HYDROCEPHALUS ASSOCIATED WITH POLYDACTYLISM IN A LARGE WHITE YORKSHIRE PIG

A. GOPINATHAN[1], S.M.K. KARTHICKEYAN[2], J. RAMESH[3] AND S.N. SIVASELVAM[4]

Livestock Research Station, Kattupakkam- 603 203, Tamilnadu, India

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ABSTRACT

A congenital abnormality of hydrocephalus associated with polydactylism was noticed in a Large White Yorkshire piglet in Pig Breeding Unit of Livestock Research Station, Kattupakkam, Tamilnadu. This female piglet was born dead with the macrocephaly and showed presence of digits instead of bifid hoofs in all four limbs and absence of dewclaw. The condition had resulted from only developmental abnormality during embryogenesis, since there was no involvement of inherited genetic cause as evident from the pedigree.

Key words: Hydrocephalus, Polydactylism, Large White Yorkshire pig

INTRODUCTION

Hereditary and congenital diseases are quite common in swine. The condition of hydrocephalus with polydactylism is very uncommon in pigs. The mode of transmission is unclear to ascertain about their cause. This paper deals with the occurrence of hydrocephalus and polydactylism in a Large White Yorkshire pig.

CASE HISTROY AND OBSERVATION

A Large White Yorkshire sow, aged 25 months belonging to Pig Breeding Unit of Livestock Research Station, Kattupakkam, Tamilnadu gave birth to ten piglets in its third farrowing. One female piglet was still-born with enlarged head (macrocephaly) and showed presence of fingers like digits instead of bifid hoofs in all four limbs and absence of dewclaw (Fig). The enlarged head contained the fluid inside the cranium, bearing the typical features of hydrocephalus. Since the fluid accumulation is more, the contours of frontal, nasal, maxillary and mandibular bones forming the facial structures could not be fully demarcated, resulting in a rounded-mass like head with the mouth opening at distal portion. The abdominal area of the piglet was also enlarged and found to contain ascites.

All four limbs of the digit were affected with the condition of polydactylism with 4-5 fingers like cartilaginous projections. Anatomical features of fore- and hind limbs appeared normal except the accessory digits and knuckling of fetlock joints in all the limbs. All other piglets in the litter were found to be normal and healthy. Moreover, neither its parents nor the offsprings of previous farrowings did not show the condition.

TREATMENT AND DISCUSSION

Critical review of literature revealed that the information regarding hydrocephalus co-existing with polydactylism in pigs is very scanty in India and elsewhere. In general, the condition appeared to be a rare one, having both the anomalies in a single piglet. Hydrocephalus associated with other defects in swine was reported by many authors. A condition, variable in expression, had been found associated with rudimentary tail and light-coloured hair and skin, observed in the Duroc breed by Blunn and Hughes (1938). Warwick *et al.* (1943) reviewed the anomalies in pigs and reported that the condition was resulting from a single autosomal recessive gene.

Congenital hydrocephalus of unknown pathogenesis was also observed in the Yorkshire X Hampshire crossbred stocks (Smith and Stevenson, 1973) in Canada dduring 1971, suggestive of recessive lethal condition, transmitted from a Yorkshire boar through single recessive gene hypothesis.

[1]Assistant Professor, [2]Associate Professor, [4]Professor, Dept. of Animal Genetics and Breeding; and [3]Assistant Professor, Dept. of Animal Nutrition, Madras Veterinary College, Chennai- 600 007

The inheritance of polydactyly was reported to be much less clear, owing to the irregular expression of the defect (Ollivier and Sellier, 1982). However, Malynicz (1982) had described a case of autosomal dominant complete polydactyly in Papua New Guinea village pigs. This is the only similar condition (in a litter) reported as the case in our present study. Variations in the polydactyl condition were observed in the purebred Yorkshire pigs by Mote *et al.*, (2006). But, in our study, the polydactylism existed in all the four limbs and the affected piglet was not alive.

Analyzing the pedigree, it could be concluded that this is only a developmental abnormality and resulted from any chemical or physical agent without involvement of inherited genetic cause. But, in-depth study is warranted to analyze recurrence of such a condition, if any, in future farrowings. As a remedial measure, it could be stated that if the affected piglet is surviving, culling would be the best option for the entire litter and the parent stock should be eliminated from breeding, once their involvement (genetic cause) is suspected.

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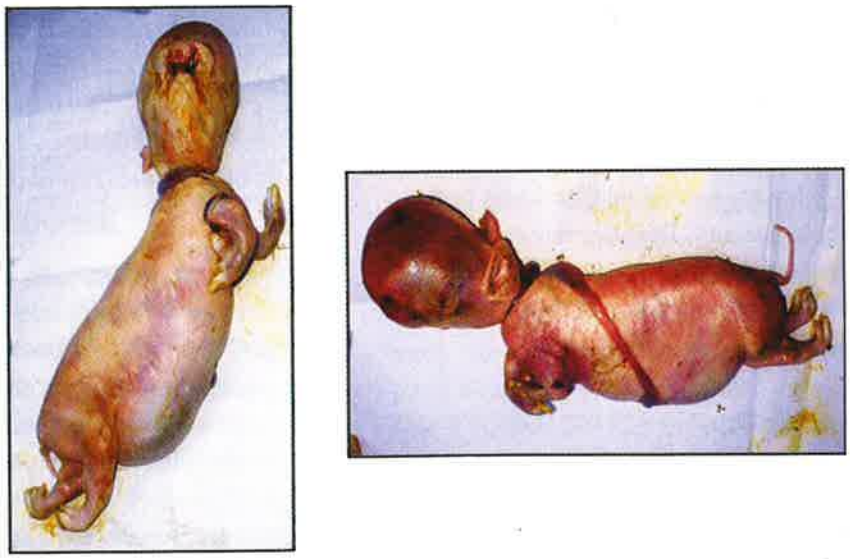

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Figure. Hydrocephalus with polydactylism in a Large White Yorkshire piglet – all the limbs bearing extra digits without dewclaw; (a) vertical view (with face upwards); (b) Horizontal view (with placental cord around the body and neck)