

Ethnomedic treatment of colic in captive safari Asian Elephants *Elephas maximus* (Mammalia: Proboscidea: Elephantidae) with classical symptoms - an update

Elephants are the largest land mammals and most primeval mega herbivore (Shoshani 2000) with evolutionary history of more than 60 million years (Fowler & Mikota 2006). Humans have maintained Asian elephants in captivity for over 4,000 years (Vimalraj & Jayathangaraj 2012). The large body size of the Asian Elephant produces serious problems and places significant limitations (Ramiro & Robert 2004; Varma 2007).

Worldwide, most frequent emergency cases encountered in elephant practices were colic and aged between 2–60 years (Boon et al. 2015). Spasmodic and obstructive



Mouldy sugarcane tops fed to elephants



Elephant on lateral recumbency

colic have been described in elephants (Schmidt 1986; Du Toit 2001). Spasmodic colic is usually caused by mouldy fodder and can be treated by spasmolytic drugs and also by copious, soapy water enema (Wildpro.Twycrosszoo.org) repeated until relief. Obstructive colic due to excessive intake of clay and high-fibre food produces hard fecal balls that pass with difficulty through the gastro-intestinal tract and can be treated by parenteral administration of muscle relaxants (Firyal & Naureen 2007). A correct clinical diagnosis and the type of treatment is often difficult as prognosis was also necessary, therefore remains the



Bloated abdomen

deciding factor for whether to treat or not (Bliklager & Roberts 1995). The present case study was planned to evaluate the usefulness of commonly encountered colic in elephants using handy traditional ethnomedic treatment and was best resulted.

Results and Discussion

Out of eight female captive safari Asian Elephants protected under Western Circle Forest Division (29°24'–29.62" °N & 79°07'–33.97" °E), Nainital, India, three elephants aged around 53 years (Kalina), 56 years (Pawan Kali) and 35 years (Rani) exhibited mild to moderate colic symptoms observed from very early morning including restlessness, dull, bloated abdomen, belching/ eructation, lie down and getting up frequently, micturation, absence of defecation, complete loosening of trunk on the ground, to and fro movement of the body (saw- horse stance). History

revealed that they were dewormed a month before with fenbendazole and found that abdominal pain was due to overfeeding mouldy sugarcane tops prior night. They were treated successfully with a handful ethnomedic preparation consisting of mildly browned cumin, fennel seeds, asafoetida powder and black salt, altogether thrice, every three hours (07.00hr, 10.00hr & 13.00hr) along with Jaggery (a coarse dark brown sugar made in India by evaporation of the sap of palm trees). Over a period after five hours they, recovered uneventfully by passing loose and watery faecal balls and drank water. They stopped lying down but did not take feed. All the three elephants were taken for a walk twice to facilitate activity and around 18.00hr they started feeding on its own in moderate quantity.

- Cumin contains bioactive constituents such as terpenes, phenols, and flavonoids,



Ethnomedic preparation



Belching position

and its main constituent Thymoquinone (TQ). Cumin seeds aid in digestion and have stimulatory effect on the digestive enzymes (Platel & Srinivasan 1996). They are commonly used in traditional medicine as antihypertensive, liver tonics, diuretics, digestive, anti-diarrheal, appetite stimulant, analgesics, anti-bacterial, anti-oxidants, anti-inflammatory effects and in skin disorders (Krishnapura 2018).

- Fennel is one of the oldest spice plants and world's most important medicinal plants (Shamkant et al. 2014). It has several in vitro and in vivo pharmacological properties such as anti-microbial, anti-viral, anti-inflammatory, anti-mutagenic, anti-nociceptive, anti-pyretic, anti-spasmodic, anti-thrombotic, apoptotic,

cardiovascular, chemomodulatory, anti-tumor, hepatoprotective, hypoglycemic, hypolipidemic, and memory enhancing property (Wesam et al. 2015).

- Asafoetida is used as a digestive aid in food as a condiment and thins down the blood and lowers blood pressure. It is used in modern herbalism in the treatment of hysteria, some nervous conditions, bronchitis, asthma, whooping cough and flatulent colic. The oleo- gum resin is antispasmodic, carminative, expectorant, laxative, and sedative (Poonam & Shradha 2012).

- Black Salt is rich in minerals, removes bloat and soothes heartburn, increases water absorption within the digestive system and surrounding organs, alkaline properties of black salt; reduces excess



Loosening of trunk



To and fro movements of the body to relieve gas and pain (saw-horse stance)

acid in the stomach and its minerals present help lessen the damage caused by acid reflux (Debojyoti et al. 2015). It effectively reduce muscle cramps & spasms and act as natural air ionizers that can remove harmful ions from the air we breathe (Apurbo et al. 2016).

The elephants, like other herbivores, have no fiber-digesting enzymes of their own (Ullrey et al. 1997). The physicochemical characteristics of dietary fiber play an important role in normal gastrointestinal function, although highly fibrous type of diet may lead to impaction (Vidya & Sukumar 2005).

The quality of food an animal feeds on with respect to available nitrogen is important for its well being, as well as for management implications (Foguekem et al. 2011) and also the flexures in large intestine are the site of constipation and

colic (Elephantaidinternational.org). Dusty, mouldy or infested with beetles, poisonous plants, or other dangerous substances should never be used. Behavioral problems (Eltringham 1982), and a number of poor husbandry and feeding practices, including stress due to changes in routine, insufficient roughage of appropriate quality, rapid consumption of grains or pelleted feed, sudden changes in amounts or types of



Feces passed after treatment-2hr



Feces passed after treatment-6hr

feeds/roughage, and lack of continuously available fresh and clean water reduce the gut motility. Mineral oil, wheat bran or sugar beet pulp to the diet have been tried as a prophylactic measure along with regular exercise that promotes normal gut motility (Ullrey et al. 1997 & Miller et al. 2015).

Conclusion

Our case study represents the key first step of ensuring the most important needs for captive elephant health and their conservation in highest priorities and to develop interest on a new approach. However, there is a dearth of broad-scale studies on alternative veterinary medicine on elephants and other wild animals that are most likely to have a beneficial impact on health.

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