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Rectal Foreign Bodies: Imaging Assessment and Medicolegal Aspects

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The amount of patients presenting at the emergency hospitals with retained rectal foreign bodies appears recently to have increased. Foreign objects retained in the rectum may result from direct introduction through the anus (more common) or from ingestion. Affected individuals often make ineffective attempts to extract the object themselves, resulting in additional delay of medical care and potentially increasing the risk of complications. The goals of radiological patient assessment are to identify the type of object retained, its location, and the presence of associated complications. Plain film radiographs still play an important role in the assessment of retained rectal foreign bodies.
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Introduction

Presentation at the emergency department with retained rectal foreign bodies is not uncommon, although there are no reliable epidemiological data available.[1] Foreign bodies in the rectum are usually found in the adult population; they can be introduced into the rectum for diagnostic and therapeutic procedures, self-administered treatment, autoeroticism, accidental introduction, and criminal assault.[2-4] Some psychiatric patients or prisoners purposefully conceal sharp objects in their rectum with the intention of harming their carers, fellow patients, prisoners, or guards.[5] There is a male preponderance in published literature.[3,5,6-10] Some authors have reported the male-to-female ratio to be as high as 28:1.[3,5]

A foreign body inside the anorectal area has various causes, which will determine treatment, as will the symptoms and the severity of the anorectal damage.[11]

This review illustrates a range of foreign bodies inserted in the rectum and discusses the role of plain film radiographs and multidetector row computed tomography (MDCT) in the assessment of rectal foreign bodies. Pertinent medicolegal issues are also described.

Pertinent Anatomy

The length of the anal canal, defined as the distance from the upper aspect of the puborectalis sling to the anal verge, is about 4 cm.[12] The outer musculature of the anal canal consists of the puborectalis sling and the external sphincter muscles. These are voluntary striated muscles that are important in maintaining continence, particularly at times of increased intra-abdominal pressure.

The rectum represents the distal-most aspect of the gastrointestinal tract, approximately 15 cm in length, with its proximal portion being located within the peritoneal cavity and the distal aspect extending into an extraperitoneal course.[13]

The rectum is usually considered to extend from the anorectal junction up to a point located 15 cm proximal to the anal verge. The rectosigmoid junction lies at approximately the level of S3. The lower portion of the rectum serves a reservoir function and normally measures up to approximately 4 cm in diameter.

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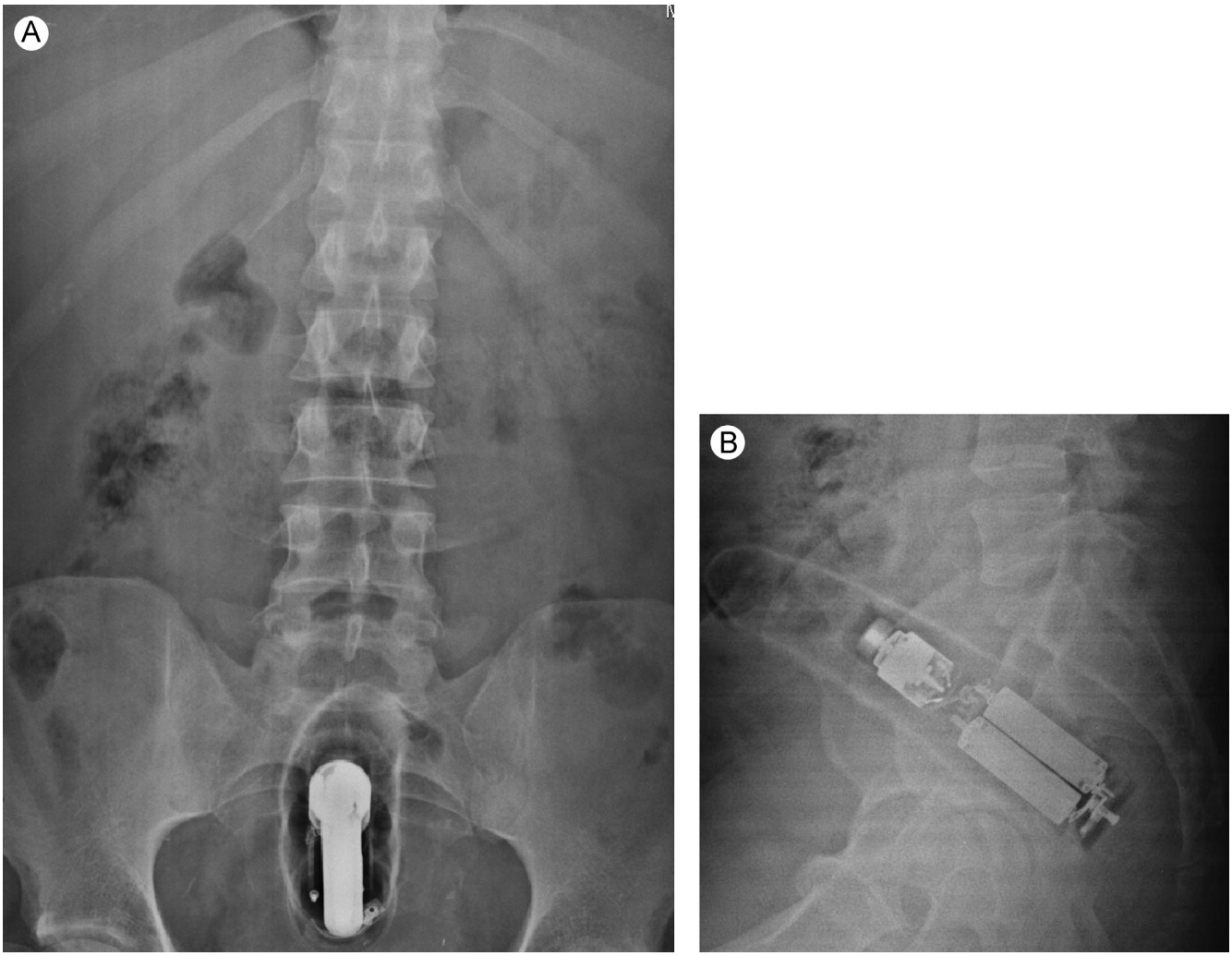

Figure 1 Plain film radiographs (A, frontal radiograph and B, lateral radiograph) of the abdomen and pelvis of a 40-year-old man showing an impacted vibrator in the rectum.

Types of Rectal Foreign Bodies

As with upper gastrointestinal foreign bodies, the types of objects introduced through the anus are unlimited. A useful classification of rectal foreign bodies has been to categorize them as voluntary vs involuntary and sexual vs nonsexual. One of the most common category of rectal foreign bodies is objects that are inserted voluntarily and for sexual stimulation.[14] In fact, autoeroticism has been reported as the most common reason for anally inserted foreign bodies.[7] Objects such as vibrators (Fig. 1), bottles (Figs. 2 and 3), candles, metals (Fig. 4), deodorants (Figs. 5 and 6), screwdrivers (Fig. 7), fruits (Fig. 8), vegetables (carrots, zucchini, and corn cob), stones, wire, toothbrush, jars, and illicit drugs (Fig. 9) are but a few of the retained rectal objects reported.[1,15]

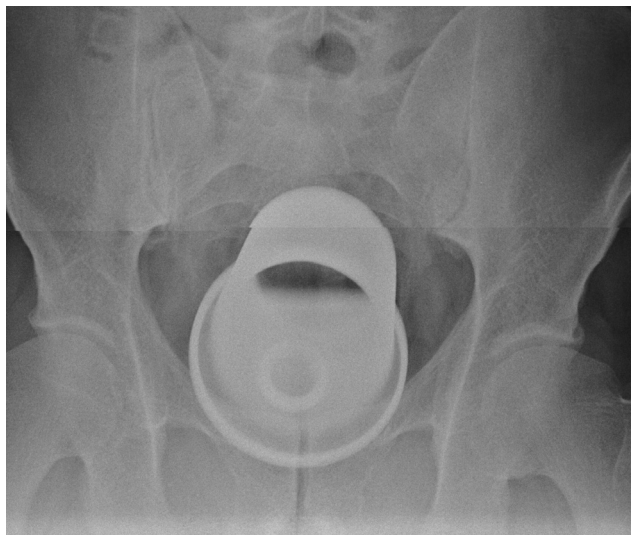

Figure 2 Plain abdominal film showing an impacted scent bottle in the rectum.

Plain Radiographs and CT Evaluation

The diagnosis and management of rectal foreign bodies can be difficult because of shame or embarrassment felt