

Pig mange in Osha Umuahia Southern Nigeria – A case report

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ABSTRACT

There was complaint about some pigs kept under intensive system of management that were restless and sometimes rolling on the floor of the pig pen at Osha, Umuahia Southern Nigeria. On visitation to the farm, clinical examinations showed signs of pruritis generally, with scales all over the body of the mature ones and the pigs generally looked dirty, having alopecia in some parts of the bodies. Mange were suspected. The temperatures were normal. The skin scrapings of the pigs were taken to the laboratory and examined under the microscope and mites were seen. The pigs (adults, neonates and growing pigs) were treated with ivermectin at 0.2mg/Kg. All the pigs and the wall of the building were washed with Amitraz® spray. Bedding materials were changed. The injection was repeated after 14 days to take care of eggs which would hatched within the period but would not be mature to lay their own eggs. The client was advised that before newly acquired pigs are moved into the pen, they should be quarantined and also that they should practice routine treatment for mites in the pigs. Boars should be treated every 3–6 months during breeding and sows should be treated before farrowing to prevent transmission of mites. If mange occurs among breeding or growing pigs, the whole herd should be treated and that the treated and treatment should be the repeated after 14 days.

KeyWords: Abia State, Mange, pigs, Umuahia,

INTRODUCTION

The importance of external parasites to pork production varies greatly among geographical regions because of differences in climate and differences in husbandry systems. Free-roaming pastured swine are exposed to more attacks by insects than confined swine. Furthermore, the controlled environment of confinement rearing reduces the impact that extremes of weather may have on the clinical expression of parasitic diseases (Zimmaerman *et al.*, 2012). The most important ectoparasitism of swine worldwide is scabies (sarcoptic mange, sarcoptosis) (Radostits *et al.*, 2007 and Zimmaerman *et al.*, 2012). Factors that cause scratching, reduced growth and poor feed conversion efficiency resulting to reduced growth rate in pigs include mites and lice infestation. Sarcoptic mange, scabiei or itch mite of swine, *Sarcoptes scabiei var suis* has been known to be the cause of considerable discomfort to swine and is also known to be responsible for serious economic losses to pig producers (Averbeck & Stromberg 1993). Similarly Reichard & Thomas (2019) reported that the main cause of mange in pigs is infestation of *Sarcoptes scabiei var suis* and the

mange caused by *Demodex phylloides* is rare. Herds having scabies suffer reduced growth rates, reduced feed efficiency, and decreased fertility in breeding sows. The real economic importance tends to be underestimated, because pork producers may not recognize the presence of scabies in their herds when it occurs. Two clinical forms of scabies are recognized: a chronic, hyperkeratotic form most commonly seen in sows, and a pruritic hypersensitive form most commonly seen in growing pigs (Zimmaerman *et al.*, 2012). Demodectic mange (demodicosis, follicular mange) is relatively unimportant in swine, although it is quite common in the subclinical form. It is reported wherever swine are raised (Radostits *et al.*, 2007 and Zimmaerman *et al.*, 2012). Demodicosis may occur in farm due to *Demodex phylloides* infection of pigs (Radostits *et al.*, 2007). Sarcoptic mange infect animals of any age, especially those in poor condition (Radostits *et al.*, 2007). Scabies historically has a high prevalence in swine herds (40–90% is common), with prevalence within infested herds varying between 20% to 95%. (Zimmaerman *et al.*, 2012). In the farrowing shed, mites are usually transmitted from the sow

to her piglets, and introduction from carrier pigs onto non-infested herds (Holyoake, 2017). Scabies is caused by a burrowing mite, *Sarcoptes scabiei*, of the class *Arachnida*, order *Acarina* and family *Sarcoptidae*. *Sarcoptes scabiei* (*S. scabiei*) is a permanent parasite of the skin, where eggs, larvae, nymphs, and adults develop. After mating on the surface, the females make tunnels into the upper two-thirds of the epidermis, laying a string of 40–50 eggs behind them as they progress forward (Zimmaerman *et al.*, 2012).

Pruritus is the most consistent clinical sign of scabies (Zimmaerman *et al.*, 2012). Generalized pruritus occurs from 2 to 11 weeks after infestation. After infestation, pigs develop encrusted lesions that are rich in mites, especially in the inner (scaphal) surface of the ears (Zimmaerman *et al.*, 2012). Some of the factors causing scratching, reduced growth and poorer feed conversion efficiency resulting to reduced growth rate in pigs include is due to mites and lice infestation. After this parasite penetrate deep into the skin, it produce itching sensation, cause stress and followed by loss of body weight of the infested pigs. Secondary bacterial infection may develop in the damaged skin caused by rubbing and scratching due to reaction to mite infestation (Laha, 2015).

The first effective step in dealing with this parasite and returning the herd back to health is proper diagnosis (Averbeck & Stromberg, 1993). Diagnosis of mange in domestic animals is based on clinical manifestations and the demonstration of mites or their stages of development in host skin scrapings (Kettle, 1995). The condition is characterised by hair loss, crusty or scaly skin lesions, dermatitis, thickened skin, scurf, and pruritus (OIE, 2019). Skin scrapings should be transferred to a drop of oil on a microscope slide and covered with a cover glass and the mites should be examined with the microscope under low power (x 10 objective). The mite will be clearly seen (Averbeck & Stromberg 1993). Diagnosis can be made by collecting sample of ear wax and looking for mites under a microscope (Holyoake, 2017). If no mites are observed, the crusts may be digested in 10% potassium hydroxide (10 volumes of 10% KOH to 1 volume crust) in a covered glass beaker. The digestion process will crust in a covered glass beaker. The digestion process will break down most components of the crust leaving mite exoskeletons unharmed (Averbeck & Stromberg, 1993). The best method to find the mites is to use a flashlight to examine the inner surface of the ears of the breeding stock for encrustations. Enzyme-linked immunosorbent assay (ELISA) has been used to detect antibodies to *S. scabiei* in serum (Zimmaerman *et al.*, 2012). Serological detection of sarcoptic and psoroptic manges are possible because of their specific antibody responses in hosts such as pigs, sheep, dogs and camels (Lower *et al.*, 2001, Falconi *et al.*, 2002; Lowenstein *et al.*, 2004). There has

been successful amplification and detection of DNA of *Sarcoptes scabiei* by polymerase chain reaction (PCR: Bezold *et al.*, 2001). This technique can be used for detecting mange mites in skin scrapings (OIE, 2019)

Differential diagnosis of other skin diseases is important. Conditions that can be confused with scabies include parakeratosis, exudative epidermitis, deficiencies of Niacin and Biotin, swinepox, dermatomycosis, sunburn, photosensitization and insect bites (Zimmaerman *et al.*, 2012 & Radostits *et al.*, 2007). Since mites cannot live for long outside the skin of animals mange is easily eradicated from farms (Holyoake, 2017). The best time to treat sows is before they farrow, in other to prevent spread of the mites to piglets. Also, piglets should be treated when they are weaned and are about to be transferred into clean nurseries (Holyoake, 2017). Successful treatment of scabies is dependent on the correct use of acaricreides. Ongoing control of scabies involves the identification of those animals that have chronic scabies, so that they can receive regular treatment to prevent transmission to the young pigs. Control programs target the breeding herd (Zimmaerman *et al.*, 2012). If total eradication of *S. scabiei* var. *suis* infestation is to be carried out in pigs there is need to treat affected pigs and also monitor in case of any re-infestation. There is need to repeat the treatment after 14 days because of the eggs and life cycle of the parasites (Spencer 2008). The boars should be treated every 3–6 months to prevent transmission of mites during breeding. Pigs born to mite-free sows and housed in clean pens will remain free of mites unless they are exposed to infested pigs. If mange is present in both the breeding and growing pigs, the whole herd should be treated (Zimmaerman *et al.*, 2012). There is need for extra biosecurity measures to stop other wild animal species from spreading Demodectic mange to outdoor reared pigs (Holyoake, 2017).

CASE HISTORY

There was complaint by the principal of a school in Ossa Umuahia Abia State Nigeria about pigs that were restless and sometimes rolling on the floor of the pig pen. The pigs showed signs of pruritis generally, scales were all over the body of the mature ones and they generally look dirty and alopecia was observed in some parts of their bodies The skin of the pigs were examined with magnifying glass.

Table 1. Clinical Parameters

Parameters	Values	Normal values
Rectat temperature (T)	38oC	(38.5 – 39.5°C)*
Respiratoey rate (RR)	21 cpm	(10 – 30 cpm)*
Pulse rate (PR)	72 bpm	(60 – 80 bpm)*

SAMPLE COLLECTION

Skin scrapings and blood were collected from different pigs for serology and hemogram. The samples were taken to laboratories of Departments of Veterinary parasitology and Department of Veterinary physiology, Michael Okpara University of Agriculture, Umudike, Umuahia, Abia State.

LABORATORY FINDINGS

The skin scrapings of the pigs were transferred to a drop of oil on a microscope slide and covered with glass and examined microscopically initially with low power (x 10 objective) as recommended by Averbeck & Stromberg (1993) and mites were observed (Figure II).



Figure I. Alopecia and keratinization of the skin of pigs affected by mange in Osha, Umuahia, Southern Nigeiria

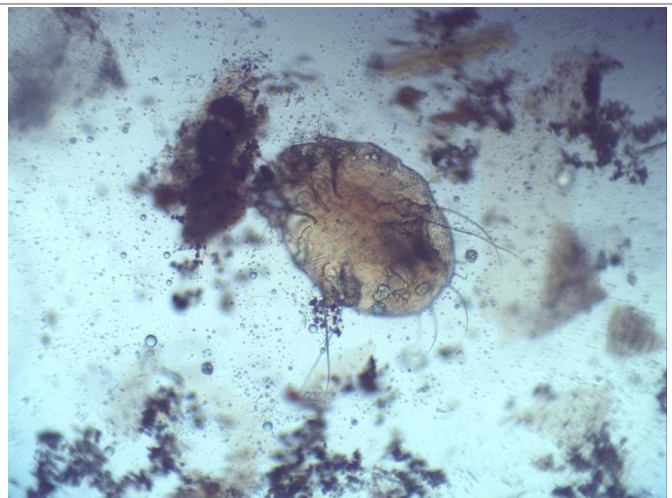


Figure II. Microscopic examination of ventral view of Mite (*Sarcoptes spp*) detected from one of the pigs affected by mange in Osha Umuahia , Southern Nigeiria

DIFFERENTIAL DIAGNOSES

Diseases that must be differentiated from mange include parakeratosis, dermatomycosis, exudative epidermitis (“greasy pig disease”), pityriasis rosea, Tyroglyphus spp, insect bites, lice, swinepox, ringworm, deficiencies of Niacin and Biotin, and photosensitization or sunburn. Among the symptoms exhibited by the animals were Pruritis, Alopecia, Keratinization and some animals were rolling on the ground.

Diagnosis was mange based on microscopically examination.

TREATMENT

The pigs were treated with Ivermectin at 0.2 mg per Kg (1 ml for pigs of 50Kg). All the pigs and the wall of the building were washed with Amitraz® sprays. Immediately following this, two consecutive doses of an injectable Ivermectin, 14 days apart, were administered to every pig on the farm (adults, neonates and growing pigs). Bedding materials were changed. The clients were advised that before pigs are moved into the pen they should be quarantined. Also

periodic treatment for mites in the pigs should be adopted and there should be regular application of pesticide to the environmental surfaces .

DISCUSSION

The clinical signs of generalized dermatitis and pruritus agree with manifestations of mange in pigs (Zimmaerman *et, al.*, 2012) . Affected pigs usually develop encrusted lesions that are rich in mites, especially in the inner... (Zimmaerman *et, al.*, 2012 .The lesions observed in this case also agree with report of Reichard & Thomas (2019) that lesions due to infestation with *S scabiei var suis* start on the head especially the ears and spread over the body, tail

and legs. The intense itching noticed agrees with report of

Reichard & Thomas (2019) that there is intense itching associated with a hypersensitivity reaction to mites.(2019) There was thickened, rough, dry skin covered with greyish crusts as reported by Reichard & Thomas (2019).The demonstration of mites in the skin scrapings agrees with Kettle (1995). The hair loss (alopecia), crusty or scaly skin lesions, dermatitis, thickened skin, scurf, and pruritus agree with OIE report (2019).

RECOMMENDATIONS

Piggeries should be regularly fumigated and other biosecurity measures such as quarantine of new incoming animals should be adopted. Improved husbandry system, management and proper housing are also recommended. Boars should be treated every 3–6 months during breeding to prevent transmission of mites to sows while pregnant sows should be treated before they farrow, in other to prevent spread of mites to piglets. Piglets should be treated before being weaned into clean nursery. If mange is diagnosed in

both breeding and growing pigs, the whole herd should be treated and the treatment should be repeated after 14 days to take care of eggs which would hatch within the period but would not be mature to lay their own eggs.

ACKNOWLEDGEMENT

The authors are grateful to management of Departments of Veterinary parasitology and Veterinary physiology laboratories, Michael Okpara University of Agriculture, Umudike, and their staff who assisted in the laboratory work.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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