

Intestinal Strangulation Associated with Pubic Fracture in a Dog

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Abstract : A 2-year-old female, 3.8kg weight, mixed-breed dog was presented for a 10-day history of vomiting and anorexia. The dog was diagnosed with pelvic fracture by vehicular accident at a local animal hospital before 2 months, but fracture did not reconstructed. After 2 months, the dog suffered from intermittent vomiting and anorexia. On barium contrast, we diagnosed the dog as intestinal obstruction. Consequently, we were found obstruction by strangulation and adhesion of intestine at the fracture site through the operation. At present after 18 months of surgery, general physical condition of the dog is good.

Key words : strangulation, vehicular accident, pelvic fracture, dog.

Introduction

Vehicular accidents occur commonly in our life, and our pets more often are faced with an accidental danger than human. When vehicular accidents occur, the fracture of the pelvis is one of the most affected sites in dogs, and the majority occurs in healthy animals younger than 3 years (8). Infrequently, reduction and stabilization of pubic fracture with insertion of interfragmentary wires is accomplished. However, if other fractures as ilium or acetabulum are present proper treatment of these fractures usually gives sufficient stability so that surgery in the pelvic symphysis area is not necessary (9).

Intestinal strangulation is caused by an unnatural incarceration and entrapment of the intestine. Strangulation usually occurs within traumatic body wall hernias as omental tears, congenital hernias, mesenteric rents or subsequent to duodenocolic ligament (1, 3, 4). However, Intestinal strangulation associated with pubic fracture has not been reported in canines. This report describes unusually intestinal strangulation associated with pubic fracture.

Case

A 2-year-old, intact female, 3.8 kg weight, mixed-breed dog was referred to the Veterinary Medical Teaching Hospital of Chungnam National University for vomiting and anorexia. At a local animal hospital, the dog was diagnosed pelvic fracture by vehicular accident before 2 months, but pelvic fracture did not reconstructed. After 2 months, the dog was suffered from intermittent vomiting and anorexia for several days. On the

physical examination, the dog revealed weight loss and depressions. Complete blood count demonstrated normal range, but results from serum chemistry revealed increasing of 158 U/L in ALT (reference range, 0 to 100 U/L), 25.7 mg/dl in BUN (reference range, 7-20 mg/dl) and 132 mg/dl in GLU (reference range, 60-115 mg/dl). On plane radiographs, intestine was much enlarged and other intestine was deviated cranially (Fig 1). On barium contrast, it couldn't be gone backward at pubic fracture site (Fig 2). On ultrasonography, enlargement of small intestine and entrapping of some intestine between pubic bone and fractured fragment were found. Subsequently, we suspected that it was intestinal obstruction by strangulation, and performed a surgical operation.

After premedication with atropine (0.04 mg/kg, SQ), anesthesia was induced with ketamine (5 mg/kg, IV) plus acepromazine (0.05 mg/kg, IV) and maintained with isoflurane. Lactate Ringer Solution was administered intravenously at a rate of 10 ml/kg/hr. The dog was also started on ampicillin (20 mg/kg, IV). A midline celiotomy was performed, and we found entrapment of ileum at a space of pubic fracture site. The space was about 1 cm in height and width, and entrapped ileum was adhered to the fracture site between pubic and pelvic symphysis (Fig 3). The adhesion of intestine was separated carefully with wet sponge and hemostat and its vascular supply was not damaged severely. The fracture of pubic was reduced and fixed by use of three stainless steel wires. An enteropexy was also performed because of the risk of intussusception. The abdominal wound was apposed in a routine manner. The dog ate a/d (Hill's Prescription Diet[®]) the day after surgery with no evidence of vomiting and then gradually recovered the condition. After surgery, a sign of the intussusception was not found and mobility of intestine was resolved on ultrasonographs. The patient was discharged 2

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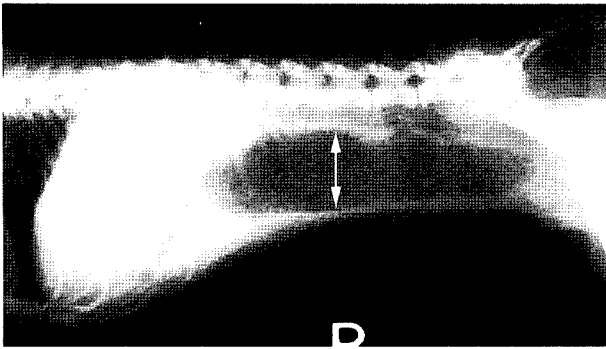


Fig 1. A lateral view of abdominal radiographs. The diameter of the bowel was severely enlarged approximately 3 or 4 times the height of body of lumbar vertebra (double arrow).

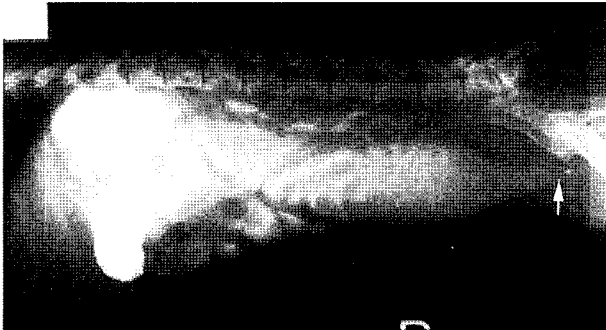


Fig 2. A lateral view of barium contrast. The contrast couldn't be gone backward at pubic fracture site (arrow).

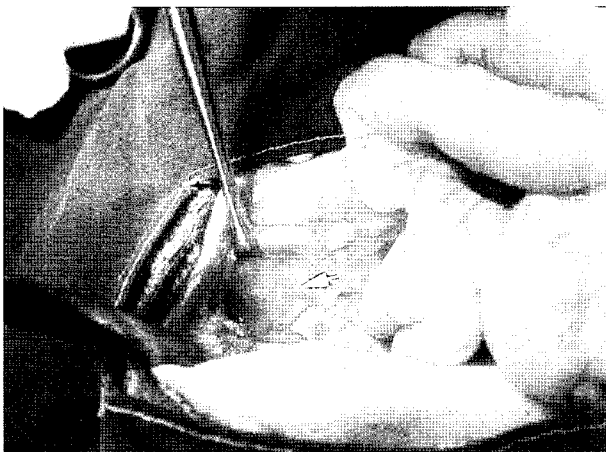


Fig 3. A photograph after adhered intestine was removed, where adhesion of small intestine and traumatic body wall were founded. Pubic fragment was retracted and space of hernia revealed (arrow).

days after surgery and was normal in 2 weeks. At 18 months after surgery, the dog revealed normal condition and motility.

Discussion

A case of dorsal rupture of the abdominal wall with prolapse, incarceration and obstruction of small bowel in a 2-year-old dog has been reported (3). The above case was referred secondary intestinal obstruction through the fracture. And also, the case was hospitalized on the fourth day after the accident for clinical signs as vomiting and anorexia. Similarly, the case of this report was also a partial intestinal obstruction secondary to an incarceration of small bowel through a pubic fracture. However, this case was quite different with the former case because of clinical signs of the patient revealed on 2 months after the accident. Based on previous report, there may have been no abdominal contents herniated at the time of trauma, but subsequent patient movement or manipulation facilitated herniation through a traumatic defect in the body wall (11). Similarly, this case is considered that movement of small intestine progressed repeatedly through the traumatic hernia, and at a moment, herniated intestine was entrapped in the caudal rupture of the abdominal wall. The contents of acute traumatic hernias may be more prone to adhesion to extra-abdominal structures and incarceration because such hernias lack a complete serosa-lined hernial sac. Similar to the above report, in this case, a part of ileum was adhered to the traumatic hernia. Based on the report, traumatic abdominal wall hernias have been described relatively infrequently in dogs (2,6,7,10,13). Especially, no case of partial or complete bowel obstruction due to the intestinal adhesion by hernia resulted from vehicular trauma have been reported.

According to the report by Shaw, ten of 26 dogs were occurred traumatic body wall herniation from vehicular trauma, and hernias of four of those were located in the cranial pubic ligament rupture (11). But those cases may not be adhesion of intestine because of surgical intervention was performed at the time of trauma.

Although adhesion of intestine was not severe, luminal size was different from proximal and distal ileum for the obstruction. Thus, an enteropexy was essentially performed to prevent intussusception in this case. It is common that pubic fracture resulted from vehicular trauma. However, at the traumatic abdominal wall hernia, intestinal obstruction by entrapment and adhesion was rarely founded in practices.

Bladder and urethral rupture may occur concurrent with pelvic fractures, particularly if the bladder is full at the time of impact (5). However, there was no injury of urinary organ in this case.

Most of practitioners easily pass over pubic fracture or cranial pubic ligament rupture in dogs with pelvic fractures. Therefore, the authors suggest that practitioners should be notice possibility like this case to the owners with dogs suffering from vehicular trauma.

Acknowledgements

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개에서 치골골절과 연관된 장폐색

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요 약 : 체중 3.8 kg의 2년령 암컷인 잡종견이 10일전부터의 구토 및 식욕저하를 주증상으로 내원하였다. 이 개는 2개월 전에 자동차 사고에 의한 골반골절로 진단되었으나, 골절은 정복되지 아니 하였다. 2개월 후에 간헐성의 구토 및 식욕부진으로 고통을 받았다. Barium 조영 방사선 검사에서, 장폐색으로 진단되었다. 외과수술을 통하여 골절 부위에서 장의 교액 및 유착에 의한 폐색이 확인되었다. 수술후 18개월이 경과된 시점에서 확인한 결과, 전신적인 신체상태가 양호하였다.

주요어 : 교액, 교통사고, 골반골절, 개