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Case report

The unusual cause of recurrent abdominal pain in an 11-year-old boy

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Abstract

The case of an 11-year-old boy with recurrent abdominal pain is presented. Physiological findings were found normal during a clinical investigation, as well as many laboratory tests, ultrasonography and CT of abdomen. Only a high level of sedimentation rate and the focus of increased activity in the sacral region on scintigraphy using ^{99m}Tc-HMPAO (hexamethypropyleneaminooxime) labelled leukocytes were found. The other findings on bone scintigraphy, X-ray and MRI led to a deflection of the correct diagnosis. The real culprit proved to be an ingested foreign body (a piece of a wooden skewer) that the patient failed to reveal.

Key words: recurrent abdominal pain, foreign body ingestion, scintigraphy using ^{99m}Tc-HMPAO labelled leukocytes, childhood

Introduction

Recurrent abdominal pains are one of the most frequent causes of medical examination in children. The difficulties in their diagnosis are well known, but completing examinations contribute to determination of diagnosis. Foreign bodies in the gastrointestinal tract represent a separate chapter of abdominal pain. The foreign bodies are usually encountered in childhood (80%), particularly in small children, not often in older children. Most foreign bodies pass through the GIT spontaneously and endoscopic extraction is necessary in 10–20% of all cases [1]. Foreign bodies larger than 2 × 5 cm tend to remain in the stomach and their penetration into duodenum is difficult [2]. Blunt foreign objects, which pass though the oesophagus, are eliminated by *viae naturales* over many days [3]. The risk of intestinal perforation caused by a pointed foreign object is often in the duodenojejunal or ileocecal region [3]. The authors encountered an interesting case report of chronic abdominal pains in an 11-year-old boy.

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A case report

An 11-year-old boy was referred with a history of a month-long abdominal pain without vomiting or diarrhoea. Clinical investigation yielded normal physiological findings. Among haematological, serological, biochemical and microbiological tests, only a high level of sedimentation rate was considered to be significant. Abdominal ultrasonography was without pathological findings. Scintigraphy using ^{99m}Tc-HMPAO (hexamethylpropyleneaminooxime) labelled leukocytes was performed for evaluation suggesting an inflammatory bowel disease. An early planar abdominal image (30 minutes after administration of 350 MBq ^{99m}Tc-HM-PAO labelled leukocytes) showed a focus of increased activity in the sacral region (Figure 1). Single photon emission computer tomography (SPECT) of the abdomen taken 1.5 hours after administration of ^{99m}Tc-HMPAO labelled leukocytes provided a better record of pathological accumulation of labelled leukocytes in the sacral regions on the left side (Figure 2). The following computer tomography of the abdomen showed normal findings. Bone scintigraphy using ^{99m}Tc-HDP (hydroxydiphosphonate) was performed to pinpoint the leukocyte accumulation in the sacral region and, thus, to help localize focus in either bone or soft tissue. The pelvic bones had a physiological radiopharmaceutical distribution but a new pathological focus of increased activity was found in the proximal third of the left tibia (Figure 3). The lesion was also detected by MRI. Based on orthopaedic investigation, X-ray and MRI (Figure 4) findings of the left tibia, we concluded that the lesion was caused by a healed stress fracture. The abdominal

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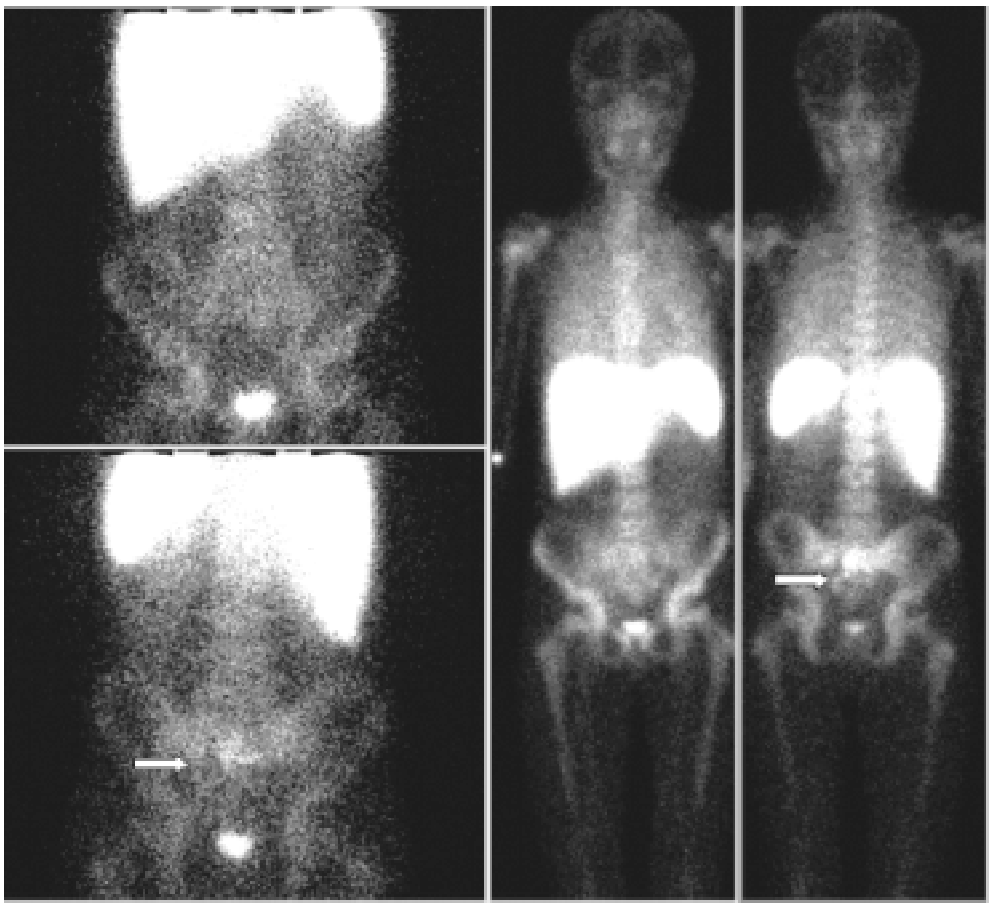

Figure 1. Anterior and posterior view of early planar abdominal image on the left (30 minutes after administration of 350 MBq ^{99m}Tc HMPAO labelled leukocytes) and whole body scintigraphy on the right (3 hours after administration ^{99m}Tc HMPAO labelled leukocytes) showed the focus of increased activity in the sacral region.

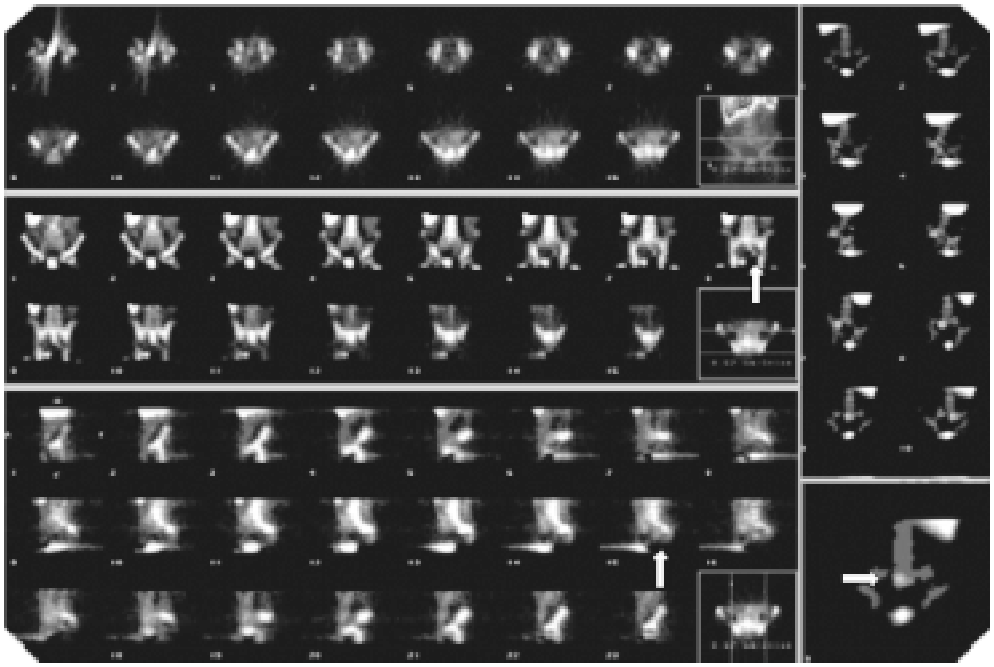

Figure 2. The single photon emission computer tomography /SPECT/ of abdomen taken 1.5 hours after administration ^{99m}Tc-HMPAO labelled leukocytes better recorded pathological accumulation of labelled leukocytes in the sacral regions on the left side.

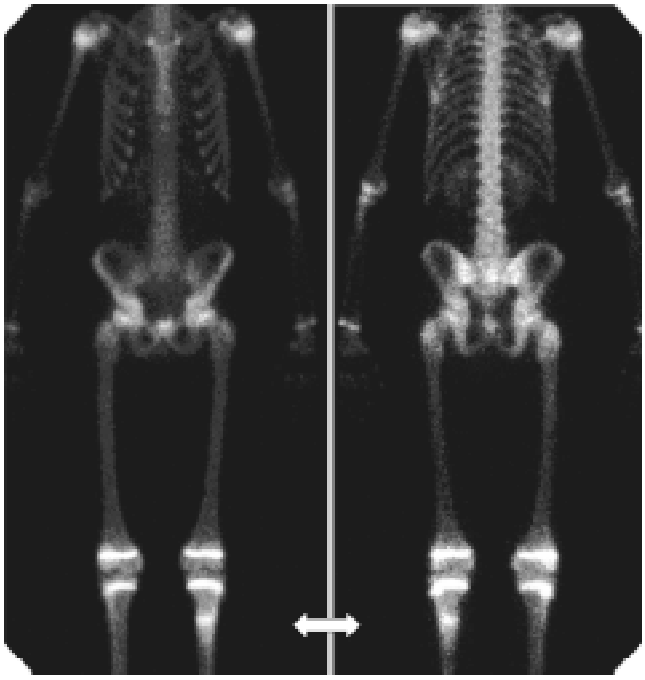

Figure 3. Bone scintigraphy using ^{99m}Tc-HDP with pathological focus of increased activity in the proximal third of the left tibia.

Figure 4. MRI of left tibia revealing the healed stress fracture.

pain continued. For this reason, a delayed colonoscopy was performed with the surprise discovery of a foreign body in the sigmoid, 15–20 cm from the anus. Its extraction was not successful during colonoscopy. Non-specific inflammatory changes were found on histology tissue samples (Figure 5). The culprit was

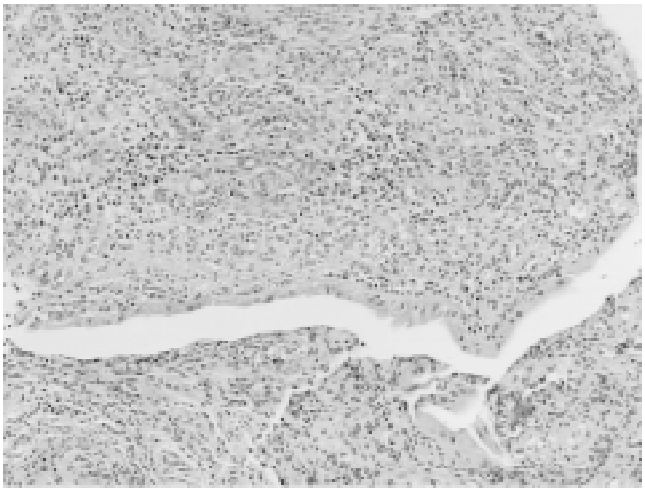

Figure 5. Non-specific inflammatory changes were found on histological samples of bowel tissue.

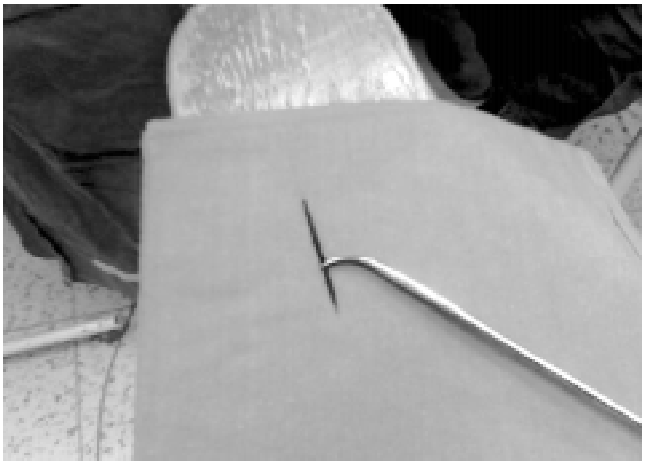

Figure 6. The foreign body — the skewer after the surgical extraction.

a pointed wooden piece of skewer, 8 cm long, which had to be removed surgically (Figure 6).

Discussion

An interesting aspect of this case is the fact that the foreign object, a pointed wooden skewer approx. Eight cm long, had passed as far as the sigmoid region without any clinical symptoms, stopping and impacting there. The object would have been expected to be in the duodenojejunal or ileocecal region. We even considered the possibility that the foreign body could get into the bowel through the anus with the assistance of another person. During a psychological investigation the patient admitted that he had wrapped the piece of a wooden skewer in a chewing gum and swallowed it a month

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before he reported the first clinical symptoms. He never associated the abdominal pain with the ingestion of the foreign object.

Conclusion

Only scintigraphy using ^{99m}Tc-HMPAO labelled leukocytes showed the focus of increased activity in localization of the impacted foreign body in the bowel, while abdominal ultrasonography and CT were negative. The other findings by bone scintigraphy, X-ray and MRI findings actually proved misleading in arriving at the correct diagnosis. The real culprit proved to be an ingested foreign body that the patient failed to disclose.

References

1. Bailey H. Physical signs. 17th ed. Hazell Watson and Viney Ltd., Aylesbury, Bucks, United Kingdom 1996.
2. Hoffenberg EJ, Rothenberg SS, Bensard D. Outcome after exploratory laparoscopy for unexplained abdominal pain in childhood. Arch Pediatr Adolesc Med 1997; 151: 991–993.
3. Paul RI, Christofel KK, Binns HJ et al. Foreign body ingestions in children: Risk of complication varies with site of initial health care contact. Pediatric Practice Research Group. Pediatrics 2003; 91: 121–136.