CASE REPORT
OLGU SUNUMU

A rare cause of intestinal obstruction in a child: Colonic lithobezoar

Bir çocukta barsak tıkanıklığının nadir bir nedeni: Kolonik litobezoar

Aziz Serhat Baykara[1]

[1]Department of Pediatric Surgery, Eskişehir City Hospital, University of Health Sciences, Eskişehir, Turkey

Correspondence: Aziz Serhat Baykara,
University of Health Sciences, Eskisehir City Hospital, Department of Pediatric Surgery, Eskisehir, Turkiye
email: azizserhati@yahoo.com

Submitted Date: 13 May 2023, **Accepted Date:** 10 January 2024

ORCID ID: ASB: 0000-0002-6690-8412

SUMMARY

Litho-bezoar is a very rare clinical condition called stone accumulation in any part of the digestive system secondary to the habit of eating soil, stone, and clay. In this article, we aimed to present a case of colonic litho-bezoar in a child with geophagia, iron deficiency anemia, and behavioral disorder. A 4-year-old male patient presented with complaints of cramp-like abdominal pain, vomiting, and chronic constipation for five days. The patient had a history of soil eating habits (geophagia) for two years. Laboratory tests showed that he had iron deficiency anemia. There was no sign of peritonitis in the abdominal examination, but many irregular masses were palpated. Hard fecaliths were also present on rectal examination. Multiple radiopaque masses were detected along the colon tracing on abdominal X-ray. Colon stones were evacuated with a conservative approach by rectal intervention under general anesthesia. After the intervention, the patient was given iron deficiency treatment and psychiatric support. Colonic litho-bezoar is a condition that can usually be treated with a conservative approach. A delay in diagnosis may cause intestinal obstruction and/or perforation. It is important to change eating habits against the possibility of recurrence after the intervention and to get psychiatric support for behavioral problems.

Keywords: Bezoar, child, colonic litho-bezoar

ÖZET

Litobezoar, toprak, taş, kil yeme alışkanlığına bağlı olarak sindirim sisteminin herhangi bir yerinde taş birikmesi olarak adlandırılan çok nadir görülen bir klinik tablodur. Bu makalede, jeofaji, demir eksikliği anemisi ve davranış bozukluğu olan bir çocukta kolonik litobezoar olgusunu sunmayı amaçladık. 4 yaşında erkek hasta, beş gündür olan kramp benzeri karın ağrısı, kusma ve kabızlık şikayetleri ile başvurdu. Hastanın iki yıldır toprak yeme alışkanlığı (jeofaji) öyküsü vardı. Laboratuvar testleri demir eksikliği anemisi olduğunu gösterdi. Karın muayenesinde peritonit bulgusu yoktu, ancak çok sayıda düzensiz kitle palpe edildi. Rektal muayenede sert fekalitler de mevcuttu. Karın röntgeninde kolon trasesi boyunca çok sayıda radyoopak kitle saptandı. Kolon taşları genel anestezi altında rektal girişim ile konservatif bir yaklaşımla boşaltıldı. Müdahalenin ardından hastaya demir eksikliği tedavisi ve psikiyatrik destek verildi. Kolonik litobezoar genellikle konservatif yaklaşımla tedavi edilebilen bir durumdur. Teşhiste gecikme bağırsak tıkanıklığına ve/veya perforasyonuna neden olabilir. Müdahale sonrası tekrarlama ihtimaline karşı beslenme alışkanlığının değiştirilmesi ve davranış sorunları için psikiyatrik destek alınması önemlidir.

Anahtar kelimeler: Bezoar, çocuk, kolonik litobezoar,

INTRODUCTION

Bezoars are the accumulation of foreign bodies or undigested food in the digestive tract (1). It is a rare condition with an incidence of less than 1% in the general population (2). Bezoars take names such as phytobezoar (vegetable and fruit fibers or seeds), trichobezoar (hair), lactobezoar (milk residues), and lithobezoar (stone) according to the accumulated material (3). While bezoars are mostly seen in the stomach and small intestines, the colon is a rare place where this conglomeration is located (4).

Lithobezoar is a rare condition that occurs as a result of geophagia (ingestion of stones, soil, and clay) in children with emotional disorders and iron deficiency anemia (2,5). Although chronic abdominal pain, constipation, and painful defecation are the most common symptoms, it can lead to bowel obstruction and perforation in cases with delayed diagnosis (5).
In this article, we aimed to discuss a case of colonic lithobezoar that filled the entire colon in a 4-year-old boy with a history of iron deficiency anemia and geophagia, in the light of the literature.

CASE REPORT

A 4-year-old boy was admitted to the pediatric emergency department with complaints of intermittent abdominal pain, weakness, vomiting, and chronic constipation for 5 days. In his medical history, it was learned that he had a habit of eating soil (geophagia) for about two years. The patient's weight was 11 kg (under the third percentile for age) and his height was 94 cm (below the third percentile). Anthropometric parameters indicated that the patient had severe growth and developmental retardation.
The patient's vital parameters such as blood pressure, pulse, and body temperature were within normal limits. There was moderate swelling on abdominal examination and there was no sign of peritonitis. Numerous irregular masses were palpated in the abdomen. Bowel sounds were observed to be hyperactive. There were also hard fecaliths in the rectal examination. After manually removal, it was detected that these fecaliths were stones with feces.

Laboratory findings were as follows: hemoglobin, 7.8g/dL (11-15 g/dL); mean corpuscular volume (MCV), 55 fL (71.3-90 fL); serum iron, 34.6 µg/dL (50.0–175.0 µg/dL); ferritin, 12.30 µg/lL (5.3–99.9 µg/L); total iron binding capacity was 355 ug/dL (90–305 ug/dL). Peripheral blood smear showed hypochromic red blood cells and anisocytosis. These laboratory findings showed that the patient had severe iron deficiency anemia.On plain abdominal X-ray, multiple radiopaque masses of various sizes were detected along the colon tracing (Figure 1).

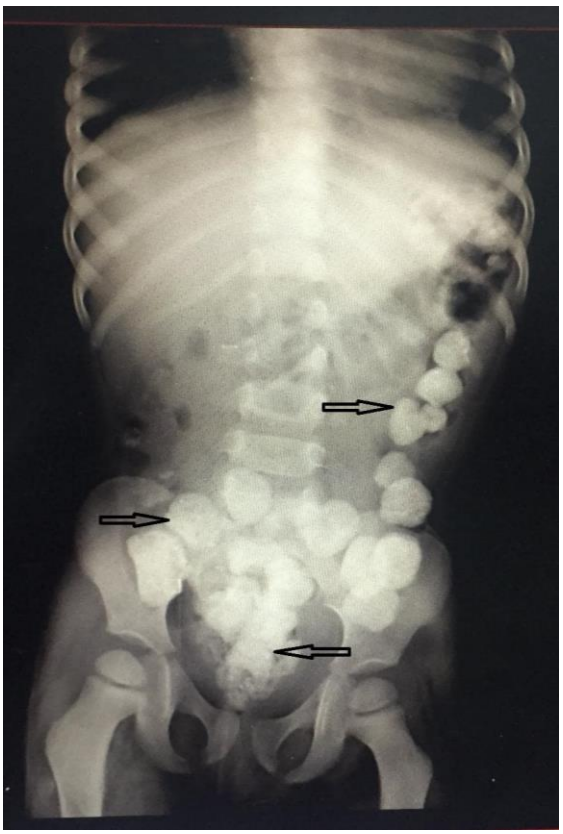

Figure 1. Radiopaque masses of various sizes along the colon tracing on a plain abdominal X-ray (corn on the cob appearance).

There was no detected air-fluid level or subdiaphragmatic free air.

Numerous stones were removed by colonic lavage after anal dilatation under general anesthesia. Following the intervention, the patient received a rectal enema and a laxative. The stone continued to come out with defecation for four days. No stone was found in the X-ray of the flat abdomen taken on the fifth day of hospitalization.

The patient was discharged with oral iron therapy. He was referred to the child psychiatry department due to behavioral problems such as compulsive soil eating habits. There was no recurrence during the one-year follow-up period.

The informed consent form was approved by the parents of the patient.

DISCUSSION

Bezoars are a result of pica syndrome, which is characterized by ingestion of indigestible or poorly digestible substances in the digestive tract. Although the etiology of pica is still unknown, it is more common in societies with low socioeconomic

status, mental retardation and neglected children (4). Geophagia is a variant of pica syndrome which is a rare eating and behavioral disorder characterized by persistent craving and compulsive eating of materials such as clay, soil and stone (6,7). In the etiology of this habit have been suggested many factors such as iron deficiency anemia, sickle cell anemia, mental retardation, poverty, traditional eating habits, parental neglect, and low socioeconomic status (4). It has been reported that approximately half of the patients have severe iron deficiency anemia (7,8). However, it is unclear whether geophagia is the cause or consequence of iron deficiency anemia. Our patient had a low socioeconomic level and had severe iron deficiency anemia. These situations may explain his compulsive behavior for pica syndrome.

Colonic lithobezoar, characterized by stone conglomeration in the large intestine, is a very rare clinical condition in children and only 12 cases reported in the literature to date. Recurrent abdominal pain, severe abdominal distention, bilious vomiting, chronic constipation and painful defecation are the most common clinical symptoms in patients with colonic bezoars (8). In severe cases, these bezoars may cause partial or complete bowel obstruction and even perforation (1,2,8). Cramp-like abdominal pain, non-bilious vomiting and chronic constipation were the main clinical manifestations in our patient. Unlike the other cases presented in the literature, there were no symptoms of mechanical bowel obstruction despite the presence of bezoars along the colon tracing.

Abdominal and rectal examinations provide important diagnostic evidence for colonic bezoars. Irregular masses can be palpated on abdominal examination (6). Similarly, our patient had multiple hard and irregularly shaped masses throughout the abdomen. Palpation of a prickly mass on rectal examination is called “colonic crunch sign” and is a sign of lithobezoar formation (2,6). This clinical finding was also detected in our case.

Plain abdominal X-ray is very important for the proper diagnosis. Numerous radiopaque stones scattered in the colon is pathognomonic for the bezoars. This unique appereance on plain abdominal X-ray is called as ‘’corn on the cob’’ (2,3). Contrary to most of the previous publication, despite the presence of bezoars along the colon tracing in the initial abdominal X-ray of our patient, there were no ileus findings.

Treatment of colonic lithobezoars depends on the localization and size of the deposited material (4). In the presence of small and few stones, laxative administration and enema may be sufficient (8). However, in the presence of many larger stones, it is necessary to remove the stones with anal dilatation and rectal wash-out under anesthesia (1-4). Surgical intervention can be considered if this procedure fails or colonic injury occurs (4,6,9). In the present case, manual evacuation of the colon was performed, and surgery was not required. Additionally, iron deficiency treatment was given, and psychiatric support was obtained for pica syndrome.

The recurrence rate of bezoars has been reported as 13.5% (10). It is important to treat comorbidities such as iron deficiency anemia and to provide psychiatric support to prevent recurrence. No recurrence was detected in the one-year follow-up of our case.

CONCLUSIONS

Although there are no signs of mechanical bowel obstruction, lithobezoar should be suspected in children with chronic constipation and a history of pica syndrome. When not diagnosed timely, it can be lethal by causing complete colonic obstruction or perforation. The treatment includes simple conservative approaches such as use of laxatives and rectal irrigation, manually evacuation of the colon by anal dilatation, and surgery in severe cases.

Author Contributions: Working Concept/Design: AZB; Data Collection: AZB; Data Analysis/Interpretation: AZB; Text Draft: AZB; Critical Review of Content: AZB; Final Approval and Responsibility: AZB.
Conflict of Interest: The authors state that there is no conflict of interest regarding this manuscript.
Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1.Alhaddad JB, Bleibel JZ, Hoteit M, Harb SB, Haddad YB. Acute Respiratory Distress Syndrome Secondary to Radiotherapy for Breast Cancer. Am J Case Rep. 2020;21:e919477.
2. Winaikosol K, Surakunprapha P. Rapidly developed Secondary Cutaneous Squamous cell Carcinoma after Post-Surgical Radiation Therapy for Breast Cancer. J Med Assoc Thai. 2016;5:173-6.
3. Waldman A, Schmults C. Cutaneous Squamous Cell Carcinoma. Hematol Oncol Clin North Am. 2019;33(1):1-12.
4.Narayanan DL, Saladi RN, Fox JL. Ultraviolet radiation and skin cancer. İnt J Dermatol. 2010;49(9):978-986.
5.Corchado-Cobos R, García-Sancha N, González-Sarmiento R, Pérez-Losada J, Cañueto J. Cutaneous Squamous Cell Carcinoma: From Biology to Therapy. İnt J Mol Sci. 2020;21(8):2956.
6.Stratigos A, Garbe C, Lebbe C, Malvehy J, Marmol VD, Pehamberger H, et al. Diagnosis and treatment of invasive squamous cell carcinoma of the skin: European consensus-based interdisciplinary guideline. Eur J Cancer. 2015;51(14):1989-2007.

7. Soliman M. Squamous cell carcinoma of the breast: A retrospective study. J Cancer Res Ther. 2019;15(5):1057-61.
8.Ahmed Z, Idriss AM, Heiba A, Sidi I. Squamous cell carcinoma of the breast: a case study conducted in Mauritania. Pan Afr Med J. 2019;33:143.
9.Goel D, Rana C, Babu S, Ramakant P. Primary squamous cell carcinoma, breast: A challenging diagnosis. Cancer Rep (Hoboken). 2021;4(5):e1391.
10.Aparicio I, Martinez A, Hernandez G, Hardisson D, De Santiago J. Squamous cell carcinoma of the breast. Eur J Obstet Gynecol Reproduction Biol. 2008;137:222-6.
11.Graziano L, Filho PG, Bitencourt AGV, Soto DB, Hiro A, Nunes CC. Metaplastic squamous cell carcinoma of the breast: A case report and literature review. Rev Assoc Med Bras. 2016;62(7):618-21.
12.Wei NN, Li F, Cai P, Yin HM, Zhu CM, Zhang Q, et al. Progress of clinical study on hypofractionated radiotherapy after breast-conserving surgery. Ann Palliat Med. 2020;9(2):463-71.
13.Oliveti A, Biasi TB, Funchal GDG. Lymphangioma secondary to irradiation after mastectomy. An Bras Dermatol. 2017;92(3):395-7.
14.Olivotto IA, Truong PT, Chua B. Postmastectomy Radiation Therapy: Who Needs It? J Clin Oncol. 2004;22:4237-9.
15.Yi A, Kim HH, Shin HJ, Huh MO, Ahn SD, Seo BK. Radiation-induced complications after breast cancer radiation therapy: a pictorial review of multimodality imaging findings. Korean J Radiol. 2009;10(5):496-507.
16.Güler A, Kırdık Ö, Karaköse Y. Radyoterapiye Sekonder özofagus kanseri: 2 olgu sunumu. Akademik Gastroenteroloji Dergisi, 2005;4 (1):57-9.
17.Maalej M, Frikha H, Kochbati L, et al. Radio-induced malignancies of the scalp about 98 patients with 150 lesions and literature review. Cancer Radiother 2004;8(2):81-7.
18.Ruocco E, Maio RD, Caccavale S, Siano M, Schiavo AL. Radiation dermatitis, burns, and recall phenomena: Meaningful instances of immunocompromised district. Clin Dermatol. 2014;32(5):660-9.
19.Maubec E, Update of the Management of Cutaneous Squamous-cell Carcinoma. Acta Derm Venereol. 2020;100(11):309-17.