Therapeutic Management of Impactive Colic with Flunixin Meglumine and Co-Therapies - A Clinical Study of 13 Equines

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Abstract

Thirteen horses were presented in Hospital. Clinical examination revealed normal body temperature, increased heart rate, pulse rate, capillary refill time (> 2 seconds) and congested conjuctival mucous membrane. All animals were treated with injection Flunixin meglumine; injection Chlorphenramine maleate; injection B_1, B_6, B_{12}; injection DNS and Injection Ringer Lactate. Followed by administration of 1 liter liquid paraffin orally on first day. All thirteen (13) animals showed signs of relief in abdominal pain after intravenous administration of Flunixin meglumine. Flunixin meglumine was found highly effective (84.61%) for treatment of impactive colic in equines.

Keywords: Equine; fecolith; flunixin meglumine; impactive colic

Introduction

Impactive colic is accumulation of feed or other dried indigestible material that obstructs the horse's colon. Obstruction typically occurs at the narrowest point in large colon, such as pelvic flexor and left ventral colon. Impactive colic is the most frequent type of simple obstruction causing colic (Tinker *et al*., 1997; White and Dabareiner, 1997). Equine colic can be divided into two major categories *viz.* gastrointestinal and non-gastrointestinal (Smith, 2002). Gastrointestinal colic can be caused by different conditions, ranging from harmless spasmodic colic to life threatening strangulation obstructions (Van Der Linden *et al.,* 2003). Simple obstruction of small colon in horse cause colic and concludes intramural obstruction by foreign material and abnormal accumulation of ingesta, meconium, fibrous material and enteroliths (Keller and Horney, 1985; Ruggles and Ross, 1991). Factors associated with impactions include poor dentition, lack of access to water, coarse feed, acute cessation of routine exercise with confinement and treatment for musculoskeletal disease (Dabareiner and White, 1995; White and Lopes, 2003). Damage or dysfunction of enteric nervous system may also cause alteration in motility leading to impaction. Intestinal adhesions, which are suspected to alter motility pattern at the pelvic flexure are also known to cause colon impactions (Schusser and White, 1997). The main aim for treating horses with colic include relieving pain, correcting physiological imbalance, stimulating or maintaining intestinal transit and decreasing intestinal inflammation. The present study was conducted to evaluate the efficacy of Flunixin meglumine for therapeutic management of impactive colic in equine.

History

A total thirteen (13) horses (9 stallions and 4 mares) of 5-7 years age groups were presented with history of being dull, depressed, anorectic and rolling on the ground at every 10-15 minutes interval, were not drinking water and passing either small amount or not passing faeces for past 2-3 days. All animals were treated with injection of Chlorpheniramine maleate, Splasmotic drugs, syrup Gastina[a] (anti-bloat) and feeding of mixture of ginger, garlic and ajwain.

Clinical Observations

Clinical examination of all horses revealed normal body temperature, increased heart rate, pulse rate, capillary refill time (>2 seconds) (Fig.1) and congested conjuctival mucous membrane. All

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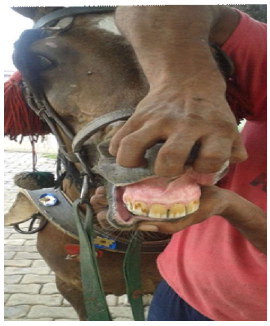

Fig. 1: Capillary refill time (>2 seconds)

Fig. 2: Abdomen viewing

Fig. 3a: Limb stretching

Fig. 3b: Limb stretching

Fig. 4a-b: Getting up and sitting down

animals showed clinical signs like looking towards abdomen (Fig. 2), stretching of limbs (Fig. 3a,b), kicking at abdomen and getting up and sitting down (Fig. 4a,b) and rolling on ground (Fig. 5a,b). Auscultation of abdomen showed decreased frequency and intensity of gut sounds (borborygmi).

Diagnosis

Per rectal examination revealed remnants of constipated feces present in rectum. On the basis of correlation of history, clinical signs and per rectal examination, all animals were diagnosed as impactive colic.

Treatment

All animals were treated with injection Flunixin meglumine (Unizif[b]) @ 1.1 mg/ kg body weight, intravenously, injection Chlorphenramine maleate (Anistamin[b]) @ 10 ml/ animals, intramuscularly, injection B_1, B_6, B_{12} (Tribivet[b]) @ 10 ml, intramuscularly, injection DNS (5%) 2-3 liters, intravenously, Injection Ringer Lactate 2-3 liters intravenously for three days. Followed by administration of 1 liter liquid paraffin orally on first day.

Results and Discussion

All thirteen (13) animals showed signs of relief in abdominal pain within 20-30 minutes intravenous administration of Flunixin meglumine (Fig. 6). Out of these 13 treated animals, 9 animals (69.23%) passed faeces after 4-6 hours of therapy. One of them passed faecolith (weight 298 gram and size 8 cm X 6 cm X 5 cm) (Fig. 7) before passing feces. On analysis, the faecolith it was found to have formed around the plastic wire as a nidus (Fig. 8). Out of remaining 4 animals, 2 (15.38%) passed faeces after 3-4 hours of second day of therapy and 1 animal died after second day of therapy and rest 1 animal did not respond treated surgically after three days of therapy. So, out of 13 animals, 11 (84.61%) animals showed recovery after three days of therapy (Fig. 9a,b).

Medical Management of impaction colic consist of pain relief, fluid therapy, intestinal lubricant and

a - Brand of Virbac Animal Health, Mumbai
b - Brand of Intas Animal Health, Ahmedabad

Fig. 5a,b: Rolling on ground

Fig. 6: Relief in abdominal pain post treatment

Fig. 7: Faecolith weighting 298 gram

Fig. 8: Plastic as faecolith nidus

Fig. 9a: Clinically recovered horse

Fig. 9b: Clinically recovered horse

laxatives. The most commonly used analgesics for abdominal pain are non-steroidal anti-inflammatory drugs (NSAIDs) (Flunixin meglumine and Dipyrone), alpha$_2$ agonists (Xylazine and Detomidine) and opioids (Butorphanol). Flunixin meglumine is also used to protect endotoxemia in colic. Fluid therapy is necessary in most horses with colic in order to counteract dehydration and restore tissue perfusion. Fluids may be given intravenous or orally through nasogastric tube for cardiovascular support and hydration of luminal contents. Oral fluid is contraindicated in horses with small intestine obstruction or if fluid reflex is being removed from the stomach.

Flunixin meglunine is most effective NSAIDs used to treat acute abdominal diseases in horses. It blocks the production of prostaglandins, specifically thromboxane and prostacyclin, for 8-12 hours after a single dose (Semard *et al*., 1985). Lopes *et al.* (2002) observed that combination of alpha agonists with Flunixin meglumine also appears effective for managing impactions, which can take several days to soften and move from colon. Moore *et al* (1981) reported that Flunixin meglumine provide longer analgesia and protected horses from effective shock. In our study, all 13 (100%) animals showed clinical improvements and signs of relief in abdominal pain.

Administration of mineral oil *via* nasogastric tube is widely recommended for treatment of impaction colic. In our study, Liquid paraffin was administered as laxative *via* nasogastric tube which helped to soften

and move the impaction from colon. Administration of intravenous fluids has been used to help 'over hydrate' the circulatory system, thereby stimulating secretion into dehydrated ingesta in colon (White and Lopes, 2003). The intravenous administration of fluids revealed dilution of plasma protein in vascular system, reduce plasma osmotic pressure, allowing water diffusion into tissue and specially in region of distended bowel. In present study, Chlorphenramine malate was used as antihistaminic to prevent the secretion of histamines. Administration of B_1, B_6 and B_{12} helped to increase tonicity of vital organs.

Impaction of colon causes obstruction either at pelvic flexure or the right dorsal colon (White and Dabareiner, 1997). The ingesta becomes dehydrated and form a firm, large mass, which is resistant to moving aborally due to its size and contraction of colon around the mass. White and Dabareiner (1997) was suggested impaction successfully treated by administration of analgesics and laxative such as mineral oil. Impaction resistant to laxative treatment will most always resolve with hydration of impacted mass using an intravenous or enteral balanced electrolyte administration (Lopes *et al*., 2002).

Conclusion

In our study, it was concluded that Flunixin meglumine along with rehydration, laxative and supportive therapy were highly effective (84.61%) for therapeutic management of impactive colic in equines.

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Received on: 30.12.2020
Accepted on: 26.02.2021