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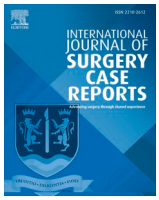

Case report

Sigmoid colon perforation secondary to blunt abdominal trauma from cow hoof

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ABSTRACT

Introduction: Abdominal discomfort is one of the most prevalent complaints presented to the emergency department. When making a clinical diagnosis, blunt trauma with substantial visceral injuries requires a high index of suspicion.

Case presentation: The patient went to the emergency room after experiencing lower abdomen discomfort and a fever for two days. He was 40 years old. He says he was injured two days earlier when a cow foot landed on his stomach, causing mild blunt injuries. When examined, he is delicate all the way down in his lower belly. Results from the lab indicated a higher-than-normal total leucocyte count. Echogenic bowel thickening is seen on point-of-care ultrasonography (PoCUS) of the lower abdomen. Abdominal CT with contrast revealed oedema, heterogeneous enhancement, and a focal stretch of thickened circumferential mural including the sigmoid colon and peri-colonic fat stranding. Biopsy results from a sigmoidoscopy revealed significant sigmoid colon constriction and localized areas of active inflammation. Stricture development after a Sigmoid hole caused by a cow foot injury is an extremely unusual occurrence.

Discussion: This case emphasizes the need of a thorough history and physical examination, especially in a high-pressure emergency scenario, and the value of using ultrasonography at the bedside to make a definitive diagnosis and improve patient care.

Conclusion: Regardless of the severity of abdominal damage caused by cattle collision, early imaging should be explored since delaying action might result in poor results.

1. Introduction

Abdominal trauma occurs subsequent to blunt trauma in up to 80 % of trauma cases, and hollow organ damage is reported in 1 % of patients [1]. Trauma-related complications such as perforation and stricture development have a delayed onset but a higher risk of death [2]. According to a research conducted in the United States in 2003, the incidence of cow attacks on farmers was 1.7 %. [3]. John Henry et al. found that the most severe presentation due to cattle-related trauma occurred after trampling, with an injury severity score of 13 [4]. CT scan results that are suggestive of bowel perforation include discontinuity of the intestinal wall and the presence of extraluminal air, as well as indirect indications such as intestine wall thickness, aberrant bowel wall enhancement, abscess, and a mass of inflammation next to the gut. Localized air bubbles in the area of the bowel can aid in locating the perforation site. [5] Extra luminal free air continues to be the most precise indicator of perforation. [6] In this research, we show a case of forceful abdominal trauma caused by cow hoof damage, which resulted in sigmoid perforation and subsequent stricture formation. The aforesaid diagnosis is supported by radiographic and colonoscopic evidence, as well as a sigmoid colon biopsy. Thus, our case is unique in terms of showing the strategy taken with a patient who first presented with a urinary tract infection but was ultimately diagnosed with acute abdomen, which requires a distinct course of treatment. According to the SCARE 2020 criteria, our case has been reported. [1].

2. Importance

This case demonstrates the need of a thorough history and repeated clinical examination in a busy emergency care practice for identifying unusual causes of abdominal pain with underlying life threatening diagnosis with subtle signs. Early imaging and high suspicion may aid in

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the early identification and treatment of a disease.

3. Case presentation

A 40-year-old Asian male who was otherwise healthy arrived to the ER complaining of lower abdomen discomfort, frequent searing micturition, and a fever that had been present for the previous day. There was no significant medical or surgical history, allergies, or addictions for this patient. The patient refutes the existence of a severe sickness in his or her family.

The patient was feverish, tachycardic, and seemed agitated throughout the physical examination. Extreme pain in the lower abdomen. A total leukocyte count (TLC) of 16.4 was found in the laboratory (4.8–11.3 × 109) With neutrophilic shift, urine D/R indicated 3 leucocytes per hpf and few bacteria with positive leucocyte esterase of +1. After some prodding, he admitted to having suffered a small impact blunt trauma to the abdomen from a cow hoof two days before. Contrast-enhanced computed tomography (CT) of the abdomen demonstrated a thickening of the sigmoid colon's circumferential wall, oedema, and heterogeneous enhancement, as well as peri-colonic fat stranding and a focal discontinuity at the superior mesenteric border (images shown below).

4. Differential diagnosis

Initial considerations led us to suspect a urinary tract infection. The other probable differential diagnoses were colitis, acute appendicitis, and cystitis. However, the patient's clinical examination prompted additional inquiry because of the patient's history of peritonitis and the presence of widespread abdominal discomfort with a particular emphasis on the lower hypochondrium.

5. Treatment

Antibiotics and pain relievers were administered intravenously, and the patient was allowed no oral food or liquids. The patient had a temperature of 39 degrees Celsius, severe abdominal discomfort, and guarding based on their medical history and physical examination. Echogenic thickening was seen around the intestine during bedside POCUS. Figs. 1 and 2 indicate that after administering contrast to the abdomen, the CT scan revealed considerable fat stranding in the surrounding soft tissue, indicating inflammation, and thickening of a portion of the large intestine, indicating localized perforation. In light of the above, a general surgery team was enlisted, and an admission and diagnostic laparoscopy were scheduled for the patient.

6. Outcome and follow-up

The patient did not initially choose surgery, but on the 15th day after the trauma, she underwent a sigmoidoscopy outside of our hospital, which revealed a severe narrowing of the sigmoid colon at 40 cm in length, and a biopsy revealed large bowel mucosa with focal active inflammation and no evidence of dysplasia.

7. Discussion

In blunt abdominal injuries the prevalence of bowel and mesenteric injuries is roughly 1 to 12 % and the colon damage is considerably uncommon and reported to be around 0.3 % [4]. Among them sigmoid colon is more susceptible due of its anterior placement. The conceivable causes of damage include deceleration injuries which entail major vascular injury, compression of viscera between object and underlying spine, and intramural hematoma, the last two stated processes being the likely explanation in our case. CT findings considered diagnostic for intestinal damage include contrast extravasation or extraluminal air. Findings which are non-diagnostic but suggestive include, free fluid without solid organ damage, small bowel thickening and dilatation [7]. In our situation patient's first presentation was rather different if we view the ultimate diagnosis since no history of trauma was supplied originally and afterwards very slight impact stated by the patient. Here, it was crucial to go outside the box and do a comprehensive clinical examination to arrive at a definitive diagnosis. The story provides light on the care that people should take when conducting religious rites (Bakra-Eid) at home where unexperienced individuals without taking necessary precaution inflict excessive injury both to animals and themselves. Same way the measures need to be followed in slaughterhouse by butchers, dairy farmers who have everyday involvement with the cattle's as part of their usual activity but they require information in terms of handling and when to seek medical attention. There is a strict need that hospitals should develop guidelines in collaboration with veterinarian on assessing patients who presents with such injuries in the emergency room and public health measures to be taken in regions like South-east Asia where such injuries are common as compared to rest of the world.

Fig. 1. Fat stranding in surrounding soft tissue suggestive of inflammation.

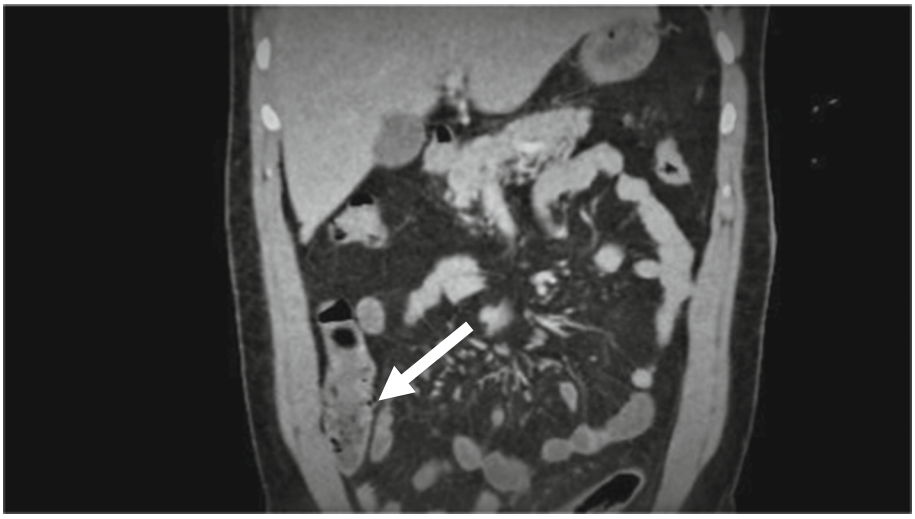

Fig. 2. Thickening of large bowel segment with focal discontinuity.

Urine culture (C/S) and blood C/S were subsequently found to be negative. Some echogenic thickening of the bowel was indicated by PoCUS in the hypogastrium.

A rigid sigmoidoscopy was performed on the patient 15 days after the traumatic abdominal trauma, and a biopsy of the large intestinal mucosa revealed superficial pieces of mucosa with localized active inflammation. No indications of dysplasia or cancer.

8. Conclusion

There is a broad range of potential causes for abdominal pain in emergency care. Identifying the clinically concealed appearance of life-threatening injuries requires a thorough history and physical examination. No matter how mild the impact, imaging should be considered promptly in cases of blunt abdominal trauma. When in doubt, utilize POCUS as a first-line aid right away. Because the symptoms of abdominal trauma change over time, it is crucial that an emergency physician rule out any time-dependent diagnoses.

Patient perspective

The patient reported that the care he had received has been satisfactory.

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Ethics approval

Ethical approval has been taken from the ethical review committee of our hospital, application number as 2022-7938-22738.

Patient consent

Written informed consent was obtained from patient's attendant for the publication of this case report and any accompanying images. A copy of written consent is available for review by Editor-in-Chief of this journal.

Author's contribution

Conception and design of study: Dr. Erum Shakeel.
Acquisition of data: Dr. Hassan Jafri / Dr. Suman Noorani.
Analysis and/or interpretation of data: Dr. Shahan Waheed.
Drafting the manuscript: Dr. Erum Shakeel.
Revising the manuscript critically for important intellectual content: Dr. Shahan Waheed.

Research registration

Not applicable.

Guarantor

Dr. Erum Shakeel.

Declaration of competing interest

The authors declare that they have no conflict of interest and that the ethical principles were followed.

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