



## Case report

## Abdominal trauma by ostrich



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## HIGHLIGHTS

- Ostriches avoid humans, they assess humans as potential predators and often run away.
- The perforation occur more frequently in small intestine and the colon.
- People living in rural areas may be a potential risk factor.
- Surgery is the treatment of choice for bowel perforation.
- Laparotomy is the most frequent approach, but laparoscopy can be a valid option.

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## ABSTRACT

**Introduction:** Ostriches typically avoid humans in the wild, since they correctly assess humans as potential predators, and, if approached, often run away. However, ostriches may turn aggressive rather than run when threatened, especially when cornered, and may also attack when they feel the need to defend their offspring or territories.

**Presentation of case:** A 71-year-old male patient presented with intra abdominal injury sustained from being kicked in the abdominal wall by an ostrich. During laparotomy, were found free peritoneal effusion and perforation of the small intestine.

**Discussion:** The clinical history and physical examination are extremely important for diagnostic and therapeutic decision making. CT-scan is the most accurate exam for making diagnosis. Surgery is the treatment of choice, and is always indicated when there is injury to the hollow viscera. In general it is possible to suture the defect.

**Conclusion:** In cases of blunt abdominal trauma by animals is necessary to have a low threshold of suspicion for acute abdomen.

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## 1. Background

Ostriches typically avoid humans in the wild, since they correctly assess humans as potential predators, and, if approached, often run away. However, ostriches may turn aggressive rather than run when threatened, especially when cornered, and may also attack when they feel the need to defend their offspring or territories. Similar behaviors are noted in captive or domesticated ostriches, which retain the same natural instincts and can occasionally respond aggressively to stress. When attacking a person, ostriches kick with their powerful feet, armed with long claws, which are capable of disemboweling or killing a person with a single blow [1]. People living in rural areas and those who work or

plan to visit farms should be aware that territorial behavior of many domestic animals and birds may be a potential risk factor. In one study of ostrich attacks, it was estimated that two to three attacks that result in serious injury or death occur each year in South Africa, where a large number of ostrich farms abut against both feral and wild ostrich populations [2].

## 2. Case report

A 71-year-old male patient was admitted to the emergency department because of generalized abdominal pain, vomiting and abdominal distension, with 48 h of evolution. He had been attacked by an ostrich, defending its territory, kicking him several times in the lower abdominal wall.

On physical examination he had tenderness of the abdomen maximal in lower quadrants, signs of peritoneal inflammation with

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guarding, rebound, and tap tenderness, with abdominal distension, and metallic peristaltic sounds.

Blood samples revealed a WBC count of  $6.01 \times 10^3 \mu\text{l}$ , *C-reactive protein* 330.0 mg/l, BUN 123.0 mg/dl, creatinine 2.50 mg/dl, and normal hepatic and pancreatic tests.

The abdominal X-ray showed air-fluid levels and dilated small bowel loops (Fig. 1).

An abdomino-pelvic CT scan was made which showed air-fluid levels, dilatation of small bowel loops, some with wall thickening, significant densification of mesenteric fat, and very discreet pneumoperitoneum and ascites (Figs. 2 and 3).

The patient was submitted to an emergent laparotomy, and a perforation of the ileum was found causing peritonitis due to intestinal content output. (Figs. 4 and 5).

The perforation was closed with an absorbable suture, followed by peritoneal lavage with saline solution and drainage. No post-operative complication occurred. The patient remained asymptomatic with oral diet, and was discharged on the 9th postoperative day. He was asymptomatic after 1 month of follow-up.

### 3. Discussion

Ostriches have inspired cultures and civilizations for 5000 years in Mesopotamia and Egypt. A statue of Arsinoe II of Egypt riding an ostrich was found in a tomb in Egypt. The Kalahari bushmen still use their eggs as water jugs [3]. Hunter-gatherers in the Kalahari use ostrich eggshells as water containers in which they puncture a hole to enable them to be used as canteens. The presence of such eggshells with engraved hatched symbols dating from the Howiesons Poort period of the Middle Stone Age at Diepkloof Rock Shelter in South Africa suggests ostriches were an important part of human life as early as 60,000 BP [4].

Human injuries caused by animals are not uncommon and have been reported in the literature on many occasions. The most commonly affected animals are dogs, cats, cows, horses, and camels. Lesions are usually on the trunk and limbs, and sometimes the face. Injuries from an ostrich are rare and only a few cases have been reported, all with eye injury [5].



Fig. 2. CT scan: discreet pneumoperitoneum.

Ostriches usually inflict injury in one of two ways. The first type and most serious injury is that of a slash or laceration, usually to the lower abdomen or limbs, caused by the ostrich kicking in a forward and downward motion with its powerful foot. The toe nail of the ostrich is sharp and is used by the ostrich for protection against predators. The second type of injury is seen more commonly, occurring when the ostrich uses its bony breast plate as a ram to knock the person to the ground [6]. The ostrich then jumps upon the victim and, because an ostrich weighs 75–150 kg, this may cause contusion of the torso with rib fractures.

The abdominal trauma caused by ostrich is very rare. The perforation can occur in any segment of the gastrointestinal tract, but the small intestine and colon are the most affected segments. The clinical presentation may vary, with intestinal perforations and symptoms that can mimic other abdominal emergencies such as acute appendicitis, acute diverticulitis, perforated peptic ulcer or ileus. In the case presented the patient had generalized abdominal pain, vomiting and abdominal distension, with 48 h of evolution.



Fig. 1. Expansion loops of the small intestine.



Fig. 3. CT scan: dilatation with hydro-aerial loops of bowel levels.

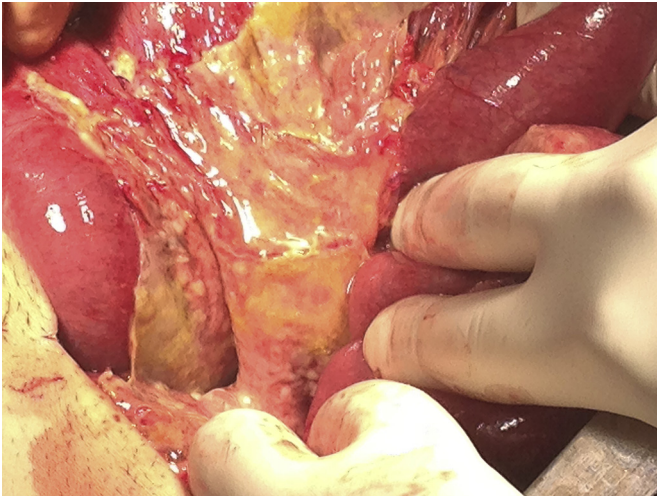


Fig. 4. Peritonitis.

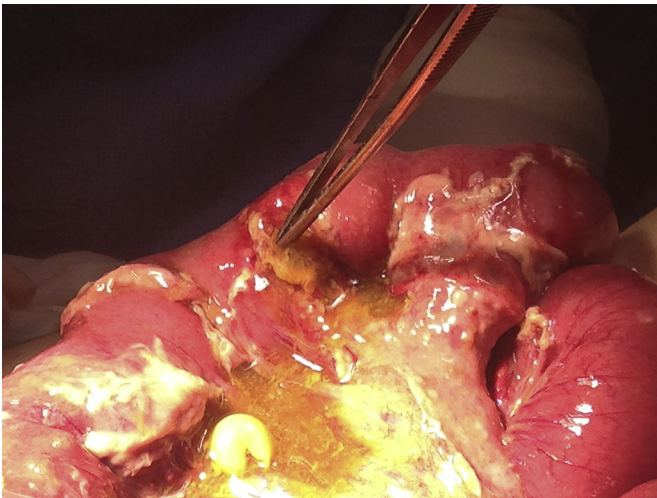


Fig. 5. Perforation with output of the ileum with intestinal contents.

The significance of early and reliable discovery of gastrointestinal perforation is very important, because it usually requires surgical intervention. The detection of minimal pneumoperitoneum in patients with acute abdominal pain caused by gastrointestinal perforation is one of the most important diagnostic tasks in the urgent state of abdomen. An experienced diagnostician can, by using radiological techniques, detect such small amount of air as 1 ml. Many researches show that its appearance is visible in just 75–80% of cases, but classic native x-rays of abdomen are still important procedures [7]. Abdominal CT-scan is a much more sensitive method in detection of air after perforation, even when it appears as a bubble and when the native x-ray is negative. Therefore, CT plays an important role in the early detection of gastrointestinal perforation [7], with an overall sensitivity of 64%, specificity of 97% and accuracy of 82%. On contrast-enhanced CT, the combination of bowel wall thickening and mural discontinuity is the most accurate indicator of bowel injury, having a sensitivity of 75%, a specificity of 84% and an accuracy of 81% [8].

Surgery is the treatment of choice for bowel perforation, and is most commonly performed by laparotomy due to its advantages to localize the perforation, closure or repair of the defect, and peritoneal lavage [9]. However, laparoscopy has been reported in some studies to be as good as laparotomy [9,10]. Procedures that can be used for treating bowel perforation are suturing the perforation

with or without a colostomy, Hartmann like procedure, and bowel resection with primary anastomosis, depending on local conditions [9]. In our case laparotomy was chosen. Intraoperatively was found peritonitis due to a perforation of the ileum with intestinal content output. Defect was closed with an absorbable suture, followed by peritoneal lavage and drainage. No postoperative complications occurred. Patient remained asymptomatic with oral diet and was discharged free of symptoms in the 9th pos-op day, matching other case reports data.

#### 4. Conclusion

Along with clinical findings, complementary methods are: abdomen x-ray in the standing position and CT with oral hydro soluble contrast substance. If x-ray is inconclusive, you should not hesitate to use CT, considering that it can detect fluid and very small collections of air, which are undetectable by previously mentioned method. Laparotomy is the most frequent approach, but laparoscopy can be a valid option.

#### Conflict of interest

All authors declare no conflict of interest.

#### Funding

None.

#### Consent

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

#### Ethical approval

This is not a research study.

#### Author contribution

SU – surgery, data collection, manuscript writing and review.  
VB – surgery, manuscript review.  
GM – surgery, manuscript review.

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