

MDCT in the diagnosis of small-bowel obstruction by a retained surgical swab

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Gossypiboma (retained surgical swab) is a rare occurrence secondary to a previous open surgical procedure. The incidence has been estimated at between 1 in 100 to 5 000 surgical procedures.¹

Case report

A middle-aged man presented to the outpatient clinic, complaining of a 2-year history of abdominal pain. His attempts to seek assistance at the local clinic as well as 2 previous visits to our hospital had yielded no relief from the symptoms. He had undergone an exploratory laparotomy after a motor vehicle accident 3 years previously. Further questioning also revealed altered bowel habit.

For unknown reasons, the recommended imaging guidelines, which include plain radiographs and ultrasound as first-line investigations, were not requested, and the patient was referred for an abdomino-pelvic CT scan. Review of the scout image (Fig. 1) revealed a radio-dense linear foreign body in the right iliac fossa. Coronal reformats (Fig. 2) demonstrated the level of the bowel obstruction – an uncommon complication and seen here as a result of the intra-luminal position of the retained swab. An axial image (Fig. 3) confirmed that the linear density was within a dilated small bowel loop in the right flank. There were also matted loops of small bowel in the right upper quadrant with a markedly reduced calibre and locules of free fluid.

At laparotomy, an intra-abdominal swab was found within the terminal ileum. A fistulous communication was also identified between the ileum and ascending colon.

Discussion

The term 'gossypiboma' (or textiloma) is derived from *gossypium* (Latin) meaning cotton, and *boma*, a Swahili word denoting a place of concealment. It is also known as a retained swab.

The presentation of a gossypiboma is variable. Most patients present soon after surgery with an inflammatory-type picture related to abscess formation and sepsis. An estimated 26%, however, remain undetected for more than 60 days.² The delayed presentation is typically characterised by a mass, abdominal pain or bowel obstruction (as in this case). Factors associated with an increased risk of a retained foreign body are long procedures, emergency procedures, increased BMI and unexpected changes in a planned surgery.² A count of all surgical textiles and instruments must always be done.³

All surgical textiles used intra-operatively are impregnated with a radio-opaque marker for easy identification on plain X-ray.

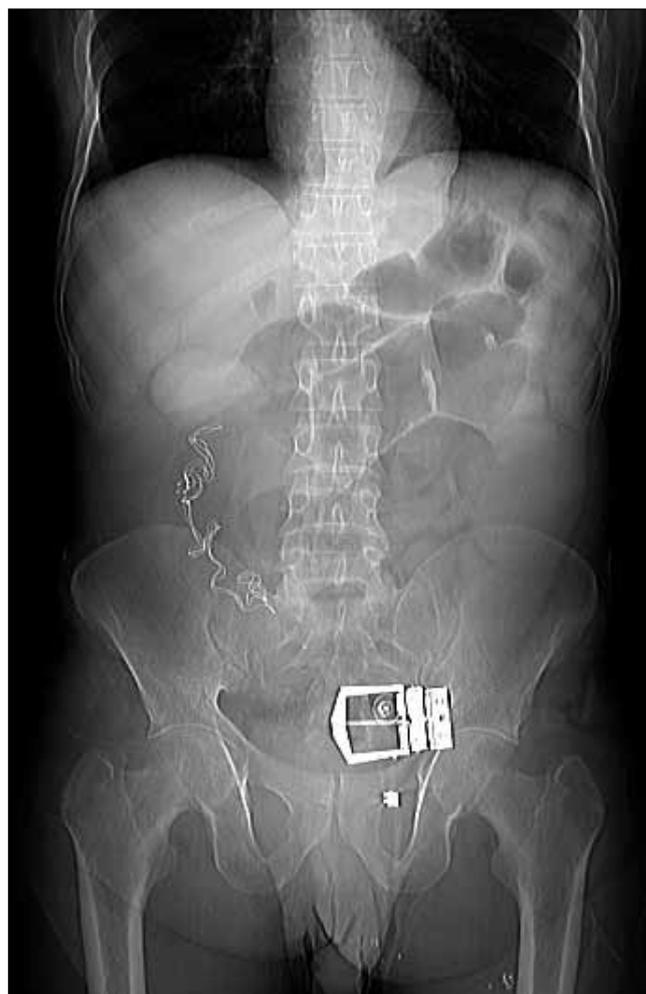


Fig. 1. CT scout view revealed a linear radio-opaque foreign body as well as dilated small-bowel loops suggestive of bowel obstruction.

Diagnostic radiology is the cornerstone of diagnosis and assessment of potential complications, as well as the planning of surgery. Abdominal radiographs offer the first possibility for suspecting a gossypiboma; detailed evaluation of each image is important as there are also potential medico-legal implications.

Multi-detector CT (MDCT) should be reserved as an adjunct modality as it increases the sensitivity of identifying radio-opaque markers. A huge advantage of this modality is the assessment of complications such as abscess formation, fistula

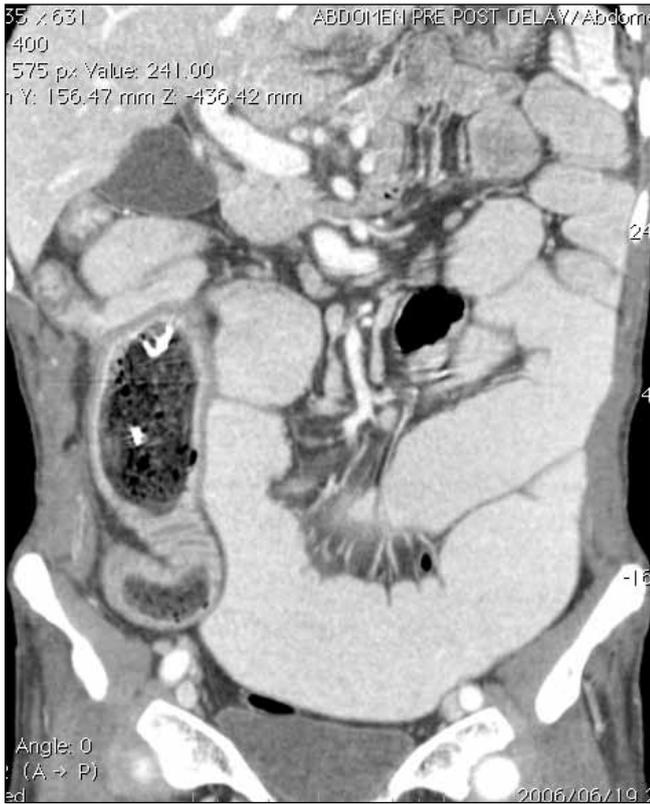


Fig. 2. Coronal reformat through the abdomen demonstrating the level and degree of calibre change of small bowel with the proximally dilated bowel. Note the mottled appearance of the swab causing an intraluminal obstruction.

and bowel perforation. The exact location and position of the foreign body is identified (Fig. 3 demonstrates the swab in the lumen of the small bowel). Coronal reformats demonstrate the level of the bowel obstruction (Fig. 2) – an uncommon complication and seen here owing to the intraluminal position of the retained swab.

Ultrasound examination may also be used, and usually reveals an echogenic focus with posterior acoustic shadowing, but this was not performed as a preliminary examination in our patient.



Fig. 3. Axial CT image post IV as well as oral contrast administration confirm the unique intraluminal position of the radio-opaque marker of the surgical swab. There are markedly dilated small-bowel loops secondary to the obstruction.

Conclusion

Retained surgical swab from abdominal surgery is rare but does occur and may cause the patient pain and complications some time after the surgical procedure. Abdominal radiography is the basis of diagnosis. Both a high index of suspicion when there is a history of previous surgery and also imaging expertise are important for the diagnostic radiologist. Even though CT is an advanced imaging tool that can also demonstrate complications, plain radiographs and ultrasound are more cost-effective options that should be considered as primary imaging options. Unique aspects in our patient are the delayed presentation of 3 years, the intraluminal position of the swab, and the presenting bowel obstruction.

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