Organochloride Poisoning in a Golden langur (Trachypithecus geei) - A Case Report

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Abstract

The present study examined a carcass of golden langur (Trachypithecus geei) to know the cause of the death. At post-mortem examination, no any organ showed significant lesion except the liver showed necrosis. Microscopical picture in the liver revealed focal necrosis of the hepatic lobules. Brain showed congestion in the cerebral cortex and piameter was congested. The State Forensic Science Laboratory, Guwahati confirmed the case as organochlorine insecticide poisoning, as tissues of liver and kidney and intestinal contents were found positive for the insecticide.

Key words: Poison, Organochlorine, Golden langur

Introduction

Golden langur (Trachypithecus geei) is one of the most endangered primate species of India (Srivastava et al., 2001). Its distribution is limited to a small forest belt in western Assam in Northeast India and Bhutan, between the River Manas in the east, River Sankosh in the west and the Brahmaputra in the south (Chetry et al., 2010). Chakrashila Wildlife Sanctuary (CSW) straddling Kokrajhar and Dhubri districts of Assam is the only protected habitat for the golden langur in India (Chetry et al., 2010).

Incidence of poisoning cases in non human primate is not common, although few cases of lead poisoning (Zook et al., 2005), organophosphorus poisoning (Goswami, 1994) and organochlorine poisoning (Pathak, 2011) were recorded. The present study reported organochlorine insecticide poisoning in a golden langur.

Materials and Methods

An adult free living female golden langur of Chakrashila Wildlife Sanctuary (CSW), Assam had been submitted to the Department of Pathology, College of Veterinary Science, Assam Agricultural University, Khanapara by the veterinary officer of Wildlife Trust of India (WTI) entrusted to CSW, Assam for necropsy with the history of falling from tree, get injured and died after a few days.

The animal was subjected to a detailed postmortem examination and the gross lesions were systematically recorded. The affected organs showing lesions were collected for histopathological examination. The collected tissue samples were processed and stained by routine haematoxylin and eosin. Heart blood was collected for isolation of microorganisms. Pieces of liver and kidney and intestinal loop in saturated salt
solution were sent to the Forensic Science Laboratory, Guwahati, Assam for detection of any toxic insecticides.

**Results and Discussion**

At post mortem examination, no significant gross lesion could be detected in any organ except liver. The liver showed focal areas of necrosis. Microscopical picture revealed severe congestion in the pulmonary capillaries and hemorrhage into the alveoli of lung. There was presence of inflammatory cells in the interstitial spaces. In liver, focal necrosis of the hepatic lobules was marked (Fig.1). Only few hepatocytes were present at the perilobular areas. Brain showed congestion in the cerebral cortex and piameter was congested (Fig. 2). No organism could be isolated on culture from the heart blood. The tissues of liver and kidney and intestinal content showed presence of organochlorine compound as detected by the State Forensic Science Laboratory, Guwahati. Hence, the cause of death was ascertained to be due to organochlorine insecticide poisoning.

![Fig.1. Photomicrograph of liver showing massive necrosis in the hepatic parenchyma. H&E X100](image1)

![Fig.2. Photomicrograph of brain showing congestion in the cerebral cortex and in the piameter. H&E X100](image2)

In poisoning cases, no specific histopathological lesion is found. Hepatocellular degeneration and renal tubular degeneration had been occasionally reported with certain organochlorine intoxications, such lesions were more frequently associated with prolonged exposure than acute poisoning (Peterson and Talcott, 2006). The poisoning case reported by Goswami (1994) in a captive animal and the source could not be confirmed; but in the present study the poisoning case was from a free ranging golden langur of Chakrasilla Wildlife Sanctuary. It was known that near the protected area extensive rubber cultivation was going on and organochlorine insecticide and other pesticides were routinely used in those plantations. It was also reported that the langurs often cause damage to the rubber plantation by plucking and eating the tender buds of these plants. Therefore, it could be presumed that the langurs might have picked up the
toxic dose from the insecticide sprayed over the plants. The focal hepatic necrosis seen in the liver and nerve disorder in the animal might be due to organochlorine insecticide. The need of the hour is to evolve a policy so that the golden langur can be conserved in its natural habitat and rubber plantation is also not affected or damaged.

**Acknowledgement**

The authors are grateful to the veterinary officer of the Wildlife Trust of India (WTI) entrusted to Chakrashila Wildlife Sanctuary (CSW), Assam, for the materials and to the Head, Department of Pathology, College of Veterinary Science, Assam Agricultural University, Khanapara, Assam for providing the facilities.

**References**


