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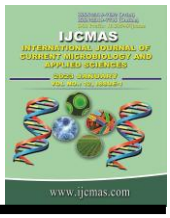

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Application of Ayurvedic Medicine as an Alternative in Certain Skin Disorders in Dogs

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A B S T R A C T

The present study was carried out to assess the efficacy of ayurvedic medicine as many of the allopathic drugs used are advocated to be costly, have problems of drug resistance, many are toxic at certain concentration, may be harmful to humans while handling them and may contaminate the environment as well. Based on the history, clinical examination, hematology, biochemical parameters skin scrapping, trichogram, acetate tape impression and glass slide impression smears the cases were confirmatively diagnosed as pyoderma and pyotraumatic dermatitis. They were divided into 2 groups in each, for both herbal (Topical Newcharm multiaction skin gel and Capsule Charmid peros) and conventional therapy. In Group I and II herbal therapy was found effective in 100% of cases.

Introduction

Skin diseases comprise of parasitic (tick, mite, fleas and lice), pathogenic (bacteria, yeast, fungi) and allergy/ atopy. Inspite of a lot of drugs coming into the market against skin diseases, yet the possibility with a cost-effective treatment which an average owner can afford, is to be explored. Keeping in view all the above, the present study was carried out in cases of pyoderma and pyotraumatic dermatitis/hot spot as recurrent pyoderma is the commonest finding now-a-days where the lesion subsides in presence of antibiotics and relapses once the course of antibiotic is completed. Many of the allopathic drugs used are advocated to be costly, have problems of drug resistance; many are toxic at certain concentration, may be harmful to humans while handling them and may contaminate the environment as well. Therefore, Herbal medicines which are now-a-days gaining significance due to their reduced costs, ease of use and are proposed to be free from risk of harming human handling as well as they hardly contaminate the environment.

Materials and Methods

Dogs presented in and around Tirupati to Department of Veterinary Medicine, College Veterinary Hospital, Tirupati with the history and clinical signs/lesions suggestive of skin

infection/infestation such as prurutis, alopecia, erythema, papules, pustules and other signs were considered for the study. However, six apparently healthy dogs were also randomly selected for this study. Skin scrapings and trichograms were taken and examined directly or by sedimentation method with 10% KOH solution.

Blood samples were collected from the affected dogs (pyoderma and pyotraumatic dermatitis) for detailed haematological and blood biochemical analysis and estimations were done by standard techniques. A total of 24 dogs were selected randomly exhibiting the signs of skin affection. Of which 12 dogs were randomly selected for two treatment regimens i.e., Group I - Pyoderma and Group II - Pyotraumatic dermatitis. Out of 12 dogs in each group, 6 dogs were allotted into two sub groups (i.e., Conventional and Herbal therapy) irrespective of breed, sex and age. Herbal group dogs were treated with Newcharm topical multiaction skin gel and Capsule. Charmid @1-2 capsules peros for 15 days. Conventional group dogs were treated with Tab. Cefpet @ 5mg/kg body weight peros for 15 days.

Results and Discussion

Group I (Pyoderma)

In the present study, Cases of Superficial pyoderma were considered. The lesions noted in both the groups (Fig.1-4) were pustules, papules, erythema, mild alopecia, crusts, scabs and pruritus distributed mostly at ventral abdomen, medial aspects of femoral region. Pustule on the ventral abdomen was the predominant finding. The findings were in accordance with Bhaskara *et al.,* (2015) and Rajni and Suman (2013) who reported that signs of generalised pyoderma were scabs, crusts, collarettes and pustules on neck, shoulders, axilla, limbs and ventrum. Dogs of both the groups had a mean hemoglobin of 11.3 ± 0.52 g/dL, PCV of 28.12 ± 1.58 %, TEC (5.68 ± 0.26 X 10^6/cmm), TLC (17.5 ± 0.3 X 10^3/cmm), neutrophils (82.65 ± 0.72%), lymphocytes (17.15 ± 0.72%), monocytes (0.1 ± 0.21%), eosnophils (0.1 ± 0.7 %) and basophils (0%) (Table 1). There was non-significant decrease in PCV and significant increase in lymphocytes and neutrophils when compared with that of apparently healthy dogs. Hiller *et al.,* (2006) observed that all cases of superficial pyoderma revealed presence of neutrophils and extracellular and intracellular coccoid bacteria. Conventional therapy showed complete recovery on day 7-10 in all the dogs. Topical application of Newcharm skin gel was applied in all the six dogs which showed complete recovery on day 8-9 in three dogs, day 12 in two dogs and in one dog the lesion became dry and resolved on day 15. The owners were also advised to apply mouth cap to avoid self biting/ self mutilation and clipping of hair in long haired breeds.

The post therapeutic hematological and biochemical values in conventional and herbal therapy groups were hemoglobin (12.33 ± 0.57 and 12.0 ± 0.57 g/dL), PCV (37 ± 1.7 and 36 ± 1.73 %), TEC (6.16 ± 0.28 and 6.0 ± 0.28 X 10^6/cmm), TLC (11.25 ± 0.38 and 11.16 ± 0.24 X 10^3/cmm), neutrophils (72.5 ± 1.22 and 71.66 ± 1.55 %), lymphocytes (24.83 ± 0.3 and 26.6 ± 0.49 %), monocytes (2.16 ± 0.16 and 1.31 ± 0.66%), eosnophils (0.51 ± 0.22 and 0.43 ± 0.21 %) and basophils (0% in both groups). A significant decrease in leukocytes and neutrophils which were found to be normal following therapy in both groups when compared with before therapeutic values. The mean serum biochemical values (ALT - 42.5 ± 0.56 and 43.16 ± 0.98 I/U, AST - 37.16 ± 0.6 and 38.16 ± 2.83 I/U, TP - 5.9 ± 0.1 and 6.06 ± 0.21 g/dl, Alb - 2.18 ± 0.07 and 2.41 ± 0.1 g/dl, BUN - 18.71 ± 0.41 and 19.01 ± 0.02 and Cr (0.49 ± 0.61 and 0.6 ± 0.42) did not show any variation in conventional and herbal therapy groups pre and post therapy.

Group II

Pyotraumatic Dermatitis/ Hot spot

Superficial hot spot was the common finding. The skin surface appeared as a moist patch, inflamed, ulcerated with matted hair in both the groups (Fig.5-

8). Pruritus was also present. In both groups frequent licking and scratching were reported by the owner. Oozing and exudation was the common lesion noticed in all the 6 dogs in the conventional group dogs. Whereas, in herbal therapy group dogs, oozing and exudation was noticed in five dogs and in one dog, mild moistness was evident. The findings are similar to that of Michael Schaer (2002). The mean hematological values (Table 2) in both the groups were hemoglobin (10.79 ± 0.44 g/dL), PCV (32.37 ± 1.33 %), TEC (5.09 ± 0.22 X 10^6/cmm), TLC (19.66 ± 0.53 X 10^3/cmm), neutrophils (80.20 ± 0.79 %), lymphocytes (19.11 ± 0.81 %), monocytes (0.58 ± 0.19 %), eosnophils (0.16 ± 0.11 %) and basophils (0%). Significant increase in total leukocyte count and neutrophils were recorded. A non-significant decrease in hemoglobin was noted when compared with the apparently healthy dogs. Perusal literature didnot reveal any information about hematology in pyotraumatic dermatitis/ hotspot.

There were no significant differences in serum biochemical values in both the groups (Table 1 & 2).

In conventional therapy all the 6 dogs showed complete recovery on day 10-12. Clipping of hair around/at the site of lesion was advised. In herbal therapy, Newcharm skin gel was topically applied. Clipping of hair and cleaning of the site with warm water/ normal saline was advised before application of the topical gel. Mouth cap application was also advised to avoid self biting/mutilating. The lesion started subsiding on day 8-10. No reoccurrence was noticed in this group.

The mean hematological values i.e., hemoglobin (10.08 ± 0.68 and 11.6 ± 0.42 g/dL), PCV (30.25 ± 2.06 and 35 ± 1.2 %), TEC (5.04 ± 0.34 and 5.8 ± 0.21 X 10^6/cmm), TLC (12.08 ± 1.41 and 12.16 ± 1.6 X 10^3/cmm), neutrophils (73.5 ± 0.42 and 72.83 ± 0.54 %), lymphocytes (24.5 ± 0.56 and 24.83 ± 0.94 %), monocytes (1.5 ± 0.22 and 1.41 ± 0.42 %), eosnophils (0.5 ± 0.22 and 0.93 ± 0.16 %) and basophils (0%). A significant decrease in leukocytes and neutrophils were found normal following therapy when compared to before therapy both in conventional and herbal therapy groups, respectively. The mean serum biochemical values in conventional and herbal therapy groups (ALT - 44 ± 0.63 and 41.5 ± 0.92 I/U, AST - 35.66 ± 1.35 and 35.33 ± 0.95 I/U, TP - 6.53 ± 0.21 and 6.10 ± 0.18 g/dl, Alb - 2.8 ± 0.04 and 2.51 ± 0.14 g/dl, BUN - 18.1 ± 0.13 and 18.78 ± 0.46 and Cr (0.6 ± 0.11 and 0.5 ± 0.21) were in normal range.

Newcharm contains *Cedrus deodara, Pongamia glabra, Azadirachta indica* extract, *Eucalyptus globus and Acorus calamus a*nd Capsule Charmid contains *Curcuma longa, Allium sativa, Cedrus deodara, Berberis aristata* extract, *Azadirachta indica* extract, *Mangifera indica* extract, *Shilajit* extract and *Saussurea lappa* extract. Sharma and Paul (2002) studied and reported that Newcharm ointment used in their study has antimicrobial, antiparasitic and miticidal actions against the skin parasites. Charmaid has an antimicrobial, anti inflammatory and antipruritic actions in skin infections and it helps in prompt healing. Mar Mar Nyein *et al.,* (1996) stated that the essential oils obtained from *Curcuma longa* (Nanwin) were tested against 20 strains of bacteria and found effective. *Curcuma longa* has ethnoveterinary uses that include external application for abscesses, ticks, castration wounds, bleeding and fungal disease. Joe (2004) reported that *Curcuma longa* has anti-inflammatory action.

When used orally, curcumin inhibits leukotriene formation, inhibits platelet aggregation, and stabilizes lysosomal membranes, thus inhibiting inflammation at the cellular level (Srimal and Dhawan, 1973). Singh *et al.,* (2011) stated that garlic contains sulphur compounds which mites dislike and on application of garlic oil on the affected areas, bacterial infection was minimised because of the antibacterial activity of garlic. Anjaria *et al.,* (2002) reported that *Allium sativum* has antiseptic effect. Williamson (2002) stated that in Indian ethnoveterinary use, the *Allium sativum* bulb was used for fungal infection and swelling of the tongue, oral blisters and wounds.

Table.1 Haematological and blood biochemical changes of pyoderma infected dogs before and after treatment

Parameter	Healthy control (n=6)	Before treatment (n=12)	After treatment	
			Conventional treatment	Herbal treatment
Haemoglobin(g/dl)	12.1 ± 0 .43	11.3 ± 0.52	12.33^{a} ± 0.57	12.0^{a} ± 0.57
PCV	36.3 ± 0.29	28.12 ± 0.58	37.0^{a} ± 1.7	36.0^{a} ± 1.73
TEC(10^6/cmm)	6.05 ± 0.21	5.68 ± 0.26	6.16^{a} ± 0.28	6.0^{a} ± 0.28
TLC(10^3/cmm)	13 ± 0.57	17.5 ± 0.3	11.25^{a} ± 0.38	11.16^{a} ± 0.24
Neutrophils (%)	73.5 ± 0.99	82.65 ± 0.72	72.5^{a} ± 1.22**	71.66^{a} ± 1.55**
Lymphocytes(%)	23.6 ± 0.49	17.15 ± 0.72	24.83^{a} ± 0.3*	26.6^{a} ± 0.49*
Monocytes(%)	2.16 ± 0.4	0.1 ± 0.21	2.16^{a} ± 0.16	1.31^{a} ± 0.66
Eosinophils(%)	0.66 ± 0.33	0.1 ± 0.7	0.51^{a} ± 0.22	0.43^{a} ± 0.21
ALT (I/U)	45 ± 0.23	47.58 ± 0.37	42.5^{a} ± 0.56	43.16^{a} ± 0.98
AST (I/U)	36 ± 0.23	43.16 ± 0.75	37.16^{a} ± 0.6	38.16^{a} ± 2.83
Total Protein (g/dl)	7.25 ± 0.21	6.3 ± 0.21	5.9^{a} ± 0.1	6.06^{a} ± 0.21
Albumin (g/dl)	3.53 ± 0.09	2.5 ± 0.09	2.18^{a} ± 0.07	2.41^{a} ± 0.1
BUN (mg/dl)	17.24 ± 0.76	19.67±0.07	18.71±0.41	19.01±0.02
Cr (mg/dl)	0.53 ± 0.14	0.73±0.22	0.49±0.61	0.6±0.42

*Significant at (P<0.05)
** Significant at (P<0.01)
Means bearing same superscripts do not differ significantly between therapeutic groups.

Table.2 Haematological and blood biochemical changes of pyotraumatic dermatitis/ hotspot infected dogs before and after treatment

Parameter	Healthy control (n=6)	Before treatment (n=12)	After treatment	
			Conventional treatment	Herbal treatment
Haemoglobin(g/dl)	12.1 ± 0 .43	10.79 ± 0.44	10.08^{a} ± 0.68	11.6^{a} ± 0.42
PCV	36.3 ± 0.29	32.37 ± 1.33	30.25^{a} ± 2.06	35.0^{a} ± 1.2
TEC(10^6/cmm)	6.05 ± 0.21	5.09 ± 0.22	5.04^{a} ± 0.34	5.8^{a} ± 0.21
TLC(10^3/cmm)	13 ± 0.57	19.66 ± 0.53	12.08^{a} ± 1.41**	12.16^{a} ± 1.6**
Neutrophils (%)	73.5 ± 0.99	80.20 ± 0.79	73.5^{a} ± 0.42*	72.83^{a} ± 0.54*
Lymphocytes(%)	23.6 ± 0.49	19.11 ± 0.81	24.5^{a} ± 0.56	24.83^{a} ± 0.94
Monocytes(%)	2.16 ± 0.4	0.58 ± 0.19	1.5^{a} ± 0.22	1.41^{a} ± 0.42
Eosinophils(%)	0.66 ± 0.33	0.16 ± 0.11	0.5^{a} ± 0.22	0.93^{a} ± 0.16
ALT (I/U)	45.0 ± 0.23	46.13 ± 0.67	44.0^{a} ± 0.63	41.5^{a} ± 0.92
AST (I/U)	36 ± 0.23	40.75 ± 0.32	35.66^{a} ± 1.35	35.33^{a} ± 0.95
Total Protein (g/dl)	7.25 ± 0.21	5.79 ± 0.11	6.53^{a} ± 0.21	6.10^{a} ± 0.18
Albumin (g/dl)	3.53 ± 0.09	2.21 ± 0.05	2.8^{a} ± 0.04	2.51^{a} ± 0.14
BUN (mg/dl)	17.24 ± 0.76	21.07±0.12	18.1±0.13	18.78±0.46
Cr (mg/dl)	0.53 ± 0.14	0.67±0.18	0.6±0.11	0.5±0.21

**Means bearing same superscripts do not differ significantly*

Pyoderma (Conventional and Herbal Therapy)

Figure.1 Day 0 – Erythema, Papules and Pustules (Conventional Therapy)

Figure.2 Day 7 after therapy

Figure.3 Day 0 – Papules and Pustules at ventral abdomen (Herbal therapy)

Figure.4 Day 21 (After Therapy)

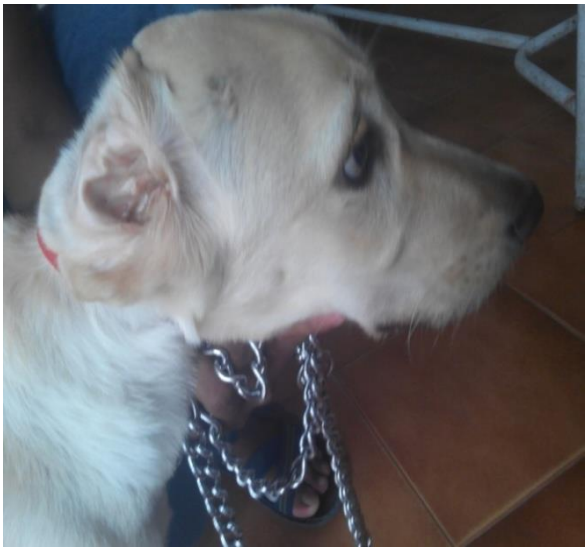
Pyotraumatic Dermatitis (Conventional and Herbal therapy)

Figure.5 Day 0 – Conventional Therapy

Figure.6 Day 14 Erythema, Moistness (Eczema) – Lumbar aspect

Figure.7 Day 0 - Herbal Therapy Erythema and moistness (eczema)

Figure.8 Day 21 complete recovery with no evidence of lesion



Subapriya (2005) reported that constituents of neem leaf have been shown to have antifungal, antibacterial, antiviral, antioxidant, immunemodulatory and anti-inflammatory activities. *Saussurea Sp.* was traditionally used in India as an antiseptic and *Saussurea lappa* was used in treating patients with skin disease. Shilajit or Sheelajeet was considered to be a Rasayana herb, with far-reaching health benefits as a rejuvenative tonic.

Hence, it may be concluded from the present findings that dogs with pyoderma and Pyotraumatic dermatitis showed complete recovery on topical application of Newcharm skin gel.

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