CLINICOPATHOLOGICAL CHANGES AND THERAPEUTIC MANAGEMENT OF SCABIES IN A PUG DOG

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[Received: 03.5.2014; Accepted: 25.11.2014]

Sarcoptes scabiei, commonly known as scabies, is a parasitic mite that causes intense pruritius (itching), rashes, and lesions. Although infestation is not life threatening, scabies is a nuisance disease, causes health crisis and panic. Scabies outbreaks are costly to control and easily reoccur if not properly treated. One male pug dog of 3 years age brought to Teaching Veterinary Clinical Complex, Goregaon, Mumbai suffering from sarcoptic mange with the clinical manifestations of alopecia, itching, skin rashes and lesions since last 15 to 20 days. On clinical observation, the pug dog had bradycardia, temperature 100.1^0F and loss of appetite.

From the affected dog, 5ml of blood was collected for different haematobiochemical estimations and the parameters like Hb, PCV, TLC, TEC, DLC, MCV, MCH, blood glucose, total protein, albumin, globulin and A: G ratio, of the affected dog were studied. The mean values of Hb, PCV and TEC were lower while MCV and MCH were found within the normal range as compared to normal referred values. Leucocytosis, neutrophilia, eosinophilia and lymphocytopenia were observed. The mean blood glucose, total protein and albumin values were lower than the normal range. Albumin: globulin ratio in the affected dog decreased. Ivermectin was administered at 0.2 to 0.4 mg/kg, subcutaneously at 7 days intervals for 30 days. Supportive treatment was given with multinutritional syrup Proviboost @ 5ml orally twice a day for one month. The recovery of the affected dog was observed after treatment period.

Keywords: Mange, sarcoptic, Hb, PCV, TLC, TEC, blood glucose, total protein, albumin, globulin and A: G ratio

Introduction

Canine scabies is a common condition in dogs and humans, but rare in cats, in which the skin is affected with Sarcoptes *scabiei* mite after contact with infected dog. Canine scabies referred as sarcoptic mange is an intensely pruritic, contagious canine dermatosis, caused by the epidermal mite *Sarcoptes scabiei*. These mites live within the skin and produce severe cutaneous effects. Scabies upsets both the dogs and the owners due to the intense pruritus and its potential spread to the owners. Female mites dig galleries in the stratum corneum in order to lay their eggs that hatch, releasing larvae that migrate to the skin surface to reach the adult stage. Extreme irritation and pruritic papular eruption, skin thickening, erythema, alopecia, exudation with crust formation along with secondary bacterial infection with pustules are the common clinical findings.

Chronic lesions are usually confined to the margins of the pinna, elbows and hocks which shows skin thickening, minimal crust formation and persistent pruritus. Skin scraping with microscopic identification of *S. scabiei* is a valuable diagnostic method, although mites are hardly seen in many cases. Diagnosis is usually based on the animal's history, clinical signs and a positive pinnal-pedal reflex (pinna margings are gently scratched and the dog reflexively use an ipsilateral hind limb to scratch the source of the irritation). The present case report was undertaken to find out the haematobiochemical changes in canine scabies.

Materials and Methods

One male pug dog of 3 years of age brought to Teaching Veterinary Clinical Complex, Goregaon, Mumbai – 65, suffering from sarcoptic mange with the clinical manifestations of alopecia, itching, skin rashes and lesions since 15 to 20 days. On clinical observation, the pug dog had bradycardia, temperature 100.1^0F and had

loss of appetite. From the affected dog, approximately 5ml of blood was collected through cephalic vein puncture for haematobiochemical estimations.

For biochemical analysis, a portion of blood was centrifuged at 1500 rpm for 15 to 20 minutes and plasma was harvested. The plasma was kept in deep freezer (-20^0 C) till further estimations. Haematobiochemical parameters like Hb, PCV, TLC, TEC, DLC, MCV, MCH, blood glucose, total protein, albumin, globulin and A: G ratio of the affected dog were studied. Haemogram and leukogram were studied as per the procedure described by Jain (1986). Blood biochemicals viz. blood glucose, total protein, albumin and globulin were estimated using specific diagnostic kits.

Treatment: Before the treatment regime initiated to the patient, the deworming status of affected dog and vaccination schedule status was checked. Infected pug was recommended the bathing with 0.025% amitraz solution twice weekly and continued for two weeks after the remission of clinical signs. Ivermectin was administered at 0.2 mg/kg, subcutaneously at every 7 days intervals for 30 days. Supportive treatment was given with multinutritional syrup Proviboost @ 5ml orally twice a day for one month.

Results and Discussion

The values of Hb (g/dl), PCV (%), TLC, TEC, DLC(%), MCV (fl), MCH(pg), blood glucose (mg/dl), total protein (g/dl), albumin (g/dl), globulin (g/dl) and A:G ratio are illustrated in Table 1.

Table 1: Haematobiochemical changes in sarcoptic pug dog.

Parameters	**Observed Values**	**Referral Values**
Hb(g/dl)	10.4	12-18
PCV(%)	30.71	37-55
TLC(x10^3/cu mm)	19.77	6-17
TEC(x10^6/cu mm)	4.51	5.5-8.5
MCV(fl)	68	66-77
MCH (pg)	23	19.5-24.5
Differential Leucocyte count (%)		
Neutrophils	80	60 - 70
Lymphocytes	05	15 - 30
Monocyte	03	03 - 10
Eosinophils	12	02 - 10
Blood Glucose (mg/dl)	68.94	70-138
Total Protein (g/dl)	4.94	5.4-7.1
Albumin (g/dl)	1.25	2.3-3.2
Globulin (g/dl)	3.68	2.7-4.4
A : G Ratio	0.34	0.84-0.72

The sarcoptic mange affected pug showed the increased values of TLC, neutrophils and eosinophilic counts than referred range. Leucocytosis along with neutrophilia and eosinophilia observed during the present investigation concurred with the findings of Sharma *et al*., (2005). Lymphopenia was consistent finding in cases of sarcoptic mange which simulated with the

findings of Nair and Nauriyal (2007) and it which plays an important role in fighting against sarcoptic mites.

The observed values of Hb and PCV were lower as compared to normal range indicating anaemia and it might be due to the stress arising from the disease. Similar findings were also reported by Gupta and Prasad (2001) and Biswas *et al.,* (2002). The MCV value indicated normocytic anaemia in affected pug, while MCH was within referral range and suggestive of normochromic change. Based up on the noted values of MCV and MCH, the present case of affected pug was detected suffering with normocytic normochromic anemia.

The mean blood glucose level in the sarcoptic dog was lower than normal range indicating hypoglycaemia which might be due to increased need of skin during might be due to the cell mediated immunity inflammatory reactions for glucose as suggested by Sharma (2006). A decrease in total protein level indicated hypoproteinaemia which was in agreement with the observations of Biswas *et al.,* (2002) and Solanki *et al.,(*2007). The value of plasma albumin decreased as against an increase value of plasma globulin indicating hypoalbuminemia and hyperglobinemia. A decrease level was also observed in albumin: globulin ratio when compared with referral ranges and this finding was in concurrence with the observations of Biswas *et al*., (2002) and Jyotsna and Gupta (2005).

After the treatment, an improvement was noticed in the affected dog. There was cessation of itching with reoccurrence of hairs on the affected part were noted and after the treatment, pug was found to be normal.

(Before Treatment)

(After Treatment)

Conclusion

Canine scabies referred to as sarcoptic mange is an intensely pruritic, contagious canine dermatosis, caused by epidermal mite *Sarcoptes scabiei*. These mites live within the skin and produce severe cutaneous effects. Various haematobiochemical parameters were found lower and there was leucocytosis, neutrophilia, eosinophilia and lymphopenia. Treatment with 0.025% amitraz solution twice weekly and Ivermectin was administered at 0.2 mg/kg, sub cutaneously at seven days intervals for 30 days with supportive treatment of multinutritional syrup Proviboost orally twice a day for one month was found effective.

Acknowledgement

We express our sincere thanks to Hospital Superintendent, Teaching Veterinary Clinical Complex, Goregaon, Mumbai - 65 for providing the facilities for this research work and thanks to the Dog Owner also for

giving permission to collect the required blood samples.

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