

Case Report

A case report on scabies in a goat

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In Texas, *Sarcoptes scabiei* is a reportable disease especially in Angora goats and in sheep in the USA. The prevalence of mange mite infestation in some African countries has also been recorded including in Nigeria which was estimated at 11 to 33%. The meat of West African dwarf goat (WADG) is a special delicacy in Nigeria especially in the eastern part and scabies is one of the major damaging skin diseases which favours loss in production. Therefore the relevance of this report of a generalised case of *Sarcoptes scabiei* var *caprae* in goat presented at the Veterinary Clinic, Michael Okpara University of Agriculture, Umudike with a view to review new trends in the management and treatment of the condition.

Key words: *Sarcoptes scabiei* var *caprae*, goats, ivermectin.

INTRODUCTION

Mange otherwise known as scabies is an important skin disorder that affects animals such as dogs, cats and goats (Terry, 2011). Mange affects all warm blooded animals and is caused by different types of mites which tunnel within the skin of infected animals to suck blood, lymph, cause sores, scabs and predispose the infected animal to infection which spreads quickly without proper treatment and prevention (Lughano and Dominic, 2006; Terry, 2011). The disease is more in young, stressed, malnourished, immunocompromised and unkempt goats than adults and can be rapidly transmitted through direct contact with carrier animals, contaminated formites, overcrowding animals in pens, markets, dips and communal grazing land facilities (Lughano and Dominic, 2006; Terry, 2011). Goats particularly are infested by 4 types of mites each morphologically distinct from the other however, with overlapping clinical presentations. They include: Psoroptic, Chorioptic Demodectic and Sarcoptic mange. Sarcoptic mange also known as scabeis is caused by *Sarcoptes scabiei* var *caprae* which burrows up to 2 cm deep under the skin around the head and neck region to suck lymph, feed on the young epidermal cells and lay eggs 3 to 4 times a day and up to fifty times in its lifetime (Karin, 2005; Lughano and Dominic, 2006; Nelson, 2009). These activities causes marked irritation characterised by hyperkeratosis and intense itching and scratching on hard surfaces resulting in partial and complete alopecia evident on the medial aspects of the hind limbs, axillae, brisket, abdomen, trunk, udder and teats.

There is appearance of dry and bran like scales on the face, around the nostrils and ears which later become hard crusts extending from the muzzle to the area between the eyes and nostrils; region between the eyes and horn, inner and outer parts of the ears. The skin becomes thickened and wrinkled with cracks and fissures on the hock joint, scrotum and pinnae with heavy dandruff evident on hairy areas covering the neck and abdominal regions (Karin, 2005; Lughano and Dominic, 2006; Nelson, 2009; Merck's, 2011). Diagnosis can be made tentatively by the clinical signs and definitively on the demonstration of the infesting mite in skin scrapings (Lughano and Dominic, 2006). In scabies, skin scrapings is collected deep around the pruritus or pimples until blood oozes and sample is boiled in 10% potassium hydroxide for 10 min until hair and crust are digested. The mixture is allowed to cool and then centrifuged at 1500 rpm for 15 min and the supernatant viewed under the microscope at x100 mg to identify the offending mite (Lughano and Dominic, 2006). Treatment of scabies can be done using ivermectin at the dose of 0.2 mg/kg, doramectin or moxidectin at 200 µg/kg at weekly intervals (Lughano and Dominic, 2006; Merck's, 2011). However, it has been said that chemical dipping is the only sure way of treating scabies in goats using different types of chemicals such as lime sulphur, triclofon, 0.05% diazinon, 0.1% phoxin and 0.05% coumaphos (Lughano and Dominic, 2006; Terry, 2011). The use of phoxin (0.05%) twice at 10 days interval and



Figure 1. The goat with wrinkled, crusty, scabby and fissures on the hock joint.

propetumphos (0.005%) applied twice or thrice at 10 days interval has been found effective against chorioptic mange. Localized lesions of *Demodectic caprae* can be incised, expressed and infused with lugol's iodine or rotenone in alcohol (1:3) and generalized cases are better treated using runnel in propylene glycol (180 ml of 33% runnel in 1 L of propylene glycol applied to 1/3 of the body daily until cured and rotenone in alcohol (1:3) applied to 1/4 th of the body daily (Merck's, 2011). Infested animals should be given high nutritional grains, fresh food, fruits, vegetables and pastured on fresh green grasses (Terry, 2011). They should be isolated from the herd, washed routinely with acaricide and water, the pen washed thoroughly with bleach water until the animal recovers before being reintroduced into the herd (Terry, 2011).

CASE REPORT

An 8 months female West African dwarf goat belonging to Mr Emmanuel from Oboro, Ikwuano L.G.A Abia State was brought to the Veterinary Clinic on the 3rd of April, 2011 with a complaint of unsightly skin lesions. The animal had good appetite and results of general physical and clinical examination show a temperature of 39.0°C heart rate 80 beats/min, pulse rate 70 beats/min, respiratory rate 30 cycles/min with no evidence of pain. However, there was presence of generalised skin lesions seen on the head, neck, ventral abdomen, fore and hind limbs and tail region characterised by crusty, scaly and alopecic patches. A tentative diagnosis of mange (scabies) was made and deep skin scrapings at the periphery of lesion

were collected and sent to the parasitology laboratory for confirmation. The result of the sample confirmed a definitive diagnosis of *Sarcoptes scabies* var *caprae*. The goat was treated with several baths with hydrogen peroxide and injection of ivermectin at the dose of 0.2 mg/kg at weekly interval until recovery (Figure 1 to 3).

DISCUSSION

From the case report, the infestation was reported in a young goat of about 8 months of age which was in line with the reports of (Lughano and Dominic, 2006; Terry, 2011) that mange infestation often is seen in young, unkempt, and immunocompromised animals. There was no evidence of pyrexia from the temperature 39.0°C showing that mange infestation has no systemic or pathological implication apart from the skin damage (Lughano and Dominic, 2006). Although the animal still maintained good appetite it was severely emaciated as was previously stated by (Lughano and Dominic, 2006) that most cases of mange become emaciated and die out of exhaustion. The exhaustion is probably due to abstinence from grazing and constant scratching of body due to the itching from the activities of the mites. The tentative diagnosis of scabies was made from the clinical presentation of thickened and wrinkled skin with scabs, crust, cracks and fissures all over the body which is in line with (Karin, 2005; Lughano and Dominic, 2006; Nelson, 2009; Merck's, 2011). It was further confirmed by deep skin scrapping in the laboratory collected around the periphery of the lesions because the centre consists mainly of dead tissues and scabs and *Sarcoptes scabies*



Figure 2. The goat with crusty, scabby and alopecic areas around the eye, pinner and mouth part.



Figure 3. Lesions of dandruff and scabs around the ventral aspect of the abdomen and medial part of the hind limbs.

var caprae can only be gotten on deep scrapping at the periphery of the alopecic areas because the mites burrow deep into the skin where it lay eggs, feed and suck the lymph (Karin, 2005; Lughano and Dominic, 2006; Nelson, 2009). The treatment using ivermectin given at the dose of 0.2 mg/kg at weekly interval was in line with (Lughano and Dominic, 2006; Merck's, 2011). However, the use of hydrogen peroxide bath was aimed at digesting the layers of crusts and scabs which hide the mites thus exposing them to the effect of ivermectin. Ivermectin is a white to yellowish-white, highly active broad spectrum non hygroscopic, semisynthetic, anthelmintic agent given orally or subcutaneously (RxList, 2011; MedicineNet, 2011). The drug was originally developed in 1970 for use against livestock parasites including lice and scabies (MedicineNet, 2011; Encyclopaedia Britannica, 2011). It is derived from avermectins isolated from the products generated from *streptomyces avermitilis*. It has a prolonged half life in most species of animals and is effectively metabolised in the liver through oxidative process and excreted through the faeces and less than 5% through the urine (Elephant formulary, 2003). In ruminants, per se administration of ivermectin results in its inactivation in the rumen and absorption of less than ¼ of the drug however subcutaneous injection improves its bioavailability (Elephant formulary, 2003). This reason necessitated the subcutaneous injection of ivermectin in the case report.

Conclusion

Although scabies is not a deadly disease, it is often feared as though it were a nightmarish illness perhaps due to the ugly sight it presents in the animal and the chronic course of the disease. It is nevertheless, reportable in several countries therefore this report is geared toward engendering farmers on improved rations for their goats which will enhance their immunity against scabies and prevent losses from damaged skin.

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