

Case Report/Technical Note

# Nonsurgical Removal of a Rectal Foreign Body by a Vacuum-assisted Device: A Case Report

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## Key Words

Rectal foreign body;

Vacuum extractor;

Rectal foreign bodies can be extracted by nonsurgical methods, but a solid sphere with a smooth surface presents technical difficulties for removal and may necessitate surgical extraction. We describe a technique that allowed safe transanal extraction of a smooth-surfaced, spherical foreign body and avoided laparotomy. A patient with a history of a previous rectal foreign body incarceration that required laparotomy presented with another incarcerated rectal foreign body. After attempts at manual extraction failed, general anesthesia was induced, and an obstetric vacuum extractor was used to transanally withdraw the spherical foreign body. The withdrawal was uneventful, and laparotomy was avoided. The patient was hospitalized for observation and discharged 24 hours later. Use of the delivery vacuum extractor provided a safe, cost-effective method to remove the spherical foreign body by the transanal route.

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Patient presentations with colorectal foreign bodies are not uncommon in emergency or colorectal surgery departments, and some authors have suggested that the incidence is increasing.<sup>1</sup> Rectal foreign bodies often pose a challenging diagnostic and management dilemma that begins with the initial evaluation in the emergency department and continues through the postextraction period. Objects can be inserted into the rectum for diagnostic or therapeutic purposes, self-treatment of anorectal disease, during criminal assault or accidents, or (most commonly) for sexual purposes.<sup>2</sup> Anorectal autoeroticism is no longer considered a medical oddity. We present a rare case of

an incarcerated spherical rectal foreign body and a method of nonsurgical extraction that eliminated the need for laparotomy.

## Case Report

A 47-year-old man in good health and without underlying disease presented to our emergency department with a spherical body incarcerated within his rectum for hours. The spherical body was inserted for sexual purposes. His medical history included a previous episode of foreign body insertion that required a

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laparotomy for extraction of the object. On physical examination, the patient was afebrile with stable vital signs. His abdomen was soft and flat, with a healed midline laparotomy incision. Rectal examination revealed a smooth spherical mass within the lower rectum, 7 cm above the dentate line. The patient's white blood count was  $14\,600/\mu\text{L}$  with 92% segmented neutrophils. Other laboratory studies were within normal limits. A kidney, ureter, and bladder (KUB) x-ray showed a 6.7-cm foreign body in the rectum (Fig. 1).

Attempts to manually extract the spherical mass by squeezing the lower abdomen under a finger-guided via the anal canal failed. Therefore, the patient was taken to the operating room, general anesthesia was induced, and the patient was placed in the lithotomy position. Manual transanal manipulation to extract the object was attempted but again failed. A pliable silicone elastomer cup attached to a labor-and-delivery vacuum extractor was then inserted via the anal canal blindly without endoscopic assistance and was placed around the base of the sphere mass (Fig. 2). Low-pressure suction was applied, and the object was extracted intact using a simultaneous corkscrew motion (Figs. 3, 4).



**Fig. 1.** The rectal foreign body on abdominal plain film.

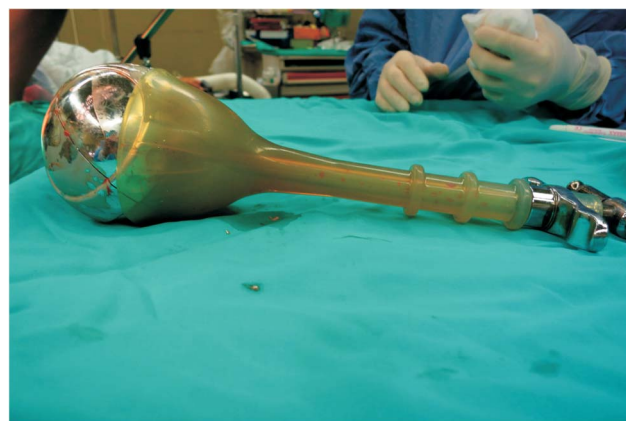
After removal of the foreign body, sigmoidoscopy was performed immediately to check the rectal wall integrity and revealed mucosal edema but intact rectal mucosa. The patient was hospitalized for observation and released after 24 h. Prior to discharge from our hospital, the patient's vital signs were closely observed, and a physical examination was done to evaluate the abdomen.

## Discussion

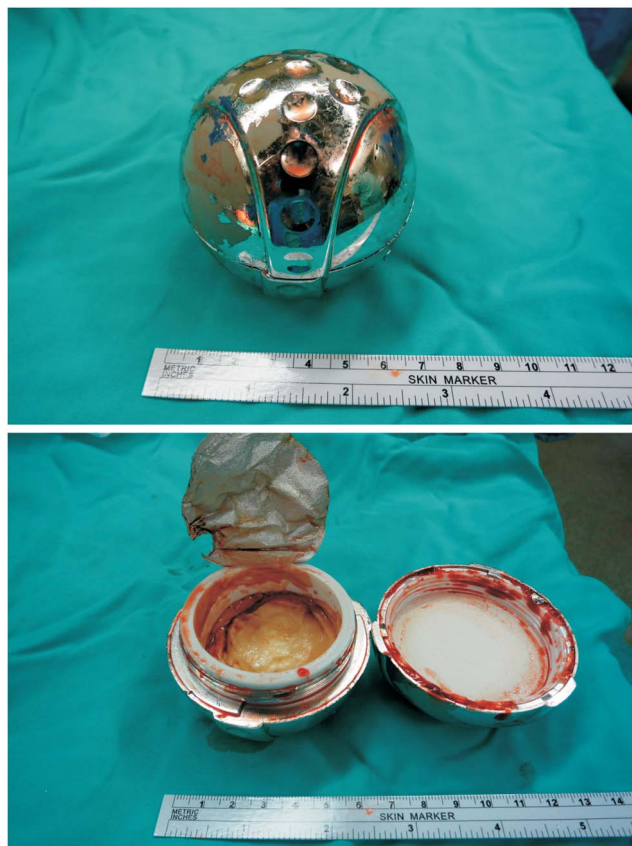
Retained rectal foreign bodies are a common pre-



**Fig. 2.** The patient was placed in the trendelenburg lithotomy position. The soft, pliable silicone elastomer cup was introduced into the anal canal and was applied safely to the smooth surface of the foreign body.



**Fig. 3.** The foreign body was extracted intact using an obstetric vacuum extractor. The silicone elastomer cup placed around the surface of sphere enabled the object to be removed with a simultaneous corkscrew motion.



**Fig. 4.** This spherical foreign body was a kind of cosmetic cream.

sensation worldwide, and various shapes and sizes of rectal foreign bodies have been described in the literature. The majority of rectal foreign bodies inserted by adults are for self-gratification.<sup>3</sup> As such, the objects are likely to be smooth, rounded, cylindrical, or egg-shaped for ease of introduction and removal. The factors that determine whether a rectal foreign body can be removed transanally are the shape, size, and location of the object and the presence or absence of perforation.<sup>4</sup> Clarke et al. divided rectal foreign bodies into low-lying foreign bodies and high-lying foreign bodies. Low-lying foreign bodies are positioned distal to the rectosigmoid junction, whereas high-lying foreign bodies are positioned above the rectosigmoid junction.<sup>5</sup> The first step in the evaluation and management of a patient with a rectal foreign body is to determine whether or not a perforation has occurred. Patients with peritoneal signs or obvious perforation of the rectum or colon wall require emergent surgical

intervention, regardless of the original location of the object.

Low-lying rectal foreign bodies sometimes can be manipulated and extracted in the emergency department, whereas high-lying foreign bodies may pose a challenge and require hospital admission and removal under anesthesia. Most low-lying rectal foreign bodies can be removed manually because of the anatomy of the rectum. High-lying foreign bodies are difficult to extract manually because they may cause involuntarily anal muscle contracture and subsequently make removal of the foreign body difficult without anesthesia. Colonoscopy could be an alternative method in such cases. By use of biopsy forceps or snare, high-lying foreign bodies can be noosed carefully and slowly dragged to the opening of the anus. By squeezing the patient in the chest-knee position with concurrent abdominal manipulation, surgeons can guide foreign bodies so they can pass through the anus more easily; in this manner, the spherical body was successfully removed from the patient by colonoscopy. In general, small-sized objects can be removed either manually or by colonoscopy if no associated injury is noted. However, larger objects may require more effort and some ingenuity to remove. Surgeons should avoid any unnecessary, prolonged attempts to manually remove the foreign body: if repeated attempts have failed, early surgery is indicated.

The obstetric vacuum extractor was first described by Malmstrom in 1954.<sup>6</sup> In obstetrics, the vacuum extractor facilitates vaginal and abdominal delivery by creating 0.8 kg/mL<sup>2</sup> suction. Compared with forceps delivery, the vacuum extractor results in less maternal soft-tissue trauma and anal sphincter injury.<sup>7,8</sup> When used to extract rectal foreign bodies, the soft, pliable silicone elastomer cup can be applied safely to the smooth surface of a foreign body with minimum compressive force. The vacuum extractor is available in most medical centers and is easy to use. In this case, use of a vacuum extractor facilitated safe transanal extraction of an incarcerated spheroid rectal foreign body, thereby avoiding another laparotomy, associated morbidity, and prolonged hospitalization.

Postremoval observation depends on several factors, such as the patient's clinical status, comorbi-

dities, delay in presentation, and whether or not there was any resultant trauma to the rectum or surrounding tissue. Postextraction endoscopy and plain radiographs are highly recommended before discharging any patient who had a foreign body removal.<sup>4,9,10</sup> Even after routine transanal extraction, the authors recommend several hours of close observation with serial abdominal examinations and plain films as indicated. Bleeding from lacerations in the rectal mucosa are generally self-limited, but death following sepsis and multisystem organ failure has been reported. Traumatic disruption of the anal sphincter can result in mild to severe fecal incontinence, depending on the degree of the injury. Attempts at surgical correction of any sphincter injury should be delayed until adequate time has passed to evaluate any resultant defects and clinical symptoms.

## Conclusions

Foreign bodies in the rectum should be managed in a well-organized manner. The vacuum extraction reported here should be considered a safe, useful, and cost-effective adjunct in rectal foreign body extraction.

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病例報告與技術說明

## 藉由真空吸引助產器達到送非手術移除 直腸異物：病例報告

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直腸異物可以通過非手術方法取出。然而，取出具有光滑表面的球體異物在技術上是困難的並且可能需要手術介入。我們使用一種安全的經肛門方式，來移除具有光滑表的球體異體，避免了剖腹探查手術。一位先前有因為直腸異物而接受過剖腹手術的病史的患者，又遭遇另一次的直腸異物嵌入。嘗試過手動移拔除失敗後，我們在患者全身麻醉下，使用婦產科真空吸引助產器經肛門撤出球體異物，避免了剖腹探查術。患者在住院觀察 24 小時後出院。經由肛門使用婦產科真空吸引助產器，提供了一種安全，符合成本效益的方法來除直腸球體異物。

**關鍵詞** 直腸異物、真空吸引助產器。