CASE REPORT

Lead shot incarceration in appendix: an unusual cause of appendicular foreign body

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SUMMARY

A previously fit man was investigated for right-sided abdominal pain and an appendicular foreign body (FB) caused by ingested lead shot was found. He had associated urinary tract infection causing his symptoms and hence was treated conservatively. We present this rare case, followed by discussion of the causes, investigations, clinical significance and management of appendicular FBs.

BACKGROUND

While appendicitis is one of the commonest surgical conditions needing surgery, appendicular foreign body (FB) is a rare aetiological cause of appendicitis. It is important for the clinicians to be aware of this cause for timely appropriate management. We would like to present our experience with such a particular case.

CASE PRESENTATION

A 45-year-old man was admitted in the surgical ward for right-sided abdominal pain associated with spiking temperature. On clinical examination, he was tender and guarded over right renal angle and right iliac fossa.

INVESTIGATIONS

Blood tests showed raised white cell count (13.7) and C reactive protein (43), while his urine showed nitrites on bedside test (Dipstick) suggestive of urinary tract infection (UTI); culture of the mid-stream specimen of urine confirmed the UTI.

He underwent CT scan of abdomen and pelvis to rule out other intra-abdominal pathology like appendicitis or cholecystitis. Interestingly this showed a metallic object incarcerated in the body of appendix with no features of appendicitis (figures 1–3). The patient confirmed that he used to eat game, and the last time he ate game was nearly 10 years ago. Most likely a pellet from the shot was lodged in the appendix. His serum-lead levels were within normal limits (0.3 µg/dl).

DIFFERENTIAL DIAGNOSIS

UTI, appendicitis and cholecystitis.

TREATMENT

Intravenous antibiotics for UTI.

OUTCOME AND FOLLOW-UP

He responded well to antibiotics for his UTI and was discharged with plans for observation alone of his appendicular FB.

Figure 1 Coronal view.

DISCUSSION

FB of the appendix were reported in literature, but rare in occurrence. Review of cases reported over a 100-year period documented only 256 such cases.¹ Various artefacts including seeds,² dental drill bits,³ tongue studs,⁴ needle,⁵ screws, pins, etc were found to be incarcerated in appendix. The incidence was much commoner in earlier decades where accidental ingestion used to happen in certain occupations like tailoring.

The FB might be detected incidentally like our case, or may cause symptoms and complications depending on the physical and chemical nature of

Figure 2 Transverse view.

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Figure 3 Sagittal view.

FB. Many cases were reported where the unsuspected FB was identified in the appendectomy specimen. There is more than one mechanism through which appendicular FB can cause trouble. Blockage of the narrow appendicular lumen with the FB may lead to vascular congestion with subsequent ischaemic necrosis and infection of appendix. Small FB may act like a focus for faecolith formation, which could subsequently cause mechanical blockage of lumen and delayed appendicitis.⁶ Another mechanism is the perforation of the appendix caused by sharp objects, and subsequent infection. A review has shown that the risk of sharp appendicular FBs becoming symptomatic is 93%, with inflammation in 88% and perforation in 70%. Even round, smooth objects become symptomatic in 66%.⁷ Lead toxicity (defined as blood lead level $\geq 10 \mu\text{g/dl}$ ⁸) has been reported due to systemic absorption from incarcerated FB with high lead.⁹

x-Rays or CT imaging of the abdomen reveal appendicular FB in majority of the cases. If a metallic FB is identified in the right side of abdomen but its location is not confirmed with preoperative investigations, fluoroscopy during surgery would be useful.

There is no universal agreement among clinicians of management of appendicular FBs. Observation may suffice in asymptomatic cases with small FB like ours. If the FBs are

symptomatic or have potential to cause complications, an attempt could be made to electively retrieve the FB through minimally invasive routes. Colonoscopic retrieval was reported. If this fails or not available, elective appendectomy would result in lesser morbidity compared with an acute situation.

In patients with appendicitis or lead toxicity, appendectomy would be the procedure of choice. Laparoscopic route would be preferable due to less pain and shorted hospital stay compared with open route.¹⁰

Learning points

- ▶ Appendicular foreign bodies are rare but interesting phenomena.
- ▶ Timely identification would help in management through observation, colonoscopic retrieval or minimally invasive surgery with minimal morbidity.
- ▶ Follow-up of asymptomatic patients or serial serology for lead toxicity is recommended.

Contributors We all equally contributed to the writing up of case report and literature review.

Competing interests None.

Patient consent Obtained.

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