

Unusual Cause of Acute Appendicitis: Bone Fragment

Leh Bi Kalou Ismaël^{1*}, Anzoua Kouakou Ibrahim¹, N'Dri Ahou Bernadette¹, Ekra Amos Serge¹, Kouakou Blaise Amos¹, Dager Nahed², Bittar Issam², Emmanuel Gruss²

¹University Hospital of Bouaké, Bouake, Ivory Coast

²Centre Hospitalier Intercommunal de Villeneuve Saint-Georges, Paris, France

Email: *klehbi@yahoo.fr

How to cite this paper: Ismaël, L.B.K., Ibrahim, A.K., Bernadette, N.A., Serge, E.A., Amos, K.B., Nahed, D., Issam, B. and Gruss, E. (2023) Unusual Cause of Acute Appendicitis: Bone Fragment. *Surgical Science*, 14, 221-224.

<https://doi.org/10.4236/ss.2023.143025>

Received: February 14, 2023

Accepted: March 24, 2023

Published: March 27, 2023

Copyright © 2023 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Foreign bodies are a rare cause of appendicitis, because in most cases these ingested foreign bodies cross the digestive tract asymptotically [1] [2] [3]. However, some penetrate the lumen of the appendix causing its inflammation. We report an unusual observation of acute appendicitis induced by a foreign body namely a bone fragment in the visceral surgery department of the Centre Hospitalier Intercommunal de Villeneuve Saint-Georges.

Keywords

Acute Appendicitis, Bone Fragment, Emergency

1. Introduction

Acute appendicitis is the main surgical abdominal emergency [1] [2] [3] [4]. It is most often due to an obstruction of the lumen in general by a stercolith, but sometimes by a foreign body; very rare thing certainly but described literature with different types of foreign bodies [5] [6] [7] including pieces of bone. We will bring you a case.

2. Case Presentation

This was a 55-year-old patient, a kitchen assistant with no particular history of Vietnamese origin, who consulted the emergency room for localized pain in the right iliac fossa evolving for 10 days associated with fever, and diarrhea without vomiting, transit disorder, or urinary signs. He would have consulted a private clinic where the biological assessment made showed an inflammatory syndrome (leukocytes 11000 white blood cells predominantly polynuclear neutrophils, a CRP 86 mg/l) and ultrasound showed a digestive thickening in the right iliac fossa af-

fecting the appendix, cecum and fat around. The diagnostic hypothesis of acute appendicitis, Crohn's disease was posed. It was referred to us for diagnosis and management.

The clinical examination at admission, found an afebrile patient, blood pressure 12/10 cmHg, weighing 70 kg with a BMI of 23 kg, localized tenderness to the right iliac fossa with a painful mass. The abdominopelvic CT scan showed a swollen appearance of the appendix (14 mm in diameter) with a significant densification of fat on contact and presence of intra-appendicular linear foreign body (**Figure 1**). No fluid or gaseous peritoneal effusion. The diagnosis of acute appendicitis induced by a foreign body was made. The ASA I patient was operated on laparoscopic. Intraoperatively, the exploration of the abdominal cavity showed: an aspect of inflammatory appendage glued to the cecum and both glued to the abdominal wall in the right iliac fossa, forming a mass making dissection difficult. The appendage very fragile, tears when touching, we found the foreign body namely a fragment of bone of about 4 cm in the abdomen which was removed (**Figure 2**). A Delbet blade was left in place in the right parietocolic gutter. The patient was discharged 9 days after surgery, without postoperative complications.

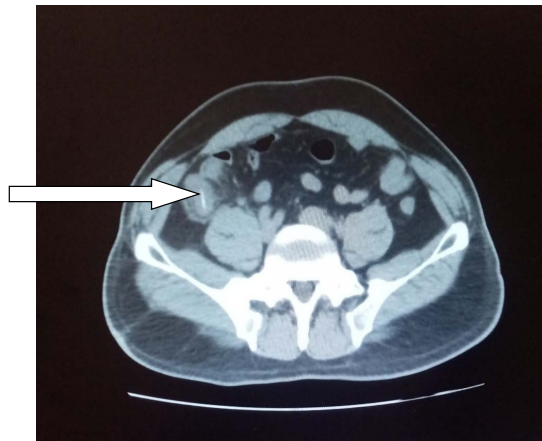


Figure 1. Abdominal CT shows linear calcified density in the appendix with axial cross-section inflammation.

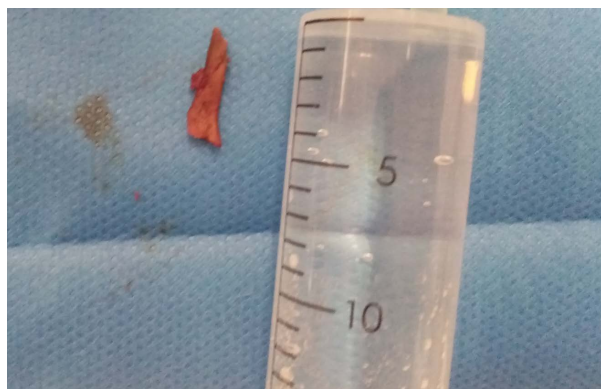


Figure 2. Foreign body with sharp bone fragment type about 4 cm long.

3. Discussion

Worldwide, appendectomy for acute appendicitis is the most common emergency surgical procedure [2]. It is due to foreign bodies in about 0.0005% of cases [3] [4] [8]. Ingestion affects both sexes and affects all ages [9].

The ingestion of these foreign bodies would be explained by a careless diet, especially in children. In adults there are insensitive denture plates, poor vision, those with mental disorders, inflammatory bowel conditions and substance abuse [8]. It occurs intentionally but in inmates [1] [7]. The psychiatric and prison populations represent the majority of adults with foreign body ingestion [7].

Various foreign bodies have been reported in the literature as the cause of acute appendicitis. We note inedible and indigestible foreign bodies, common in children namely balls, fishing lines, screws, coins, stones, toothbrush hair, pins, needles, teeth, dog hair, toothpicks, strands, tongue studs, a crown rod, lead shot, a die, the end of a thermometer, a pen tip, and keys [9]. Adults have included intrauterine devices, condoms, metal objects such as razor blades [2] [3].

And edible and digestible foreign bodies namely fruits, seeds and stones, fish edges and also bone fragments [4] [10] [11]. In our patient it was a bone fragment, a rare etiology because according to Bach *et al.* the incidence of acute appendicitis due to a bone fragment was 16 cases in the literature [6]. These ingested foreign bodies tend to pass through the gastrointestinal tract without incidence, and the vast majority of cases do not require intervention [4].

After its ingestion the presence of the foreign body would depend on its weight greater than the intestinal fluid content, they stop in the cecum during transit and gravitate towards its descending part. The appendicular orifice expands and allows entry into its lumen [2] [4]. Once in the appendix, the peristaltic action is insufficient to expel foreign bodies into the cecum. However, in the case of a retrocecal appendage, it is almost impossible for a foreign body to penetrate the appendicular lumen [8] [12]. When the foreign body is present it can remain motionless in the appendix without stimulating an inflammatory process or causing an inflammatory reaction with or without perforation [3]. The latency period between ingestion and onset of symptoms varies from hours to years [3] [11]. In our case the latency period could not be determined. The clinic takes into account the nature of the foreign body. Non-sharp foreign bodies cause appendicitis by obstruction of the appendicular lumen and remain dormant for longer periods of time. Unlike elongated pointed foreign bodies are more likely to cause perforations, appendicular abscesses, and peritonitis [11] [12]. The diagnosis of ingestion of foreign bodies is often difficult because patients are rarely aware of the ingestion including bone fragments [4]. It is done by imaging [10]. In our case, the patient had no history and the diagnosis was made by abdominal CT scan. The patient was successfully treated with laparoscopic surgery [8] [10].

4. Conclusion

Foreign bodies are rare causes of appendicitis. A wide variety of foreign bodies

can be incriminated. Our case demonstrates a clinical scenario in which a bone fragment resulted in acute appendicitis.

Conflicts of Interest

No conflicts of interest.

References

- [1] Mohammeda, A.A., Ghazib, D.Y. and Arifa, S.H. (2019) Ingested Metallic Foreign Body Impacted in the Vermiform Appendix Presenting as Acute Appendicitis: Case Report. *International Journal of Surgery Case Reports*, **57**, 201-204. <https://doi.org/10.1016/j.ijscr.2019.03.052>
- [2] Cuia, J., Crossb, T. and Lockwood, D. (2018) Ingested Razor Blades within the Appendix: A Rare Case Report. *International Journal of Surgery Case Reports*, **45**, 29-32. <https://doi.org/10.1016/j.ijscr.2018.03.018>
- [3] Sama, C.B., Aminde, L.N., Njim, T.N. and Angwafo III, F.F. (2016) Foreign Body in the Appendix Presenting as Acute Appendicitis: A Case Report. *Journal of Medical Case Reports*, **10**, Article No. 129. <https://doi.org/10.1186/s13256-016-0922-7>
- [4] Beh, J.C.Y., Uppaluri1, A.S., Koh, B.F.J. and Cheow, P.-C. (2016) Fishbone Perforated Appendicitis. *Radiology Case Reports*, **10**, 14-22. <https://doi.org/10.3941/jrcr.v10i7.2826>
- [5] Ngom, G., Amadou, I., Ngaringuem, O. and Ndour, O. (2010) "PEN" Appendicitis. *Journal of Indian Association of Pediatric Surgeons*, **15**, 74-75. <https://doi.org/10.4103/0971-9261.70649>
- [6] Balch, C.M., Silver, D. and Durham, N.C. (1971) Foreign Bodies in the Appendix. *The Archives of Surgery*, **102**, 14-20. <https://doi.org/10.1001/archsurg.1971.01350010016004>
- [7] Evans, D.C., Wojda, T.R., Jones, C.D., Otey, A.J. and Stawicki, S.P (2015) Intentional Ingestions of Foreign Objects among Prisoners: A Review. *World Journal of Gastrointestinal Endoscopy*, **7**, 162-168. <https://doi.org/10.4253/wjge.v7.i3.162>
- [8] Bababekov, Y.J., Stanelle, E.J., Abujudeh, H.H. and Kaafarani, H.M.A. (2015) Fishbone-Induced Perforated Appendicitis. *BMJ Case Reports*, **2015**, 1-3. <https://doi.org/10.1136/bcr-2015-209562>
- [9] Klingler, P.J., Seelig, M.H., DeVault, K.R., Wetscherc, G.J., Flocha, N.R., Brantona, S.A., *et al.* (1998) Ingested Foreign Bodies within the Appendix: A 100-Year Review of the Literature. *Digital Distribution*, **16**, 308-314. <https://doi.org/10.1159/000016880>
- [10] Hazer, B., Dandin, Ö. and Karakaş, D.Ö. (2013) A Rare Cause of Acute Appendicitis: An Ingested Foreign Body. *Ulusal Travma ve Acil Cerrahi Dergisi*, **19**, 570-572. <https://doi.org/10.5505/tjtes.2013.60329>
- [11] Benizri, E., Cohen, C., Bereder, J., Rahili, A. and Benchimol, D. (2012) Swallowing a Safety Pin: Report of a Case. *World Journal of Gastrointestinal Surgery*, **4**, 20-22. <https://doi.org/10.4240/wjgs.v4.i1.20>
- [12] Choi, Y., *et al.* (2014) Peritonitis with Perforation of the Small Intestine Caused by a Fishbone in a Healthy Patient. *World Journal of Gastroenterology*, **20**, 1626-1629. <https://doi.org/10.3748/wjg.v20.i6.1626>