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## Efficacy of enrofloxacin for the therapeutic management of cutaneous form of pigeon pox

**Smriti S, Upasana V, Sagar RS and Mahesh SB**

### Abstract

A flock of 35 pigeons were presented to Government Veterinary Hospital, Ghotiya, Chhattisgarh with the complaint of anorexia and skin lesions on the body. History revealed no proper deworming and vaccination. On clinical observation most of the birds had pale mucous membrane, ocular discharges, blepharitis, conjunctivitis and crusty scab all over the body. The birds were diagnosed as cutaneous form of pigeon pox. The birds were randomly divided into 2 groups with Group I (N=10 birds) as a control group and Group II (N=25) as the treatment group. Group I were treated with multivitamin syrup and liver tonics for 14 days and Group II birds were treated with enrofloxacin @ 10mg/Kgbw along with multivitamins and liver tonics. Nearly 30% pigeons of Group I recovered in 14 days and in Group II, 72% of pigeon showing the clinical sign recovered within 14 days.

**Keywords:** enrofloxacin, therapeutic, management, pigeon pox

### Introduction

Avian pox is a contagious viral disease of domestic and wild birds of all ages, breed and gender which is caused by pox virus. Pox virus belongs to the genus Avipoxvirus of the family Poxviridae. In chicken the incubation period is between 4-10 days. The clinical sign of this viral disease depends on factors like host susceptibility, lesion distribution and strain (virulence) of virus affecting the individual (Tripathy and Reed, 2003) [7]. The Virus could enter the host through breaks in the continuity of skin or mouth lining. The sources of infection are contaminated environment, carrier birds feed and arthropod vectors like mosquitoes. The disease has two types- 1) Dry or cutaneous pox and 2) Wet or diphtheria pox. In Dry or cutaneous form of pox is a mild form pox and there is formation of proliferative lesions in mouth, oesophagus and mucus membrane of upper respiratory tract (Mohan and Fernandez, 2008) [5]. Wet pox is more severe form of pox with mortality rate as high as 50 to 60% in unvaccinated flock of birds. Disease has direct effect on growth and development in young pullets and chickens.

### Materials and Methods

A flock of 35 pigeons were presented to Government Veterinary Hospital, Ghotiya, Chhattisgarh with the complaint of anorexia and cutaneous lesion on the body. History revealed no proper deworming and vaccination. All the birds were between the age group of 3-5 years, weighing around 1.0 kg belonging to both the gender (female and male). On clinical observation most of the birds were dull, depressed with pale mucous membrane, purulent ocular discharge, blepharitis, conjunctivitis, large dark brown crusty structure and scab formation in all the parts of the body including beak, eye, oral commissure and in legs (Figure 1). On auscultation, 8 pigeons had respiratory rales. Faecal sample were negative for parasitic ova and skin scraping were negative for ectoparasite. Peripheral dry blood smear and wet smear analysis showed negative results for haemoprotezoans and blood parasite, respectively. Based on the clinical examination, observation and laboratory investigations, the pigeons were diagnosed with Pigeon Pox. Fortreatment purpose, the pigeons with clinical signs of pox were randomly divided into two groups, Group I (N=10 birds) as a control and Group II (N=25) as the treatment group. Group I were treated with multivitamin and liver tonics and Group II with enrofloxacin @ 10 mg/Kgbw I/M for 14 days, multi vitamins and liver tonics (Table 1). After 14 days of treatment, improvement was observed in the clinical condition by disappearance of the skin lesions, scab and complete remission of the cutaneous lesions from 10 to 12 days of therapy. Nearly 30% pigeons in the Group I recovered in the 14 days of treatment and in Group II, 72% of pigeons showing the clinical sign recovered within 14 days of treatment.

Details of the clinical improvement are mentioned in the Table 2 and Figure 2.

**Table 1:** Treatment group and treatment regime for pigeons affected with pigeon pox

Group	No. of Pigeons	Treatment Regime for 14 days
Group 1	10	multi vitamins + liver tonics
Group 2	25	Enrofloxacin @ 10 mg/KGBW I/M + Multi Vitamins + Liver tonics

**Table 2:** Clinical improvement in pigeon pox before and after treatment

Clinical Signs	Group I			Group II		
	0 <sup>th</sup> Day	7 <sup>th</sup> Day	14 <sup>th</sup> Day	0 <sup>th</sup> Day	7 <sup>th</sup> Day	14 <sup>th</sup> Day
Dullness	9/10	8/10	4/10	25/25	10/25	8/25
Discharge	9/10	6/10	5/10	23/25	12/25	7/25
Papules	10/10	7/10	6/10	25/25	10/25	8/25
Crust	10/10	8/10	6/10	25/25	12/25	7/25



**Fig 1:** Birds showing clinical signs of Pigeon pox



**Fig 2:** After treatment in the recovery stage

**Discussion**

Avian pox is a viral disease that affects domestic and wild birds viz., pigeons, doves, chickens, turkeys, and other wild and domestic birds. It is highly contagious which is caused by avian poxvirus belonging to the Poxviridae family and chordopoxvirinae subfamily (Weli and Tryland, 2011) [8]. The avian pox virus is transmitted by direct transmission, contact with contaminated objects, vectors and through aerosol route.

In case of chicken incubation period varies between 4-10 days (Tripathy and Reed, 2003) [7]. Once the virus enters the body, it replicates and causes characteristic skin lesions, which can be either dry (cutaneous) or wet (diphtheritic) forms. Symptoms of avian pox can vary depending on the bird species and the severity of the infection. The common clinical signs in the dry form include small, raised, wart-like growths on unfeathered areas of the body, such as the face, legs, feet and around the eyes. These growths may become crusty and eventually scab over and these lesions on the feet may lead to lameness. The common signs in the wet form include yellowish or greyish plaques or nodules in the mouth, throat, trachea, or eyes. These lesions causes difficulty in breathing, eating and drinking. Severe cases may lead to dehydration and weight loss (Mohan and Fernandez, 2008) [5]. Avian pox is generally not lethal, but the lesions can cause discomfort and affect the bird's ability to feed and move, making them more vulnerable to predation or secondary infections. In some cases, however, especially if the respiratory passages are severely affected, the disease can be fatal due to inanition associated with lesions in the respiratory cavities (Greenacre, 2005) [3]. Gross lesions are usually sufficient to diagnose the difference between two form of pox virus (Tripathy and Reed, 2003) [4]. Diagnosis of the cutaneous form of pox is usually consummate by the clinical manifestations, histopathological evaluation and confirmation by the molecular characterization of pox virus by using PCR and real-time PCR techniques from the skin lesions samples. Confirmatory diagnosis is usually done by histopathological examinations and demonstration of Bollinger bodies in the cells. Histopathological examinations are carried out of the cutaneous nodules which reveal the presence of intracytoplasmic inclusion bodies in the cells. Indirect immune-fluorescent and indirect immunoperoxidase tests are some other tests that may be used for diagnosis of the virus. Electron microscopy can be used by negative staining method or in ultrathin sections of infected tissues to demonstrate. Prognosis of the disease depends on several factors like host immunity, development of secondary bacterial infection and sepsis formation in the body during course of infection. There is no specific treatment for avian pox, but affected birds should be kept in a stress-free environment and provided with supportive care (Catroxo *et al.*, 2009) [1]. Jan *et al.* (2017) [4] stated that pigeon pox could be treated with crushed garlic (*Allium sativum*) mixed with honey at 1:1 ratio for 7 days. Prevention is essential and measures to control the spread of the disease include isolating infected birds, mosquito control, and maintaining good hygiene and biosecurity practices. Vaccination is an effective method of preventing and controlling the avian pox virus. The two attenuated live vaccines, FPV and PPV, are routinely used to immunize birds against fowl pox and pigeon pox, respectively (Geleczei *et al.*, 1969) [2].

**Conclusion**

Enrofloxacin along with the nutritional supplementation was efficient in the treatment of pigeon pox.

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