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Rectal foreign body removal: increasing incidence and cost to the NHS

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ABSTRACT

Introduction Insertion of foreign objects into the rectum is a well-described phenomenon and not an uncommon referral to the general surgeon on call. Although usually not life-threatening, there can be consequences following migration of the object or perforation of the large bowel. This study looks at the incidence of removal of foreign objects from the rectum over the last decade and the financial burden it presents to the NHS.

Methods Hospital Episode Statistics for 2010–2019 were used to calculate the number of rectal foreign bodies that required removal in hospital. Data for age groups and genders have been compared.

Results A total of 3,500 rectal foreign bodies were removed over the course of 9 years. Males accounted for 85.1% of rectal foreign bodies whilst 14.9% were females. This equates to 348 bed-days per annum. Admission peaks were observed in the second and fifth decades of life.

Conclusion This study shows that the incidence of rectal foreign bodies is higher in men and has been increasing over the period studied. Most foreign bodies can be removed trans-anally with the use of anaesthesia, with only a small proportion of patients requiring hospital stay over 24 hours (mean length of stay = 24 hours). Nearly 400 rectal foreign body removals are performed each year with an annual cost of £338,819, illustrating the effect this has on NHS resources.

KEYWORDS

Rectum – Foreign body – Coloproctology – Incidence

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Introduction

Insertion of foreign objects into the anus and rectum is a well-described phenomenon and it is not uncommon for patients to present to the general surgeon on call for their removal. The presence of a foreign body is usually not life-threatening but can be associated with morbidity, especially if the foreign body has migrated proximally or a rectosigmoid perforation has occurred.[1] Clinical experience shows that the vast majority of patients with a rectal foreign body who present to hospital require extraction under general anaesthesia.

Hospital Episode Statistics (HES) are a dataset containing records of all patients admitted to NHS hospitals in England and include what procedures have been performed.[2] Private hospitals are not included, although private patients treated in NHS hospitals are. The database does not give specific individual information on patient admissions but provides an overview of current surgical rates in England. The data on 'main procedures and interventions' are subdivided into four-character OPCS-4 codes and statistics related to them. The HES data are limited by data entry errors as they rely on the correct coding of all operative procedures. The primary aim of this study was to identify the number of procedures performed in adults and determine trends over the study period. The secondary aim was to analyse whether certain age groups are more likely to present to hospital seeking medical guidance.

Methods

'Main procedures and interventions' data for the available years (2010–2019) were downloaded in Microsoft Excel format from the Department of Health records.[2] The operative (OPCS-4) code H44.1 relating to 'manual removal of foreign body from rectum' was considered and corresponding data collected. The data on bed-days were also gathered. Finished consultant episode (FCE) bed-days is the total number of individual days spent in the hospital under a specified consultant. The data available from the Department of Health records were collected and divided by age groups and gender. Costing data were taken from the NHS England National Tariff Payment System workbook with the code FF36Z.[3] It was assumed that all HES data were coded and entered correctly. No other operative codes were considered therefore it is possible that some cases were missed if coded as 'repair of rectum' or 'colostomy'. HES data are based on the number of hospital episodes rather than individuals. As a result, the data provided cannot be interpreted as a count of people presenting, because some patients may have presented more than once.

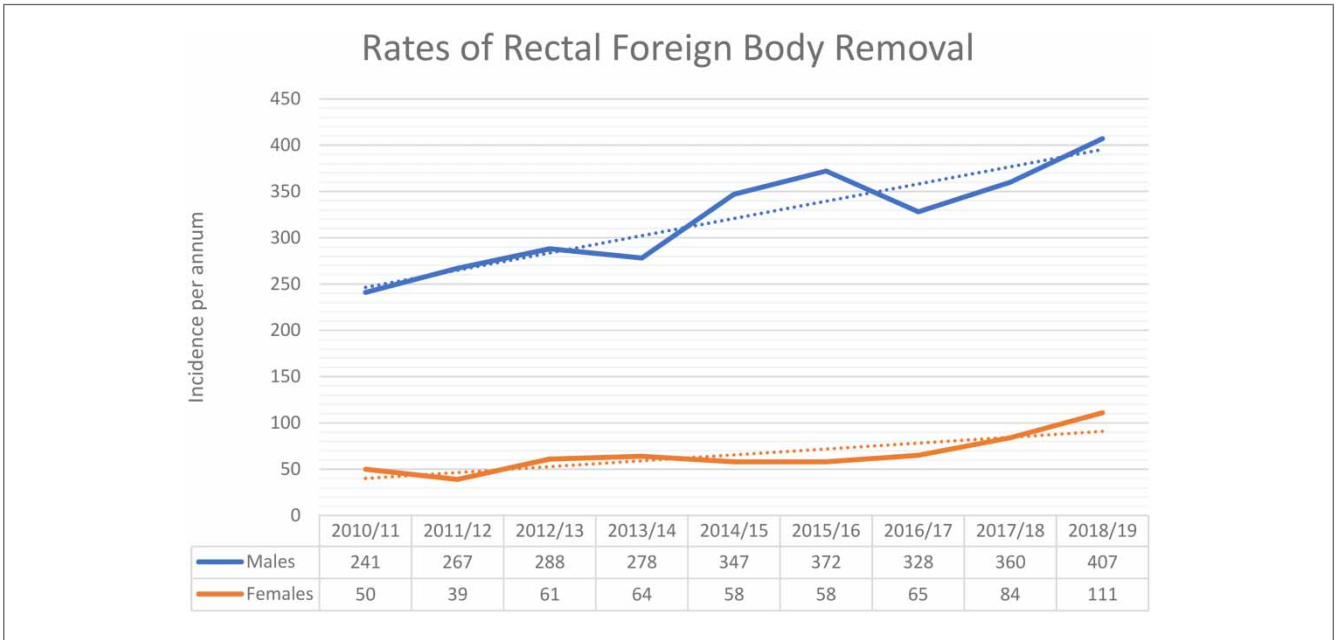
Regional variations cannot be identified from the available HES data.

Results

Between 2010 and 2019, 3,500 foreign bodies were removed from the rectums of patients. Of these 2,888 (85.1%) were in adult males and 501 (14.9%) in adult females (Figure 1). This equates to 389 foreign bodies removed per annum, requiring 348 bed-days. Over the course of 9 years, 3,131 bed-days were used.

The cost of these procedures to NHS England is conservatively estimated at £338,819 per annum, equating to approximately £3,049,371 over the last decade.[3]

Sub-analysis of age group data from 2010–2011 to 2018–2019 revealed a peak in patients in their second and fifth decades of life (Figure 2). A small peak was noted in children between the ages of 10 and 14.



	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Males	241	267	288	278	347	372	328	360	407
Females	50	39	61	64	58	58	65	84	111

Figure 1 Rates of rectal foreign body removal in the UK, 2010–2019

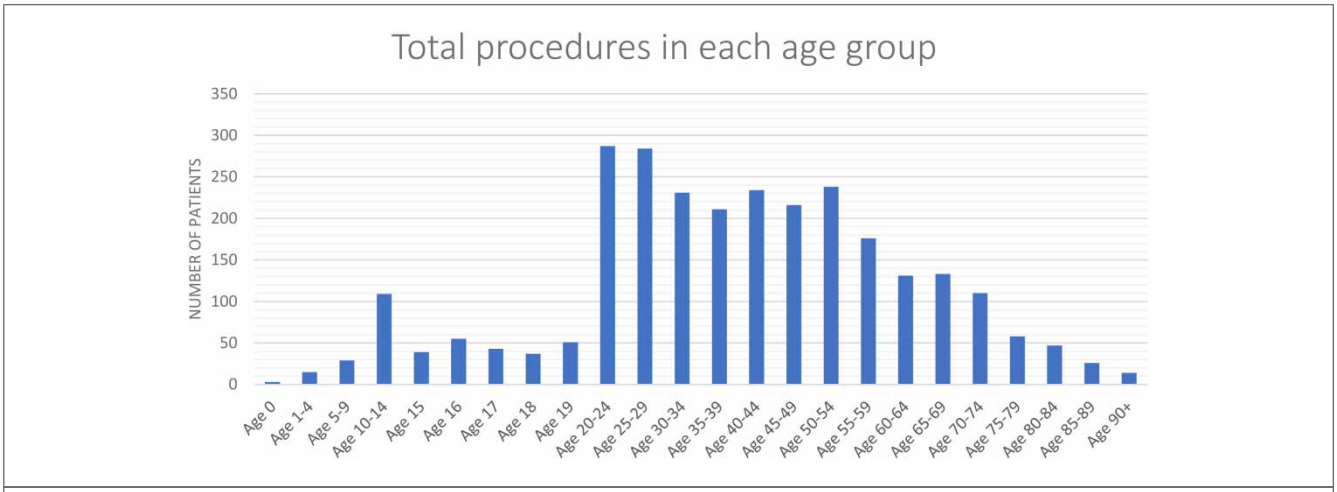


Figure 2 Number of rectal foreign body episodes in the UK according to age group, 2010–2019

Discussion

Foreign bodies in the rectum are most commonly seen in association with anal eroticism. The insertion of foreign bodies may be associated with serious injuries. Rectal perforation and peritonitis are major complications of sharp foreign bodies and can present with rectal bleeding and hypovolemic shock.[4,5] Forceful anal penetration of foreign objects can cause abrasive trauma, thrombosed haemorrhoids, lacerations and pain.[6] Sohn *et al* documented rectal perforation secondary to the insertion of a fist into the rectum during sexual intercourse.[7]

Over 3,500 foreign bodies have been removed from the rectums of patients in the UK in a decade. This has resulted in approximately 348 bed-days per annum, as well as operating theatre costs, etc. Both males and females are likely to seek help for a rectal foreign body, with males accounting for 82.5% of all foreign body cases that seek hospital treatment. This ratio is similar to that reported in the international literature.[8,9]

Sub-analysis of age group data between 2010–2011 and 2018–2019 reveals that the number of foreign body episodes is spread across all age groups. However, adults aged 20–24, 25–29 and 50–54 years are most likely to present with a foreign body in the rectum. The highest incidence of 287 cases was noted in adults aged 20–24 years, followed by adults aged 25–29 years. A total of 238 cases were noted in adults aged 50–54; 109 cases were noted in late childhood (ages 10–14), which could be related to childhood experimentation. However, abuse cannot be excluded in these patients.

Historically, the perception of anorectal eroticism has varied amongst evolving civilisations. In the Middle Ages, rectal eroticism was punishable by death by burning.[10] It is believed that King Edward II, a monarch whose reign has been associated with various scandals due to his sexuality and his kingship, met his unfortunate death due to his variation from the contemporary gender norms. The mysterious and brutal end to his reign and life is a chapter that is complicated by conspiracy theories in English royalty. Historians believe that he was murdered at Berkeley Castle in 1327 by insertion of a red-hot poker via the rectum to his bowels, thought to be linked to his possible homosexuality.[11] It is speculated that he died due to the complications that came thereafter. However, conspiracy theorists believe that he did not die in 1327 and managed to escape from the castle, with help, to live the remainder of his life in Europe.[11]

Whilst anal intercourse was practised by both ancient Greek and Roman civilisations, it was condemned in the biblical era. In the 21st century, various epidemiological studies showed that it was common practice prevalent in both homosexual and heterosexual populations, and that people were learning to let go of the certain 'taboo' that comes with anal penetration.[12] Our study shows a steady increase over the past decade in patients presenting to the emergency department with a presenting complaint of a foreign body in the rectum. One could speculate that this may be related to the ready availability of both pornography on the internet and a myriad of sex toys.

The occurrence of foreign bodies in the rectum is generally attributed to sexual gratification or non-sexual purposes such as body packing of illicit drugs voluntarily or under duress.[13] Other ways in which foreign bodies can enter the rectum may be accidental, ingestion or iatrogenic.[14,15] Objects may be expelled naturally or extracted digitally in the emergency department, but extraction usually requires the complete relaxation of the anal sphincter and abdominal wall, which is only achieved under general anaesthesia in the operating room. However, extraction of these foreign bodies under anaesthesia presents a different set of risks.[16] If endoscopic or manual extraction is unsuccessful, or a rectosigmoid perforation has occurred, a laparotomy is necessary. The patient may need a colostomy, but this decision depends on various factors.[8] Extreme care must be taken during removal of the foreign body to avoid trauma such as lacerations to the anal canal and sphincters, the risk of which varies depending on the object being retrieved and the method of retrieval.[15,17] Clinical experience dictates that bimanual palpation with deep relaxation is a useful technique to manipulate a foreign object that has migrated proximally down into the rectum. Relaxation of sphincters allows for objects to be removed successfully causing the least trauma to the sphincters and rectum. It is good practice to have a variety of instruments at hand and plunging into the anal canal with sharp instruments must be avoided.

What has been gleaned about rectal foreign bodies from the available national dataset is that there is a bimodal pattern of behaviour centred around the second and fifth decades of life, with a fixed gender predisposition towards men. This suggests there may be different drivers in these age groups, but further analysis of motivation, including degree of recidivism, is not possible. In addition, there are direct healthcare costs (approximately £3,049,371 over a decade), as well as the opportunity cost of theatre time wasted in managing this non-medical condition. Further targeted data collection at the regional or national level to determine the aetiology of such behaviour seems necessary to understand this issue further. This would help in determining the rates of stoma formation, laparotomy and rectal repairs secondary to perforations. It is also important to promote awareness regarding the consequences of ano-erotic stimulation by foreign body insertion.

Factors that appear relevant to collect data on include the motivations these individuals have, and ideally measuring whether such incidents are repetitive. It may reveal whether this is predominantly behavioural pathology, misadventure or exploratory sexual behaviour, which would respond better to different strategies, rather than a blanket approach.

Although it is unlikely that we can eliminate this behaviour completely, attempting to reverse its trajectory of steady increase is both of public health and economic concern. Surgeons are likely to encounter a small proportion of insertion events gone awry, and are

not in a position to attempt to address the root causes. Further work to ascertain aetiology, followed by a more multidisciplinary follow-up following discharge, may be required in the future.

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