

## Unusual cause of right iliac fossa pain: sigmoid perforation due to ingested rabbit bone. Case report

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**SUMMARY:** Unusual cause of right iliac fossa pain: sigmoid perforation due to ingested rabbit bone. Case report.

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*Disorders of an organ not usually found in the right iliac fossa, such as the sigmoid colon, are an uncommon cause of right iliac fossa pain.*

*We present a case of right iliac fossa pain caused by a sigmoid perforation due to involuntary ingestion of a rabbit bone, and describe the main features of this condition.*

**RIASSUNTO:** Una causa insolita di dolore in fossa iliaca destra: perforazione del sigma da ingestione di osso di coniglio. Case report.

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*Patologie di organi non localizzati tipicamente in fossa iliaca destra, come il sigma, sono causa insolita di dolore in tale zona.*

*Presentiamo un caso di dolore in fossa iliaca destra causato da una perforazione del sigma dovuta all'ingestione involontaria di un osso di coniglio e descriviamo le principali caratteristiche di questo quadro patologico.*

**KEY WORDS:** Sigmoid perforation - Rabbit bone - Right abdominal pain.  
Perforazione del sigma - Osso di coniglio - Dolore fossa iliaca destra.

### Introduction

Various foreign bodies cause gastrointestinal perforations (1). They are not uncommon in the elderly (denture wearers), alcoholics, children and people with learning difficulties. Most patients do not remember swallowing the foreign body, which is discovered either on imaging or more frequently during surgery. Symptoms vary with the site of the perforation, and the clinical presentation can mimic different conditions, such as acute appendicitis, diverticulitis, cecal tumors and perforated peptic ulcer.

We report a case in which a sigmoid perforation due to the ingestion of a rabbit bone presented with symp-

toms and signs of acute appendicitis, and review the literature concerning this issue.

### Case report

A 55 year-old woman came to the Emergency Room with right lower quadrant abdominal pain which had started 12 hours earlier. Her medical history included dilated cardiomyopathy and hospitalization (10 years previously) for pelvic inflammatory disease. She had a temperature of 38 °C and the pain was associated with nausea and vomiting. Laboratory tests revealed leukocytosis ( $14.79 \times 10^3/\text{mm}^3$ ) with marked neutrophilia (86.6%) and an elevated C-reactive protein level (1.4 mg/dL).

The patient was overweight. Her abdomen was tender in the right iliac fossa and hypogastrium, and a rebound tenderness was present in the right iliac fossa. No bowel sound was present. Rectal exploration was negative, although particularly painful. A gynecological examination was requested in the Emergency Room due to the patient's medical history. Transvaginal ultrasound showed only a moderate amount of fluid in the pelvis and in the right iliac fossa, and no gynecological disease was detected. A plain abdominal X-ray was negative. Abdominal ultrasound confirmed the free fluid in the pelvis and in the right iliac fossa.

The patient was admitted to the operating room with a diagnosis of acute abdomen, and emergency surgery was scheduled. A diagnostic laparoscopy was not performed due to the increased anesthesiological

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Fig. 1 - Intraoperative finding of a small animal bone perforating the sigma.

risk associated with the dilated cardiomyopathy, and as the main clinical suspicion was acute appendicitis the operation began with a McBurney incision. Laparotomy revealed a large amount of purulent liquid, moderately inflamed appendix, and sigmoid colon with a diverticulum perforated by a bone (Fig. 1). The patient underwent mid-line laparotomy, Hartmann procedure and appendectomy. Pathological examination of the specimen showed peritonitis and sigmoid diverticulitis with perforation. Examination of the appendix showed chronic inflammation with fibrinous periappendicitis.

The postoperative course was uneventful and the patient was discharged 7 days after surgery. When questioned again she remembered having eaten rabbit meat four days before the hospital admission. Three months after the Hartmann procedure she was reoperated to restore intestinal continuity. She recovered well from the second operation and is now fit and healthy.

## Discussion

Acute appendicitis is the leading cause of right lower quadrant (RLQ) abdominal pain. It is well known that several diseases, such as ileitis terminalis, cecal tumor, and solitary cecal diverticulum, can mimic appendicitis. Gynecological diseases such as acute salpingitis may also cause RLQ pain (2). It can also be due to an organ not usually located in the right iliac fossa, such as the sigmoid colon, whose extreme mobility can cause it to move into the right iliac fossa, giving rise to symptoms correlated with acute inflammation. The most common sigmoid disease that can cause RLQ pain is diverticulitis, while sigmoid perforation due to cancer or a foreign body is less frequent (3).

The most common objects accidentally swallowed are dentures, fish or chicken bones, and toothpicks. These

normally pass through the gastrointestinal tract without any consequences (4), with perforation requiring surgery occurring in only 5% of cases. A preoperative diagnosis of foreign body ingestion is often uncertain; voluntary swallowing of one or more foreign bodies is relatively rare and is normally done by prisoners and attempted suicides, whereas most patients do not realize they have swallowed a foreign body.

Gastrointestinal (GI) perforations by a foreign body are rarely diagnosed preoperatively because the clinical symptoms are usually non-specific and mimic other surgical conditions, such as appendicitis, as in our case, or diverticulitis (5). There is a greater risk of perforation in the elderly and people wearing orthodontic appliances and dentures, since these devices cover the most tactile area of the palate and therefore swallowing of the foreign body goes unnoticed. There is also a high risk of perforation in cases of previous bowel disease and in alcoholic and psychiatric patients. Overeating and rapid eating may be contributing factors to the ingestion of small bones from chicken or other animals.

The mean time from ingestion to any perforation is 10.4 days (6); in our case the symptoms developed 4 days after ingestion. The risk of perforation is related to the length and the sharpness of the object (7). Most perforations occur at the narrowing and angulations of the GI tract (8) (i.e., ileocecal valve and rectosigmoid junction). Earlier case reports of traumatic perforation of the sigmoid colon stressed the existence of a background condition such as diverticular disease, cancer or fistula (9,10). In our case, the rabbit bone perforated the sigmoid colon, which had been affected by diverticular disease. Clinically, our patient presented acute abdomen with suspected appendicitis, even though the perforation involved the sigmoid colon. Assa et al. described the sigmoid colon as an often redundant organ with a tendency to migrate to the right side of the abdomen, as in our case (3).

The definitive diagnosis in this patient was reached by surgery. This is in accordance with literature reports, in which the diagnosis of intestinal perforation by foreign body was reached during laparotomy in more than 90% of cases (6,11-12). All cases involved abdominal contamination and 66.7% had diffuse peritonitis (6).

Laparoscopy has been widely accepted among surgeons for the diagnosis and management of acute abdominal conditions. In our case it was not possible to use this procedure due to the patient's past medical history, so we missed the opportunity for a preoperative diagnosis.

Although imaging can be nonspecific, the identification of a small bone with an associated mass or extraluminal collection of gas in patients with clinical sign of peritonitis, mechanical bowel obstruction, or pneumoperitoneum strongly suggests the diagnosis (8,13-14). Ripolles et al. reviewed the diseases that can simulate an

acute appendicitis on ultrasound, concluding that sigmoid inflammation and perforation generally are very different to acute appendicitis. However, in cases in which an inflamed right sigmoid colon presents with RLQ abdominal pain, mural thickening of the sigmoid colon is often seen. In doubtful cases, a CT scan will usually confirm the diagnosis and will also demonstrate the presence of any abscess (15).

Depending on the extent of the perforation and its anatomical site, as well as on the presence of diffuse or circumscribed peritonitis, the treatment of foreign body perforation will vary from simple suturing, with or without a protective colostomy, to the Hartmann procedure (16).

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## Conclusion

We described a sigmoid perforation due to an ingested rabbit bone in a case in which the clinical and laboratory findings, associated with doubtful imaging and the inability to perform an explorative laparoscopy, led us to misdiagnosis. This situation is very common, as it is often difficult to distinguish clinically among the pathologic conditions that may cause RLQ pain. It should be borne in mind, however, that the incidence of acute appendicitis decreases with age, so a non-appendiceal disease should be suspected in an elderly patient presenting with right iliac fossa pain; in such cases a diagnostic laparoscopy, where possible, is always recommended.