ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 9, Issue, 7(D), pp. 27953-27955, July, 2018

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

A CASE STUDY OF LANTANA CAMARA POISONING IN SIROHI GOAT

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DOI: http://dx.doi.org/10.24327/ijrsr.2018. 0907.2364

ARTICLE INFO

Article History:
Received 4th April, 2018
Received in revised form 25th May, 2018
Accepted 23rd June, 2018
Published online 28th July, 2018

Key Words:

Lantana camara, Goat, Toxicity and Photosensitization

ABSTRACT

In present report, secondary photosensitization due to Lantana camara toxicity in kid of Sirohi goat in Chittorgarh district of Rajasthan is discussed. Among poisonous plants, Lantana camara is a common noxious weed widely known to cause phototoxicity in large and small ruminants. The major clinical manifestations shown by affected kids were anorexia, depression, isolated from herds, swelling of eye lids and later on sloughing of superficial layer of skin particularly over the back, on ventral abdomen, neck, around eyes, udder and tail along with tendency of itching. Symptomatic clinical treatment comprised of oral administration of activated charcoal, purgative and liver tonic supported with electrolyte therapy and parental administration of antihistaminic and vitamin B-complex with liver extract was given.

INTRODUCTION

Lantana camara is one of the most commonly known noxious weed distributed worldwide (Kumar *et al.,* 2016). Toxic plants are of major concern to animal husbandry because of their harmful effects to livestock health and reduction in productivity. Among poisonous plants, *Lantana camara* is a common noxious weed (Sharma *et al.,* 1988) widely known to cause phototoxicity in small and large ruminants (Annalize Ide *et al.,* 1998; Black *et al.,* 1985). It is widely available in the Aravali ranges of Rajasthan (India) and commonly known as 'Buti' (Kachhawaha *et al.,* 2014). Its poisoning in animals has been documented from different parts of world including India. Young animals, newly exposed to pastures and unfamiliar to forage varieties are most prone to such toxicities. The toxicity is due to accumulation of photodynamic agent in peripheral circulation either through ingestion, absorption through skin or by abnormal metabolism (Radostits *et al.,* 2003; Casarett and Doull, 2001). The principal toxic component of this weed is Lantadenes (Sharma et al., 2007) which are pentacyclic triterpenoids that leads to hepatotoxicity, photosensitization and jaundice (Kumar *et al.,* 2016).

Absorption through entire GIT mainly via small intestine (Sharma *et al.,* 2007)
↓
Liver damage (Bile canalicular membrane mainly)
↓
Inhibitory Impulses
↓
Ruminal stasis (4-6 hrs after ingestion, indicate 1st evidence of liver injury) (McSweeney and Pass, 1983)
↓
Continuous absorption and maintenance of toxicity (Pass, 1991)
↓
Lantana toxins damages peripheral parechymal cells and bile canalicular membrane
↓
Bile secretion inhibition (Pass et al., 1976)
↓
Intrahepatic cholestasis

Fig 1 Flow chart of absorption and mechanism of action of lantades

Almost 24 hours after return from pastures last evening, one affected kid was anorexic and isolated from the herd showing

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early clinical symptoms of lantana poisoning at Livestock Research Station, Bojunda, Chittorgarh. With passage of time superficial layers of skin was found sloughed off particularly over the back, on ventral abdomen, neck, around eyes, udder and tail along with tendency of itching (Fig. 2 and 3). Examination of pastures and feed stores was carried out and presence of weed in the pastures was confirmed. No such changes were noticed in adult animals by second day or later.
There was recorded history of mortality in a kid of five months that died due to Lantana toxicity wherein initial symptoms of anorexia, depression, fever, redness of muzzle, swelling of eyes and at base of ear were noticed following which there were cracks on muzzle and sloughing of skin over the ears and other dorso-lateral parts of body. The kid could not be recovered and died after seven days. Necropsy examination of carcass showed discoloured (yellowish) and swollen liver with distended gall bladder, swollen and pale kidneys were observed indicative of death due to lantana toxicity. Presence of distended gall bladder and discoloured liver were in accordance with earlier findings reported by Annalize Ide *et al.* (1998) and Sharma *et al.* (1981).

Since no antidote to lantana toxicity is available so symptomatic clinical treatment was initiated with oral administration of activated charcoal supported with electrolyte therapy and parental administration of antihistaminic and vitamin B-complex with liver extract for 5 days. Oral administration of magnesium sulphate was also initiated from 2nd day onwards and liver tonic was given till 7th day. Affected kids were kept in dark and cool shady place to reduce itching and photosensitization.

Fig 2 Sloughing off skin over ears and neck region in Sirohi kid

Fig 3 Sloughing off skin over ears, neck and dorsum in Sirohi kid

Fig 4 Trees of *Lantana camara* in flowering stage

Affected goat kid recovered after treatment. Feed and water intake was restored to normal. It was concluded from the case study that young animals, newly exposed to pastures and unfamiliar to forage varieties are more prone to lantana toxicity. Ingestion of lantana leads to sluggish rumen microbial activity in ruminants which causes anorexia and depression. Similar clinical signs were also described by Sharma *et al.* (1981), Ekambaram *et al.* (2014) and Bhardwaj *et al.* (2012). Sloughing of superficial layer of skin in lantana toxicity was also reported by Patel *et al.* (2012). Clinical manifestations in present study are in agreement with those described earlier by Kachhawaha *et al.* (2014).

A combined therapy consist of oral administration of activated charcoal, purgative and liver tonic supported with electrolyte therapy and parental administration of antihistaminic and vitamin B-complex with liver extract for 5-7 days can be helpful in treatment of Lantana toxicity. The activated charcoal adsorbs toxic components of Lantana and purgatives help to remove the toxic components from gastrointestinal tract. Electrolyte therapy and administration of liver tonic helps restoring the liver functions. Keeping the animals in dark shady place helps reducing the photosensitizing potential of toxic principles. Oral administration of activated charcoal has been described earlier for treatment of lantana toxicity by Ekambaram *et al.* (2014) and Pass and Stewart (1984). Kumar *et al.* (2009) reported that successful management of lantana poisoning in an organized sheep farm by a combined treatment comprised of liver tonic, anti-histaminic, rumenotonic and dextrose.

Toxic plants are of major concern to veterinarians because of their harmful effects to livestock in terms of causing mortality and reduction in productivity (Sharma *et al.,* 2007 and Diaz, 2011). This plant shows change in inflorescence with age and season that's why very difficult to classify taxonomically (Munir, 1996).

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How to cite this article:

Virendra Singh *et al.* 2018, A Case Study of Lantana Camara Poisoning in Sirohi Goat. *Int J Recent Sci Res.* 9(7), pp. 27953-27955. DOI: http://dx.doi.org/10.24327/ijrsr.2018.0907.2364

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