

## Accidental case of large colon impaction in a horse

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### Abstract

A 5 years old gelding (Thoroughbred, *Equus caballus*) had shown severe abdominal pain, colic, after overeating of hay in the feed storage. Following through treatment, it subsequently died. Grossly, the large colon was impacted with firm mass of food and congestion of blood vessel in the intestinal wall. There were mild peritonitis and pleuropneumonia. This case demonstrates typical large colon impaction with hard consistence ingesta due to improper management of horse.

**Key words :** Gelding, Colic, Colon, Impaction

### Introduction

Colic in horse can be the cause of critical death, due to impaction, intussusception and torsion of bowel, and ascarids, such as *Strongylus vulgaris*, and so on<sup>1)</sup>. Impactions are among the most common gastrointestinal diseases in horses and the most common cause of equine colic.

It is a simple obstruction in horses that usually involves the large colon<sup>2-5)</sup>. The factors predisposing to large intestinal impaction are primarily dietary in nature and include the feeding of poor quality indigestible roughage, feeding at abnormally long intervals and the consumption of bedding materials. Old age, parasites, over-eating, poor dental maintenance or worn

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teeth, inadequate mastication, decreased water consumption, dehydration, debilitation with loss of intestinal muscle tone, alterations in colonic motility and limited exercise have all been reported as possible causes of this condition<sup>6,7)</sup>. Sand impaction and ascarid impaction in horse have been reported in Korea<sup>8,9)</sup>.

Presumably due to the abrupt decrease in diameter, the junction between the left ventral colon and pelvic flexure is the most common location for impactions. Impactions also form at sites where the lumen diameter is narrowed, such as the cecum, or just proximal to the transverse colon in the right dorsal colon<sup>4,6,10)</sup>.

Impaction develops slowly over time (several days to weeks). Consistency of the impacted mass ranges from doughy to extremely firm. The amount of pain increase with complete obstruction or pressure necrosis of bowel around the impaction. Prolonged distension of large colon may impair mucosal perfusion resulting in severe ischemia and the mucosa degenerate from pressure necrosis. As with any persistent simple obstruction, incapacitating dehydration, shock and metabolic acidosis may occur in cases of prolonged impaction<sup>3,4,8,11)</sup>. This large colon impaction of horse occurred due to overeating, which was caused by improper management by owner.

## Symptoms

A 5 years old gelding (Thoroughbred) was claimed by current owner almost 3 months ago. It was kept in two seated stable together with a female horse.

Gelding consumed 6-8 kg/day, included alfalfa, timothy hay, and some vegetables, and provided with bucket of water.

The following is the history taking from owner. On end of October, 2005, the gelding showed mild sign of colic with constipation. After 2 days of treatment, horse recovered. Colic was again observed after 2 months on December. The gelding received medicine as Buscopan complex. Five days later, the condition of the horse became normal. It started to receive 4 kg of hay per day. But the gelding went into the food storage place and had free access to hay. The owner found that the door for feed storage was left opened and some hay were consumed by the horse, accidentally. In the evening, the gelding laid down and showed sign of severe colic. Application of Buscopan by the owner to relieve its suffering were ineffective. The horse died after few hours.

Necropsy was performed on the next day. Grossly, the gelding was in moderate body condition with some wounds in the skin of the distal parts of legs and prepuce, presumably a result of struggling prior death.

The significant necropsy finding was severe impaction of the large colon and blood vessel congestion in the intestinal wall. The right and left ventral colon was overfilled with firm mass of food, which was marked by finger palpation (Fig 1). Mild peritonitis was found with fibrin deposition on the serosa of the abdominal cavity. The content of the stomach, small intestine and cecum appeared to be normal.

Other lesions observed were mild pleuropneumonia with fibrinous adhesions of thoracic cavity, multifocal hemorrhages in

lungs and spleen, and some atelectasis in the caudal lobe of the left lung.



Fig 1. Abdominal cavity of the horse. Left ventral colon overfilled with firm mass

## Discussion

The necropsy findings revealed severe impaction of the large colon with firm mass of ingesta. Overeating of hay over a short period of time had increased the density and consistency of intestinal contents leading to obstruction of colon with ingested mass. There was no information about dental care of the horse. But it is important also to take into consideration possible dental problems as they can interfere with digestion. One of the leading causes of impaction colic can come from food that is improperly ground before swallowing<sup>5)</sup>.

This reported case showed that the horse was provided with bucket of water in low temperature conditions. Winter season predispose to impaction as cold water intake is associated with decreased water consumption<sup>5)</sup>. The stable was located around 350 meter high at the sea level, which was colder than in the plain land. The water in bucket was covered by ice at

the date of necropsy.

Treatment of gelding failed as components of Buscopan N-butylscopol-ammonium bromide is spasmolytic and anticholinergic and dipyron is a very mild NSAID. Buscopan is indicated for the control of abdominal pain associated with spasmodic colic, flatulent colic and only simple impactions, but not for severe impactions. It is also recommended that if impaction persists and has not softened within 3 days of appropriate medical therapy or if the horse deteriorates clinically, surgery is indicated<sup>2)</sup>.

The learning and training for equine medicine is limited in the course of veterinary school in Korea, and most of equine veterinarians work in the Korean Racing Association (KRA), but the equine clinicians except KRA are less than 10 until now. Currently, some of people keep small number of horses, e.g., one or two horses as pet animal. Unfortunately, many owners do not have enough knowledge for horse care and management, and medical service can not be applied properly sometimes due to distance or limited number of equine clinicians.

The main health problems involve the musculoskeletal system, respiratory and gastrointestinal (G.I.) tract. In the G.I. tract, the horse has the predisposing factor for colic anatomically. In horse there is no vomiting, unfixed position of left colon, and termination of left ventral colon into much narrower pelvic flexure, and so on<sup>12)</sup>.

When the health problem occurred in this horse, the process of impaction in the large colon blocked passage of ingesta showing intermittent pain. Prolonged distension of the colon might caused mural ischemia and degeneration of the bowel. When the

obstruction become complete, ingesta and gas accumulate more rapidly and marked distention become so great that it exerted pressure against the diaphragm and vena cava, resulting in impaired pulmonary function and venous return. This ultimately caused hypovolemic and hypoxemic shock leading to death of animal<sup>8,9)</sup>.

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