Overview of African Awine Fever

Sedeneinuo Suohu[1]*, Keneisezo Kuotsu[2], Amrit Gogoi[1], Rabeya Begum[3], Sashitola Ozukum[2] and Lalsangpuii[4]

[1]Department of Veterinary Pathology, [2]Department of Veterinary Clinical Complex, [3]Department of Veterinary Parasitology, [4]Department of Veterinary Biochemistry, College of Veterinary Sciences & AH, Jalukie, Nagaland, India.

Corresponding Author
Sedeneinuo Suohu
iamsedesuohu@gmail.com

OPEN ACCESS

Keywords

African Swine Fever (ASF) Virus, Biosecurity, Lesions, Clinical Signs

How to cite this article:

Suohu, S., Kuotsu, K., Gogoi, A., Begum, R., Ozukum, S. and Lalsangpuii. 2025. Overview of African Awine Fever. *Vigyan Varta* 6 (10): 64 - 66.

ABSTRACT

ASF is an extremely contagious and deadly disease in pigs and wild boars, which leads to 100% mortality in affected animals. The African swine fever virus (ASFV) belongs to genus *Asfivirus* under the family *Asfarviridae*. It can spread by direct contact with infected animals or indirect contact through contaminated fomites, farm workers, etc. The disease spreads rapidly, often affecting entire pig populations within a short time. The clinical signs which are commonly seen are sudden onset of high fever, bluish red discoloration of the skin, lethargy, loss of appetite. Characteristic lesions like splenomegaly, haemorrhages of lymph nodes and internal organs are observed. Strict biosecurity measures must be maintained to prevent the entry of pathogens inside the farm. Infected animals must be culled and buried deeply, while contaminated sheds and farm premises should be thoroughly disinfected.

INTRODUCTION

African swine fever (ASF) is a highly contagious and deadly disease that affects domestic pigs and wild boars, leading to severe mortality. The disease is caused by the African swine fever virus (ASFV), a genetically complex virus that belongs to the genus *Asfivirus* of the family *Asfarviridae* (Buragohain *et al.* 2023).

Transmission

Domestic pigs are the only species susceptible to this virus. The main routes of African swine

fever (ASF) transmission are from direct contact with infected animals, or indirect contact through contaminated feed, water, through fomites, farm worker, farm machinery. Infected wild boars also play a significant role in spreading the disease. Additionally, soft ticks of the *Ornithodoros* genus serve as both reservoirs and vectors for transmitting the ASF virus (ASFV) (Buragohain *et al.* 2023)

Clinical signs

The clinical progression of African Swine Fever (ASF) in domestic pigs can be classified into hyperacute, acute, subacute, or chronic forms.

Acute ASF: This form is marked by a sudden onset of high fever (temperature ranging from 40 - 42°C), lethargy, loss of appetite.

Subacute ASF: Seen in animals infected with moderately virulent strains, this form presents clinical signs which is similar to the acute type but generally less severe. The affected pigs show moderate to high fever, and mortality rate varies between 30-70%, typically occurring 7 to 20 days post-infection. Vascular lesions such as haemorrhages tend to be more prominent in the subacute form than in the acute form. Bluish-purple discoloration and haemorrhages may appear on the ears, abdomen, and hind legs, along with generalized redness of the skin covering the chest, abdomen, tail, legs.

Chronic ASF: In this stage, pigs exhibit multifocal skin necrosis, arthritis, poor growth, respiratory distress, severe weight loss, abortion (Li *et al.* 2022).

Postmortem lesions

During autopsy, the most characteristic lesion of acute African Swine Fever (ASF) is severe haemorrhagic enlargement of the spleen (splenomegaly), which is observed upon opening the abdominal cavity of the affected animal. The spleen becomes significantly enlarged, dark in color, with rounded edges, and occupies a large portion of the abdominal space. Additionally, multiple haemorrhages with marbled appearance are seen in the lymph nodes. Lesions like pulmonary edema, extensive internal organ haemorrhages, severe lymphoid tissue necrosis, as well as in the urinary bladder and kidneys are also observed (Li *et al.* 2022).

Diagnosis

African swine fever virus (ASFV) infection can be diagnosed using laboratory techniques. Samples used for laboratory diagnosis include blood, serum, tissues such as spleen, lymph nodes, tonsils, lung, kidney. It is recommended that these samples be preferably transported to the laboratory on ice.

Serological tests like ELISA are suitable for testing both serum and plasma samples. Other methods like indirect fluorescent antibody test (IFAT), indirect immunoperoxidase test (IPT), or immunoblotting can also be used in addition to ELISA. For confirmation of the disease and virus, conventional PCR can be used to detect the viral genome (Patil *et al.* 2020).

Prevention and control

OIE has listed ASF as notifiable disease where outbreaks of the disease must be reported to the nearest Veterinary Department of the state and prompt actions must be taken to prevent further spread. Currently, there are no commercially available vaccines. The only method to prevent the spread of the infection is by culling all animals that are suspected of the disease and tested positive (Juszkiewicz *et al.* 2023).

It is crucial to quickly cull all infected pigs as well as those in contact with them, and to properly dispose carcasses, bedding, and leftover food. These materials should be

buried deeply, layered with lime and salt, and should not be transported to other locations to avoid spillage. The farm or infected area must be thoroughly washed and disinfected using agents such as 2% sodium hypochlorite or sodium hydroxide. If there is a significant tick population, acaricides (permethrin, cypermethrin or amitraz) should be applied as needed (Patil *et al.* 2020).

External biosecurity involves measures designed to prevent the entry of pathogens from outside sources into the farm. These measures include installing fences, maintaining adequate distance between farms, implementing quarantine procedures before introducing new animals into the herd, limiting visits by unauthorized people, disinfection of vehicles entering the farm, protecting animal feed from contamination, and securing windows to prevent access by wild animals, rodents, birds, or insects that could act as disease vectors for disease.

Internal biosecurity focuses on preventing the spread of disease within the farm itself. This includes disinfecting facilities, managing animal movement using "all in/all out" system, maintaining separate clean and dirty areas, changing protective clothing and separate equipment between zones, using dedicated equipment for each area, and herd management through implementation of preventive programmes (Juszkiewicz *et al.* 2023).

CONCLUSION

There is still significant progress which is needed in the vaccine development of ASF. Moreover, there is a high risk of prevalence of ASFV, if no immediate implementation of strict measures is taken. Therefore, continuous monitoring and surveillance of the disease is vital for developing effective control strategies.

REFERENCES

Buragohain, L., Barman, N. N., Sen, S., Bharali, A., Dutta, B., Choudhury, B., Suresh, K.P., Gaurav, S., Kumar, R., Ali, S. & Kumar, S. (2023). Transmission of African swine fever virus to the wild boars of Northeast India. *Veterinary Quarterly*, *43*(1), 1-10.

Juszkiewicz, M., Walczak, M., Woźniakowski, G., & Podgórska, K. (2023). African swine fever: transmission, spread, and control through biosecurity and disinfection, including Polish trends. *Viruses*, *15*(11), 2275.

Li, Z., Chen, W., Qiu, Z., Li, Y., Fan, J., Wu, K., Li, X., Zhao, M., Ding, H., Fan, S. & Chen, J. (2022). African swine fever virus: a review. *Life*, *12*(8), 1255.

Patil, S.S., Suresh, K.P., Vashist, V., Prajapati, A., Pattnaik, B., & Roy, P. (2020). African swine fever: a permanent threat to Indian pigs. *Veterinary World*, *13*(10), 2275.