

Detection of LOM strain vaccine virus in piglets in Jeju

Jae-Hoon Kim², Hyoung-Seok Yang¹, Wan-Choul Kang¹, Hyeon-Ho Song^{*2}

¹Jeju Self-Governing Provincial Veterinary Research Institute, Jeju 63344, Korea; ²College of Veterinary Medicine, Jeju National University, Jeju 63243, Korea

Introduction: Classical swine fever (CSF) is a highly contagious, multi-systemic hemorrhagic viral disease in pigs that may manifest as peracute, acute, chronic, or prenatal form diseases [2, 3]. CSF virus (CSFV) is small, enveloped, positive, single-strand RNA virus in the genus *Pestivirus* of the family *Flaviviridae*. Various CSF vaccines such as live vaccine, DNA vaccine, subunit vaccine, and recent larker vaccine are available in many countries [2]. Since 1974, CSF live vaccines (LOM strain) have been widely used to control CSF in domestic pigs in Korea [3]. In contrast with Korea mainland, Jeju province had been CSF free and pigs reared in Jeju had not been vaccinated against CSF for more than fifteen years [1]. In the present study, we describe the detection of LOM strain vaccine virus in suckling and weaned piglets in Jeju for recent four years.

Materials and Methods: A total of 45 piglets from 17 pig farms of Jeju island were submitted to the Diagnostic Laboratory of Jeju Self-Governing Provincial Veterinary Research Institute and the Pathology Department of Veterinary Medicine, Jeju National University from 2014 to June 2017. Necropsy was performed and collected visceral tissues were fixed in 10% buffered formalin, embedded in paraffin, sectioned at 2 μ m and stained with hematoxylin and eosin. Bacterial cultures, polymerase chain reaction (PCR), and immunohistochemistry (IHC) were performed to clarify the causative pathogens in piglets.

Results: LOM strain vaccine virus were detected in 45 piglets. These LOM positive piglets were classified in to 36 suckling piglets (12 farms), 8 weaned piglets (5 farms), and 1 growing pig (1 farm), respectively. About 80% LOM positive piglets (36/45) were co-infected with other virus such as porcine epidemic diarrhea virus, porcine circovirus type 2 and porcine reproductive and respiratory syndrome virus or bacterial pathogens including *Streptococcus* spp., *Escherichia coli*, *Pasteurella multocida*, and *Clostridium* spp. And 20% piglets (9/45) were only LOM positive without any infection of other pathogens.

Conclusions: Based on the results of this study, LOM strain vaccine virus was widely distributed in the pig farms in Jeju. Most LOM positive piglets were co-infected with other pathogens. However, 20% LOM positive piglets did not infected any viral and bacterial pathogens. Therefore, more in-depth study for the virulence and transmission for LOM strain vaccine should be warranted.

References

[1] Kim B, Song JY, Tark DS, Lim SI, Choi EJ, Kim J, Park CK,

Lee BY, Wee SH, Bae YC, Lee OS, Kwon JH, Kang WC, Kim TY, Kim JH, Lee JH, Kang MI. Feed contaminated with classical swine fever vaccine virus (LOM strain) can induce antibodies to the virus in pigs. *Vet Rec* 2008, 162, 12-17.

- [2] Le Potier MF, Mesplède A, Vannier P. Classical swine fever and other Pestiviruses. In: Straw BE, Zimmerman JJ, D'Allaire S, Taylor DJ (eds.). *Diseases of Swine*. 9th ed. pp. 309-322, Blackwell Publishing, Ames, 2006.
- [3] Lim SI, Song JY, Kim J, Hyun BH, Kim HY, Cho IS, Kim B, Woo GH, Lee JB, An DJ. Safety of classical swine fever virus vaccine strain LOM in pregnant sows and their offspring. *Vaccine* 2016, 34, 2021-2026.

Cutaneous lymphosarcoma in a South American Sea Lion (*Otaria byronia*)

Hyun-Wook Lo¹, Jeong-Ik Song¹, Won-Gyu Cho¹, Jae-sung Heo¹, Won-Hee Hong², Jae-Hoon Kim^{*1}

¹College of Veterinary Medicine, Jeju National University, Jeju 63243, Korea, ²Hanhwa Aquaplanet, Jeju 63642, Korea

Introduction: Lymphosarcoma is the most common hematopoietic neoplasm of dogs and cats, but skin involvement is rare [1]. According to a review by McKeever, primary cutaneous lymphoma accounted for 8% of all canine lymphoma cases. Cutaneous lymphomas can be divided into two major subgroups based on the absence or presence of epitheliotropism—a tendency for the tumor cells to accumulate in epidermal or adnexal epithelium. Non-epitheliotropic lymphomas are usually of presumed B- or T-cell origin, as indicated by numerous cell marker studies in human lymphomas. Epitheliotropic lymphoma is of presumed T-cell origin. Neoplastic lymphocytes, which can range from small well-differentiated cells to large histiocytoid cells, invade the epidermis either diffusely or in small clusters [2]. South American sea lion (*Otaria byronia*) is affiliated to Otariidae. Lymphosarcoma has rarely been reported in Otariidae. In the present study, we describe the histopathologic characteristics of lymphosarcoma in a South American sea lion.

Materials and Methods: The subcutaneous mass at the rump of a 27-year-old female South American sea lion (*Otaria byronia*) was excised by necropsy in the Hanwha Aquaplanet Jeju. The mass was submitted to Pathology Department of Veterinary Medicine, Jeju National University. The submitted mass was fixed in 10% buffered formalin, trimmed, embedded in paraffin wax, sectioned at 3 μ m, and stained with hematoxylin & eosin. For differential diagnosis, immunohistochemical staining was performed with the antibody for the CD3 (marker for T cell), CD79 α (marker for B cell) and lysozyme.

Results: Subcutaneous mass was composed of considerable

round cells and minority of spindle shape cells. Accumulated neoplastic cells were pleomorphic and had clear nucleolus and eosinophilic cytoplasm. Some neoplastic cells also infiltrated to subcutaneous adipose tissue and muscular layer. There were severe hemorrhage, necrosis and thrombosis in the subcutis of skin. Immunohistochemically, many neoplastic cells demonstrated positive reactions for CD3, and negative for CD79a. Small number of cells also showed positive reactions for lysozyme.

Conclusions: Based on the histopathologic and the immunohistochemical results, subcutaneous mass at the rump of South American sea lion was confirmed as T-cell origin cutaneous lymphosarcoma.

References

- [1] Gross TL, Ihrke PJ, Walder EJ, Affolter VK. Lymphocytic tumors. In: Skin diseases of the dog and cat, clinical and histopathologic diagnosis. 2nd ed. pp. 866-893, Blackwell Science, Ames, 2005.
- [2] Meuten DJ. Tumors of the skin and soft tissues. In: Tumors in domestic animals. 4th ed. pp. 114-115, Iowa State Press, Ames, 2002.

P-237

Detection of LOM strain vaccine virus in porcine aborted fetuses in Jeju

Jae-Hoon Kim², Hyoung-Seok Yang¹, Wan-Choul Kang¹, Jae-Hyeon Shin^{*2}

¹Jeju Self-Governing Provincial Veterinary Research Institute, Jeju 63344, Korea; ²College of Veterinary Medicine, Jeju National University, Jeju 63243, Korea

Introduction: Classical swine fever (CSF) is a highly contagious, multi-systemic hemorrhagic viral disease in pigs that may manifest as peracute, acute, chronic, or prenatal form diseases [2, 3]. CSF virus (CSFV) is small, enveloped, positive, single-strand RNA virus in the genus *Pestivirus* of the family *Flaviviridae*. CSFV is able to cross the placenta of pregnant sows and infect fetuses at any stage of pregnancy. Various CSF vaccines such as live vaccine, DNA vaccine, subunit vaccine, and recent marker vaccine are available in many countries [2]. Since 1974, CSF live vaccines (LOM strain) have been widely used to control CSF in domestic pigs in Korea [3]. In contrast with Korea mainland, Jeju province had been CSF free and pigs reared in Jeju had not been vaccinated against CSF for more than fifteen years [1]. In the present study, we describe the detection of LOM strain vaccine virus in porcine aborted fetuses in Jeju.

Materials and Methods: A total of 18 porcine aborted fetuses from 3 pig farms of Jeju island were submitted to the Diagnostic Laboratory of Jeju Self-Governing Provincial Veterinary Research Institute from 2015 to 2017. Necropsy was performed and collected visceral tissues were fixed in

10% buffered formalin, embedded in paraffin, sectioned at 2/μm and stained with hematoxylin and eosin. Polymerase chain reaction (PCR) and immunohistochemistry (IHC) were performed to clarify the causative viral pathogens in aborted fetuses.

Results: LOM strain vaccine virus were detected in 18 porcine aborted fetuses. These LOM positive fetuses were classified into 9 stillbirth fetuses (2 farms) and 9 aborted fetuses (1 farm) at 50-80 days of gestation, respectively. All aborted fetuses were only LOM vaccine virus positive without any viral pathogens such as porcine parvovirus, pseudorabies virus, encephalomyocarditis virus, Japanese encephalitis virus, porcine circovirus type 2 and porcine reproductive and respiratory syndrome virus.

Conclusions: Based on the results of this study, LOM strain vaccine virus induced porcine abortion in the pig farms in Jeju. CSFV Trans-placental infection of CSFV can result in abortion, fetal mummification, stillbirth, and congenital malformations including cerebellar hypoplasia, microencephaly, and pulmonary hypoplasia [2]. However, the precise route of vaccine virus is still unclear in Jeju. Therefore, more in-depth study for the epidemiologic aspects for LOM strain vaccine should be warranted.

References

- [1] Kim B, Song JY, Tark DS, Lim SI, Choi EJ, Kim J, Park CK, Lee BY, Wee SH, Bae YC, Lee OS, Kwon JH, Kang WC, Kim TY, Kim JH, Lee JH, Kang MI. Feed contaminated with classical swine fever vaccine virus (LOM strain) can induce antibodies to the virus in pigs. *Vet Rec* 2008, 162, 12-17.
- [2] Le Potier MF, Mesplède A, Vannier P. Classical swine fever and other Pestiviruses. In: Straw BE, Zimmerman JJ, D'Allaire S, Taylor DJ (eds.). *Diseases of Swine*. 9th ed. pp. 309-322, Blackwell Publishing, Ames, 2006.
- [3] Lim SI, Song JY, Kim J, Hyun BH, Kim HY, Cho IS, Kim B, Woo GH, Lee JB, An DJ. Safety of classical swine fever virus vaccine strain LOM in pregnant sows and their offspring. *Vaccine* 2016, 34, 2021-2026.

P-238

Basal cell carcinoma of two cats

Hyoung-Nam Jo¹, Tae-Geun Kim², Yong-Eun Shin³, Jae-Hoon Kim^{*1},

¹College of Veterinary Medicine, Jeju National University, Jeju 63243, Korea; ²Bowmeow Animal Hospital, Seoul 04608, Korea, ³Seoul Animal Hospital, Seoul 06199, Korea

Introduction: Basal cell carcinomas are common in the cat, uncommon in dog and rare or unknown in other animal species [2]. Cats and dogs between 3 and 14 years old are affected. [1]. There is a higher incidence in females