Multi-Organ Anomalies in Pig

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Abstract

Multi-organ anomalies in skeletal, urogenital, and digestive system were observed in a Large Black male piglet born alive along with a healthy litter at ICAR Research Complex for NEH Region, Medziphema. The major developmental defects in the piglet were atresia ani, cryptorchidism and spina bifida along with ankylosis of posterior limbs. Etiology of this case was not confirmed as it was an incidental finding in our farm and rare in nature. However, the effects of certain teratogens could be the predisposing factor for the developmental defects in the preset case.

Keywords: Spina bifida, Atresia ani, Cryptorchidism, Pig

Case History

A case of multi organ anomalies of digestive, urogenital and skeletal system in a male piglet born to a Large Black sow is presented here. The sow at second parity with complete gestation gave birth to a deformed male piglet along with a litter of eight healthy piglets at the Pig Farm under Mega Seed Project, ICAR Research Complex for NEH Region, Medziphema. The birth of deformed piglet took place with manual assistance after 45 minutes of the last piglet born. At birth it was found that the piglet had defects in skeleton particularly in vertebral column at lumbar region, which was later confirmed as spina bifida or rachischisis. Spina bifida is one of the rare anomalies encountered in pig and characterised by the developmental defects in dorsal portion of the vertebrae or vertebral arches in the lumbar or sacral region with paralysis in rear limbs and tail and sometime the rear quarter also (Roberts, 1986).

Observations

In presented case the dorsal portion of the lumbar vertebrae was not developed completely and the lumbar region was devoid of any muscles and skin covering (Fig. 1). On detail observation it
was found that the piglet is having ankylosed paralytic posterior limbs, absence of tail and atresia ani (malformation of rectum and anus). The uro-genital system was also formed abnormally;

both the testicles were not descended into the scrotum and hence bilateral cryptorchidism was formed (Fig. 2). The piglet was alive for 24 hours after manual feeding of colostrums. On post-mortem examination it was observed that the digestive system ended in colon, and the development of rectum and anus was not in order. Both the testicles were found posterior to the kidneys in the pelvic cavity. All seven lumbar vertebrae were lacking the dorsal arch and spine and hence the spinal cord was affected in lumbo-sacral area leading to posterior limb paralysis. Carry et al. (1966) reported that spina bifida can occur anywhere along the vertebral column and is found most often in the lumbar region. The multiple anomalies observed in the present case could be due to the non-inherited teratologic defects during the process of development. It is interesting to note that spina bifida can be produced in the offspring of laboratory animals by exposing pregnant females to a variety of chemical substances or environmental changes early in gestation (Doige, 1975). The spina bifida like condition may arise due to nutritional deficiencies in dam particularly vitamin A and E, riboflavin, folic acid etc. and micro-minerals. Ageing of ova due to delay in ovulation for 24 to 48 hours and viral infections (swine fever and pseudo-rabies) during pregnancy might be responsible for teratologic defects in the piglet. However, in the present case the dam was vaccinated against swine fever and maintained with balanced ration, therefore the deficiency and infectious causes were ruled out from the probable causes. Etiology of this case could not be
confirmed as it was an incidental finding in our farm and also rare in nature, however future attempts may be initiated to identify the possible teratogens affecting pigs.

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References