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## Case Report

### The First Report of Gastrointestinal Obstruction in New Zealand White Rabbit in Iran

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#### ABSTRACT

**Objective:** Gastric dilatation also known as gastrointestinal obstruction or bloat is an acute and life-threatening condition in pet rabbits commonly caused by an intestinal obstruction with pellets, foreign bodies and compressed hair. **Methods:** In June 2014, a two years old male New Zealand white rabbit were referred to Karaj Central Veterinary hospital, Karaj, Iran with the history of acute anorexia and severe bloat. **Results:** Gastrointestinal obstruction was confirmed according to historical data, clinical examination and radiographic findings. Although surgery is the treatment of choice for this problem in most cases, the medical treatment was substituted for surgery due to restrictions by the owner and it was successful.

## 1. INTRODUCTION

Gastrointestinal Dilatation, also known as gastrointestinal obstruction or "bloat," is one of the few immediately life-threatening conditions seen in house rabbits. Gastrointestinal Dilatation is not related in any way to gastrointestinal stasis, or hypo motility syndrome, although it can sometimes be difficult to tell the two apart. (Oglesbee, 2009). Gastrointestinal Dilatation is caused by a sudden and complete obstruction or blockage of the intestines (Dale, 2004). Most of the time, the blockage occurs in the small intestine, just 5-8 centimeters past the stomach. Less often, it occurs where the small intestine meets the cecum that is called the ileoceco-colonic junction. If the intestine is blocked very close to the stomach, symptoms develop very quickly. If the blockage is further down, by the cecum, it may take

longer for the blockage to become life threatening (Harcourt-Brown, 2007; Oglesbee, 2009). Rabbits cannot vomit. They have a very tight sphincter at the entrance to the stomach to stop anything from moving from the stomach up into the esophagus and out the mouth. Rabbits also make a lot of saliva to moisten and help digest food. The stomach also makes a lot of fluid for the same purpose. If the intestines suddenly become completely blocked, the rabbit will continue to swallow saliva, the stomach continues to make fluid, but none of this fluid can leave the stomach. As a result, the stomach gradually starts to fill up with fluid. Afterward, the bacteria trapped in the stomach overgrow and most of these bacteria are gas forming. With time, the stomach fills with gas and fluid and becomes very dilated, like an over-inflated balloon, hence the name "bloat." In most cases, bloat is due to obstruction of the small intestine

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with a mat of hair or other swallowed object, lodged just past the stomach. Occasionally other causes of complete intestinal obstruction such as abscesses or tumors occur (Oglesbee, 2011). Direct damage to the stomach wall is caused by stretching of the stomach and lack of blood flow, so that the stomach wall dies off. The dilated stomach can also stop blood flow to vital organs such as the kidneys. These changes account for the sudden clinical signs, which include severe abdominal pain, shock, and heart failure. Without treatment, death occurs within 4–24 hours. Often, affected rabbits are found dead with no obvious signs of illness. This is the most common cause of sudden, unexpected death in otherwise healthy rabbits. There is no sex predilection for this problem. Clinical signs are sudden onset of anorexia, refusing all food, signs of pain (e.g. reluctance to move, hunched posture, or tooth grinding), sudden onset of depression, progressing to weakness, lying down, often in a stretched-out position; and eventually, minimally responsive to any stimuli. Other probable clinical signs are sudden onset of lack of fecal production, progressive distention of the stomach or abdomen. Affected rabbits may be found dying or dead with no obvious signs. Radiography is a useful diagnostic tool because gas and/or fluid in the digestive tract outlined the dilated stomach and intestines (Schuhmann and Cope 2014).

## 2. Case description

In June 2014, a two years old male New Zealand white rabbit were referred to Karaj Central Veterinary hospital, Karaj, Iran with the history of acute anorexia and severe bloat. The owner mentioned that her rabbit was completely healthy before showing these signs at previous midnight. The presented rabbit was much stressed, reluctant to move and lied in stretched-out position. Hypothermia (Body Temperature: 37.6 C), Tachycardia (380 bpm), severe abdominal distention and pain, prolonged capillary refill time and pale mucous membranes and respiratory distress were the considerable abnormal clinical signs that most of were representative for poor circulation as a result of cardiac insufficiency. Digital radiography showed a dilated stomach that is over-filled with gas, with little or no air in the rest of the intestinal (Figures 1 and 2). According to historical and clinical findings and evaluation with radiography, the diagnosis of gastrointestinal obstruction was confirmed. The patient hospitalized immediately and due to owner's request, medical therapy was conducted for this rabbit.

### 2.1. Treatment plan

Physiological stabilization of a patient is the goal of every case, especially in these patients before any other medical and surgical interventions, so catheterization with a 24-gauge indwelling intravenous catheter in the cephalic vein was performed in this rabbit. Initial fluid therapy was done by administrating Lactated Ringer's and Dextrose 5% solution at the rate of 10 to 15 ml/kg and colloidal fluid (Hetastarch) at the rate of 5 ml/kg over 10 minutes. Balanced intravenous infusion (Dextrose 2.5%) was administered at rate of 4 ml/kg/h for maintenance fluid therapy. Another important step was decompressing the stomach to relief of pain and re-establish normal function of cardiopulmonary system. For this purpose, the rabbit positioned in sternal recumbency and it was incubated with a French rubber catheter gauge number 6 after instill tetracaine 0.5% drops as a local anesthetic solution onto the mucous membranes of the nares (Nasogastric intubation). The content and gas of the stomach were aspirated very gently by using a 20 ml syringe. Other medications and conservative treatment were included as:

1. Antibiotic therapy (Enrofloxacin 5 mg/kg SC q 12 hours)
2. Analgesics (Ketoprofen 3mg/kg IM q 12-24 hours)
3. Gastrointestinal motility stimulant (Metoclopramide 0.5 mg/kg SC q 8-12 hours)
4. Appetite stimulants (B Complex 0.5 ml/Rabbit q 24 hours)
5. Syringe feeding directly through mouth or indirectly by using nasogastric tube
6. Oral administration of dimethicone to help break down gas bubbles associating with bloat.

This treatment was used for three days until the rabbits recovered completely and passed stool that contained hair mat which was the possible cause of obstruction. Restriction of activity for approximately two weeks postoperatively, is recommended.

## 3. DISCUSSION

Gastric dilation or bloat is a potentially deadly disease that should be recognized and addressed immediately; failure to treat this disease quickly could lead to fatal consequences. Some rabbits will respond to medical treatment alone, but in most cases, following patient stabilization and stomach decompression, surgical intervention is nearly always needed to remove the obstruction (Oglesbee, 2011). Overall prognosis is guarded, even with aggressive treatment. Early recognition of bloat will result in a higher likelihood of successful treatment; therefore, it is important that rabbit owners be aware of the signs and symptoms

(Dale, 2004; Oglesbee, 2011). Patients recovering well after 3 days appear to have a good prognosis for complete recovery. Monitor the appetite and production of fecal pellets. With successful treatment, see return of appetite, normal feces produced. Also monitor urine production and kidney function postoperatively; the most common cause of death within 3 days of surgery is

kidney failure (Harcourt-Brown, 2007). Possible complications of this problem are death due to gastric rupture, kidney failure in the immediate postoperative period, postoperative gastrointestinal stasis, and stricture formation at the site of removal of the obstructing object. Gastric dilation may recur (Schuhmann and Cope, 2014; Oglesbee, 2011).

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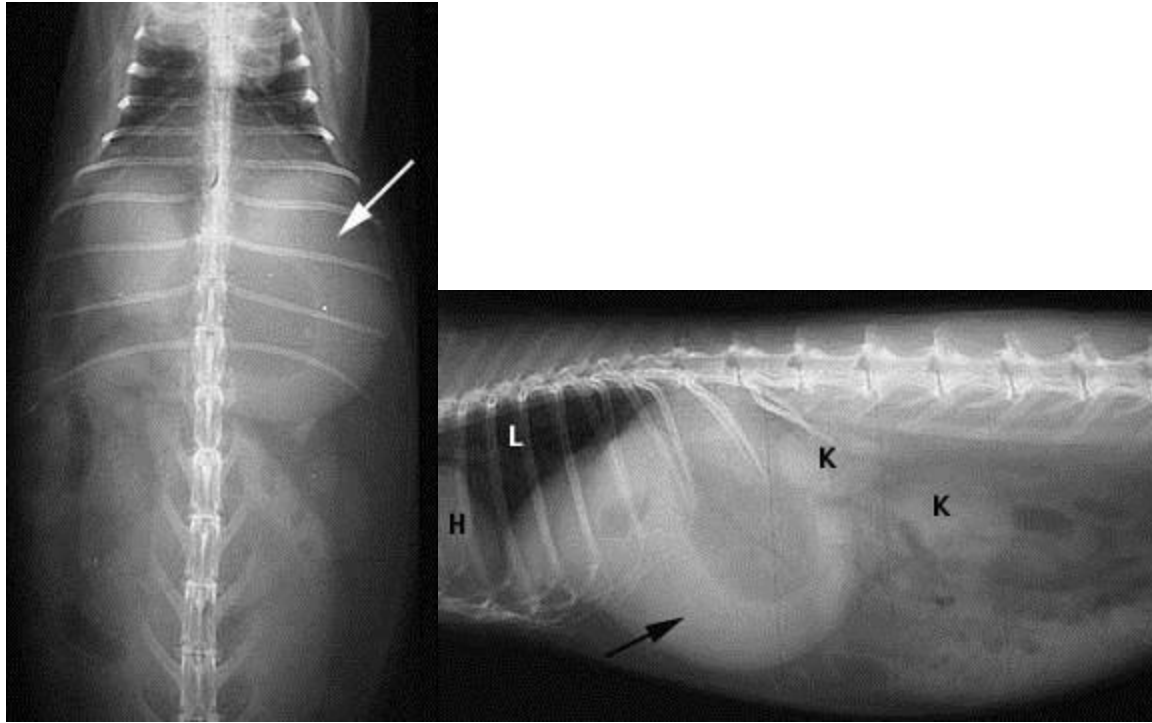
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**Figures 1 and 2:**

Lateral and ventrodorsal radiographs of a rabbit with gastrointestinal Dilation (Bloat) shows the very large, dilated stomach.