

Neurological disorders related to mycotoxins in pigs: A case report



margarita@specialnutrients.com

Trujano, M^{1*}, Ramírez, F² and, Moreno, C³

¹ Special Nutrients, Miami, FL, USA

² SNI, La Piedad, Mexico

³ FESC, UNAM, Mexico



SPECIAL NUTRIENTS
THE MYCOTOXINS SPECIALIST

INTRODUCTION

Mycotoxins are produced and excreted by fungi present in grains. According to the FAO, 25% of the grains produced in the world are contaminated with mycotoxins¹. In the United States it is estimated that the cost of mycotoxin poisoning exceeds 1.4 billion per year.^{2,3,4}

Contaminated sorghum



There are several agents that cause damage to the nervous system, so mycotoxicosis represents a great challenge for the veterinarian.

MATERIALS AND METHODS

This paper describes the first case of nervous clinical signs related to ergotoxines in piglets in Mexico. Two commercial farms were studied in Mexico where there were piglets with nervous clinical signs. The affected animals were examined post-mortem and the organs affected were examined under the microscope. Analysis of the following mycotoxins was made by ELISA: Aflatoxins, Ochratoxin, T-2 Toxin, Zearalenone, Fumonisin and Deoxynivalenol in maternity feed samples. The qualitative identification of ergotoxines was made with the Van Urk reaction.

One of the less studied mycotoxins is ergot, which is found in sorghum, wheat, and corn. Richard (2007) mentioned that ergot is capable of producing nervous signs. In this study, macroscopic and microscopic lesions, as well as the analysis of mycotoxins corroborate the presence of Ergotoxines in piglets. The pathogenesis of neurological signs can be related to arterial vasoconstriction that produces ischemia and decreases blood flow. These clinical cases in farms are facilitated by the passage of mycotoxins from the sow to the piglet via breast milk.

RESULTS AND DISCUSSION

A large variety of clinical signs were observed in piglets in maternities; convulsions, ataxia, kicking, tremors, necrosis in tails. Microscopically, thrombi in the cerebellum and cerebrum were observed in blood vessels. Also, severe degenerative changes were detected in all the organs examined. The samples taken for bacteriology and virology analysis were negative.

The maternity feed samples analyzed for mycotoxins were positive for Ergotoxine, Zearalenone and Fumonisin at concentrations above permitted limits.

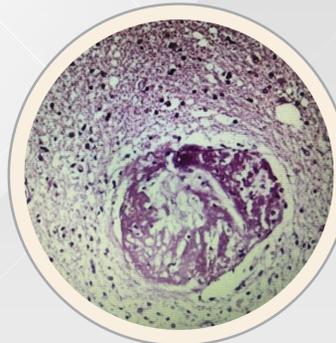
Newborn piglet



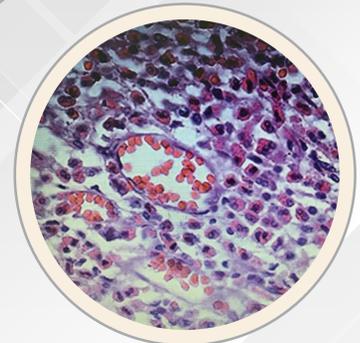
Necrotic tail and vulva



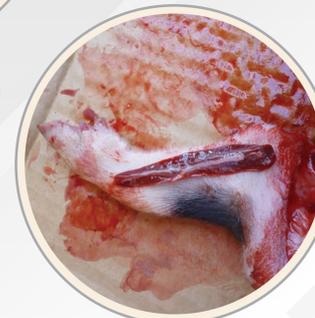
Nervous signs



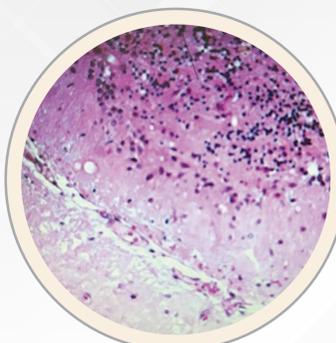
Brain; gliosis, occlusion of blood vessels



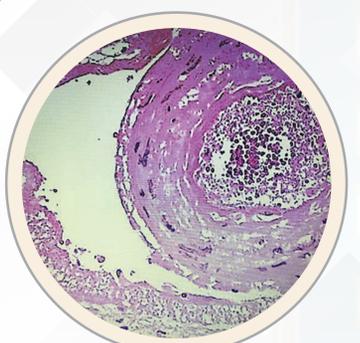
Cerebrum, gliosis, eosinophils



Diminished spleen



Brain, gliosis, degenerative changes.



Brain; blood vessel occlusion, fibrinoid degeneration

CONCLUSIONS

Mycotoxicosis should be considered as a possible cause in the differential diagnosis when nervous signs are observed in piglets.

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