

Suspected Outbreak of Sheep Pox in Techiman, Ghana: A Case Report

PRINCE KYERE DWAAH^{1,2*}, NANA YAA AWUA-BOATENG², ANTHONY OSEI-TUTU¹, MICHAEL AKWEI¹, RAZAK A. ABUBAKARI¹, KABIRU G. AMADU¹

¹Disease Investigation Farm/Regional Veterinary Laboratory, Techiman, Bono East Region

²Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development, Department of Public Health Education, Bono East Region

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Abstract

This case report describes a suspected outbreak of sheep pox at the Techiman Disease Investigation Farm (DIF) in Ghana. The suspected outbreak affected over fifty sheep of different age groups, leading to significant morbidity and mortality. Clinical examination and post-mortem analyses revealed classic signs of sheep pox, including febrile nodular skin lesions and systemic involvement. Samples collected from infected animals were sent to the Accra Veterinary Laboratory to confirm the causative agent, *Capripoxvirus* but due to lack of reagents, the samples were followed to Austria. This case underscores the importance of early detection, comprehensive diagnostic measures, and the inclusion of sheep pox as a notifiable disease in Ghana's veterinary health regulations to enhance biosecurity measures and disease control strategies.

Keywords: Sheep pox, Techiman disease, Veterinary health, Biosecurity measures

Introduction

Disease Investigation Farm (DIF) is among the three Disease Investigation Farms of the Veterinary Service Directorate in Ghana and is located in Techiman the capital of Bono East. It also has a Veterinary Laboratory attached to it. DIF has an experimental animal farm with over 100 sheep of different age groups.

Sheep pox is a highly contagious disease affecting sheep, but it is not zoonotic (1,2). It is caused by Capripoxvirus (SPPV), which belongs to the Capripoxvirus genus and the Chopoxvirinae subfamily of the Poxviridae family (3). This disease has symptoms similar to Lumpy Skin Diseases (1-4). In goats, the disease is known as "Goat Pox" (2-5). They responded that this could lead to a variety of diagnoses that would vary depending on breed, animal age, immunity, and stress, and could have a major impact on the Techiman Disease Investigation Farm and even Techiman Municipality as a whole. Infection usually occurs through direct contact with infected animals or contaminated surfaces (6,7). Vectors such as mosquitoes, and ticks may also play a role (8). It is essential to use appropriate biosecurity measures to prevent and control outbreaks.

Many studies and reports indicate that capripoxvirus is very common in North and Central Africa, the Middle East, Europe and Asia (2,3). However, this disease has been recorded in many African countries, such as the nodular

form found in Morocco, Mauritania and other countries. According to the Notifiable Diseases in Ghana by the Veterinary Service Directorate, Sheep Pox is not part of the twenty-eight diseases. This study aims to determine the cause of the outbreak in the Techiman Disease Investigation Farm and also for it to be added as a Notifiable Disease in Ghana when confirmed at the laboratory.

Materials and Methods

Case reporting site

Investigations were conducted at Techiman Disease Investigation Farm when the suspected outbreaks were declared by the farm manager and the complete clinical examination was performed on over fifty (50) sheep of different ages. At the same time, the autopsies were performed on ten animals (four lambs and six adults), to describe the different types of post-mortem lesions observed on different organs.

*Corresponding author: Prince Kyere Dwaah, Disease Investigation Farm/Regional Veterinary Laboratory, Techiman, Bono East Region; E-mail: dwaah.dwaah@biola.edu

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Clinical and post-mortem findings

The clinical features of nodular sheep pox were the ones in the Techiman Disease Investigation Farm malaise, fever, anorexia, depression, nodules, and discharge from the nose and eyes. A pale red macule appears, and rapidly develops into an oval or round erythematous papule approximately 0.2-2 cm in diameter (Figure 1). The absence of hair is evident on approximately 45% of the animal's body, especially in the groin and under the tail, on both limbs and the face, usually around the mouth and rarely around the ears (Figure 1). Papules turn into nodules up to 2-5 cm in diameter. The nodules coalesce and grow and become firmer to the touch, giving the appearance of skin (Figure 2). About 92% of the animals also suffer from different respiratory diseases, mostly in the form of discharge, as shown in Figure 3. 100% of lambs under three months of age died, while skin lesions in older animals (over six months) developed into glabrous tissue, which is rarely seen in most mammals (Figure 2).

Autopsies performed showed haemorrhages in the intestine in 90% of the subjects, but in the case of the trachea were 50% haemorrhages, 30% frothy and 20% both (Figure 4). The nodules found in the lungs were firm to the touch, clear to white, and varied in size, sometimes up to several centimetres and embedded in the lung parenchyma infectious complications are rare, approximately 60% are hemorrhagic complications (Figures 6-9). Nodules were found in the rumen, omasum and abomasum mucosa in



Figures 1-3: Clinical Features of Sheep Pox

Figure 1: Reddish maculae under the groin and tail.



Figure 2: Nodular skin lesions.



Figure 3: Nasal discharge.



Figure 4: Autopsy Findings at Disease Investigation Farm, Techiman.

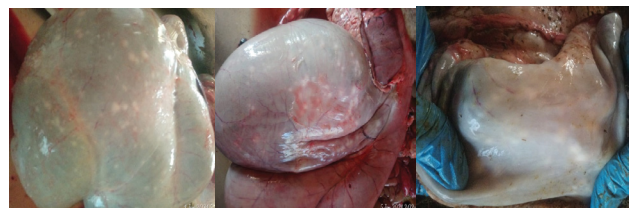


Figure 5: Nodular found on the Rumen, Abomasum and Omasum.

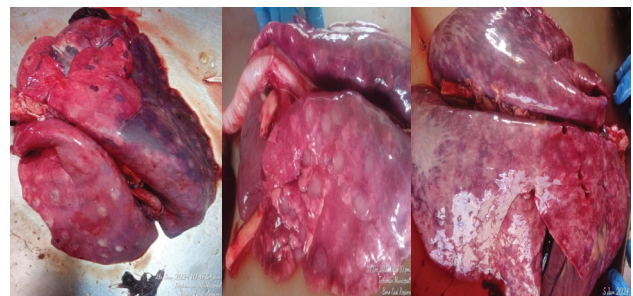


Figure 6: Nodular lungs, Nodular hemorrhagic lungs, and Nodular foamy lungs.

about 90% of sheep (Figure 5). But were less prominent in the oesophagus, subcapsular lesions, presenting as small, well-circumscribed white nodules that soften them, were found in 50% of kidneys soft and fibrous, approximately 90% of spleens were hemorrhagic and 40% of nodular livers (Figures 10-12). Examination of the sub-epidermal space revealed the presence of red blood cells containing infectious agents that aggregated to form plaques in 100% of animals. 100% of the animals suffered from either hydrothorax, hydropericardium or both (Figure 8).

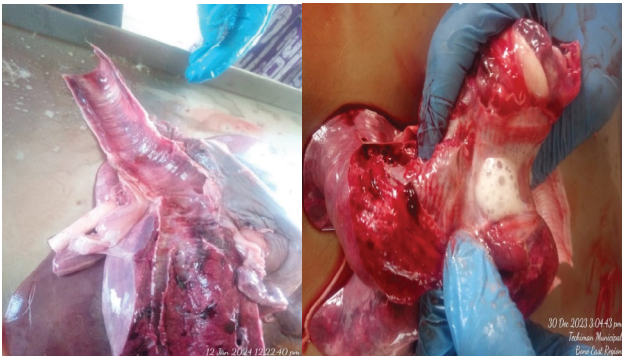


Figure 7: Hemorrhagic trachea and Foamy from the trachea.

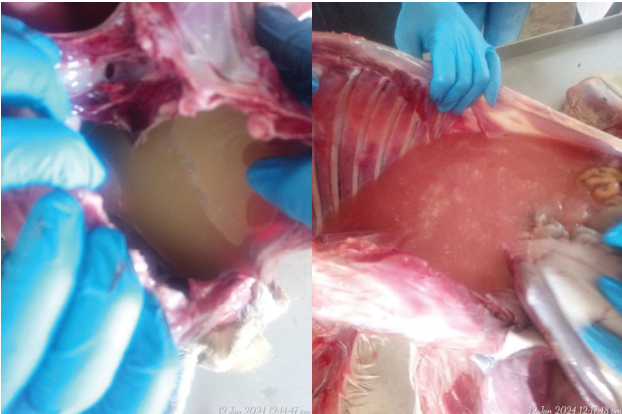


Figure 8: Hydrothorax and Hydropericardium.

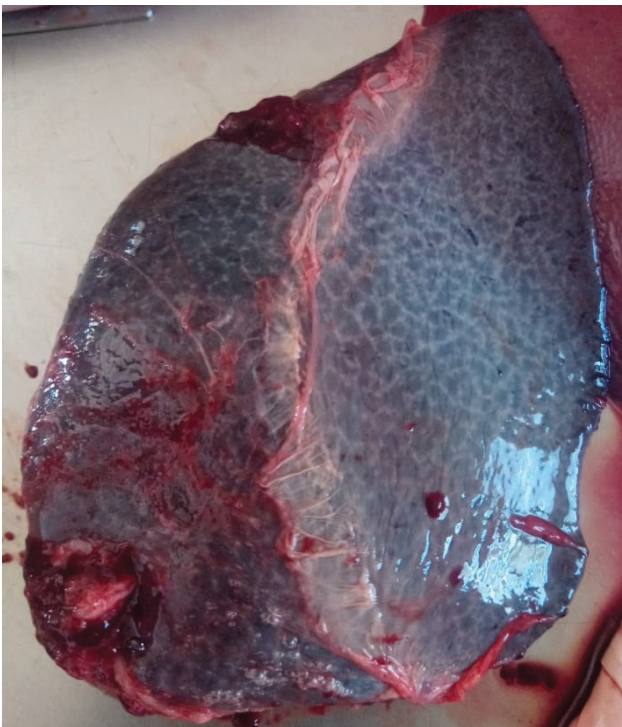


Figure 9: Inflamed hemorrhagic spleen.

Sampling

The samples were collected for confirmatory diagnosis. An article by Wageningen Bioveterinary Research (WBVR)

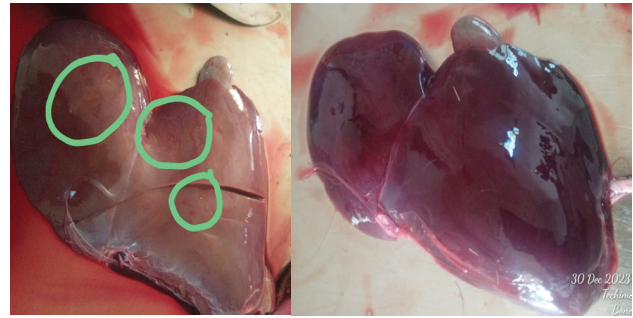


Figure 10: Nodular liver and Hemorrhagic liver.

entitled “Sheep and Goat Pox” describes Sheep Pox as a Category “A” Notifiable Disease. Hence the samples were sent to Accra Veterinary Laboratory (Skin Scab, Nasal, Ocular, and Rectal Swab) in Viral Transport Media and (Kidney, Spleen, Lungs and Liver) on Ice.

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Conflict of Interest

The authors declare no conflict of interest.

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