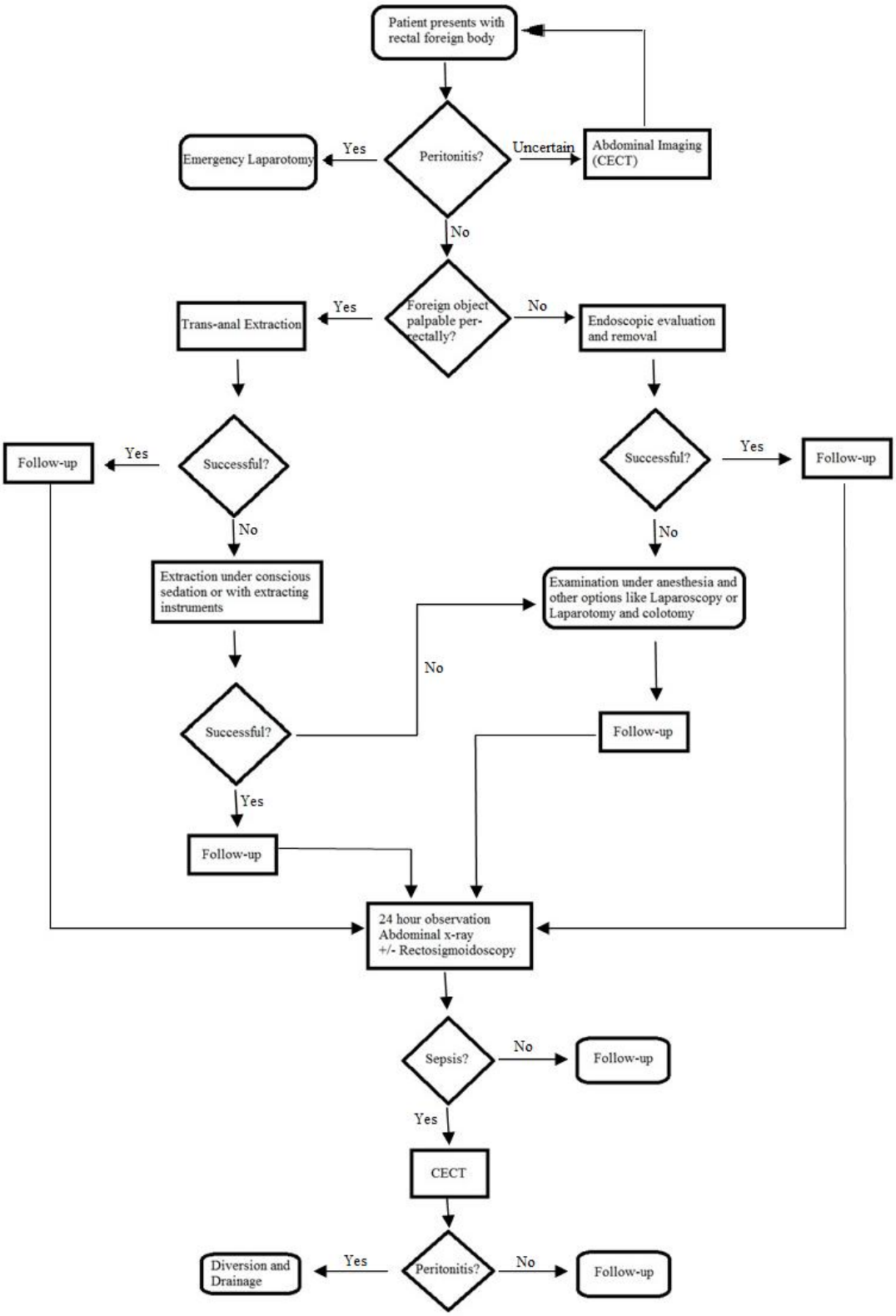

Fig. 5. Algorithm for management of foreign body rectum [5]

Table 2. AAST grading of rectal injuries [12]

Grade	Type of Injury	Description of Injury
I	Hematoma	Contusion or hematoma without devascularisation
	Laceration	Partial thickness laceration
II	Laceration	<50% circumference
III	Laceration	>50% circumference
IV	Laceration	Full thickness laceration with extension into the perineum
V	Vascular	Devascularized segment

3.6 Follow-up

Failing to remove the foreign object immediately subjects the patient to multiple complications which increases the risk of morbidity and mortality on removal. Complications include rectal mucosal ulcerations, rectal perforation, fecal incontinence, stenosis, fistula, anal sphincter dysfunction, abscess, pelvic sepsis, osteomyelitis, bladder injuries, iliac vessel injuries and migration of intrarectal foreign body to chest wall leading to extensive injury [17].

Rectal ulcerations may have occurred on insertion or due to the trauma of removal of the foreign object. They are usually multiple in number and circumferential. They are superficial but may be in the form of a full thickness perforation. Patient is observed for 24 hours after removal of the foreign body to detect any rectal perforation. Digital rectal examination is done to check the mucosa for ulcerations and anal sphincter tone. Procto-sigmoidoscopy has been considered standard following removal to assess any mucosal abnormalities. Lake et al, however, described endoscopic examination in only less than half of cases, and only 16% of these revealed any mucosal abnormalities with no perforations. It was concluded that significant injury following removal of a foreign body was not likely if it was not present on presentation [20].

If acute sphincter damage is identified, one small case series demonstrated good functional long term outcome with sphincter repair [9]. Delayed sphincteroplasty is advocated after 3 months [5]. Recto-sigmoidoscopy is done to assess the condition of the rectum after removal. Erect abdominal x-ray should be done to detect any pneumoperitoneum. Psychiatric evaluation and treatment is essential after removal. In short, the following algorithm should be followed to manage a case of foreign body retained in the rectum.

4. CONCLUSION

A careful history and physical examination with a high index suspicion of perforation is necessary. A creative approach to removal and appropriate short term follow-up to detect delayed perforation are important in a case of retained rectal foreign body.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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