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Hermaphroditism in large white Yorkshire piglet: A case report

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Abstract
Occurrence of Hermaphroditism in a new born Large White Yorkshire piglet was observed in an organized piggery farm at Kattupakkam, Kancheepuram district of Tamil Nadu.

Keywords: Disorders of sexual development, hermaphroditism, intersex, piglet, large white Yorkshire

Introduction
Hermaphroditism (intersex) in farm animals is defined as a congenital abnormality wherein the sex of the animal is difficult to determine. Such animals possess ambiguous reproductive organs normally associated with both the sexes and are termed as true or pseudo hermaphroditism based on the gonadal tissue. During normal sexual development, any abnormalities in the establishment of chromosomal sex, gonadal sex and phenotypic sex may result in varying degrees of intersexuality (Jubb *et al*. 2007; Mastromonaco *et al.* 2012) [7 8]. Compared to other domestic species, the developmental malformations occur relatively frequently in swine (Ajadi and Olaniyi 2018) [1]. The overall incidence of developmental anomalies accounts to about 2.07% in swine (Thaller *et al*. 1996) [11]. In which, intersexuality defect in pigs with reported frequencies ranging from 0.1 percent 1.4 percent (Edwards and Mulley 1999) [4]. If these animals are selected for breeding, it leads to a huge economic loss apart from the likelihood of occurrence of congenital abnormalities in the herds (Pfeffer and Winter 1977) [10].

History and Observations
On routine observation of piglets after farrowing in Pig breeding unit, Post Graduate Research Institute in Animal Sciences, TANUVAS, Kattuppkakm, an adult LWY sow aged four years on its second farrowing gave birth of 12 healthy piglets of which one piglet had scrotal sacs with movable testes and vulval opening in the perineal region with a tube like structure (Fig. 1). The birth weight of the piglet was 1.51 kg. The intersex piglet was closely monitored and observed for urination and defecation. Due to the absence of perpetual sheath in the ventral abdomen the piglet is urinated through vulva with an arch pattern.

Results and Discussion
In the present study, one piglet from a litter had scrotal sacs with movable testes and a vulval opening with a tube like structure in the perineal region (Fig. 1). Much alike our gross findings, Chakrabarti (2016) [3] also reported that a crossbred piglet (Tamworth x Desi) had intersex condition with the presence of scrotal sacs, testis and vagina in the inguinal region but no penis. Similarly, Gopinathan *et al*. (2013) also reported a Large White Yorkshire (LWY) pig having scrotal sac with movable testis, presence of vuval opening and absence of preputial sheath and penis. On slaughtering, the tissues of male and female genitalia revealed true hermaphroditism. Bansal *et al*. (2005) [2] has earlier reported true hermaphroditism in indigenous pigs (*Sus scrofa domesticus*) but his findings were totally different from previous reports. From these findings Gopinathan *et al*. (2013) concluded that hermaphroditism in pigs is a rare condition with a huge degree of variation. In line with our findings, intersexuality or disorders of sexual development are mostly due to an influence of an autosomal recessive gene carried by certain boars in a closed herd (Pailhoux *et al*. 1977 and Hunter and Greve 1966) [9] with sex-limited expression either with polygenic inheritance or more likely due to recessive genes at very few autosomal loci (Ajadi and Olaniyi 2018) [1].

Identification of such boars is very essential, as the incidence of intersexuality in their offspring may reach 4-5% or more (Hunter and Greve 1966). Slaughtering of intersex piglets to study their genital tissues along with histopathological examination or karyotyping can help identify male or female with true or pseudo hermaphroditism conditions.

Fig 1: Hermaphrodite piglet with presence of both male and female genitalia

Summary and Conclusion

It can be concluded that the incidence of disorders of sexual development (DSD) or intersex or hermaphroditism in LWY piglets could be due to inbreeding leading to an autosomal recessive gene in the population. Hence the sire and dam line should be identified, culled and excluded from breeding. The intersexed piglets grow normally as healthy animals and they exhibit normal libido but are sexually impotent due to the absence of definite functional sex organs. Such piglets may be karyotyped or slaughtered after attaining market age to identify the male or female with true or pseudo hermaphroditism condition.

References

1. Ajadi TA, Olaniyi MO. Pygomelia and true hermaphroditism in a nine week old large white piglet case report. Folia Veterinaria 2018;62(3):62-67.
2. Bansal N, Roy KS, Sharma DK, Sharma R. Anatomical study on true hermaphroditism in an Indian pig (*Sus scrofa domesticus*). J Vet Sci 2005;6(1):83-85.
3. Chakrabarti A. Hermaphroditism in a crossbred pig – a case study. International Journal of Agriculture Sciences 2016;8(36):1744-1745.
4. Edwards MJ, Mulley RC. Genetic, developmental, and neoplastic diseases. Diseases of Swine, 8th edi, Oxford, Blackwell Science, 1999, 695-712.
5. Gopinathan A, Ramesh J, Jaishankar S, Palanivel N, Senthilkumar S, Sivakumar T. True Hermaphroditism in a Large White Yorkshire Pig – Case Report. Research & Reviews: Journal of Veterinary Sciences 2015;1(1):58-61.
6. Hunter RH, Greve T. Intersexuality in pigs: clinical, physiological and practical considerations. Acta Vet Scand 1996;37(1):1-12.
7. Jubb, Kennedy. Palmer's Sexual Development and Anomalies Associated with Sexual differentiation. Pathology of Domestic Animals. 5th edition. 2007, 434-444.
8. Mastromonaco GF, Houck ML, Bergfelt DR. Disorders of Sexual Development in Wild and Captive Exotic Animals. Sex Dev 2012;6(1-3):84-95.
9. Pailhoux E, Pelliniemi LJ, Barbosa AS, Cotinot C. Relevance of intersexuality to breeding and reproductive biotechnology programs: XX sex reversal in pigs. Theriogenology 1997;47(1):93-102.
10. Pfeffer A, Winter H. Hermaphrodites in Australian pigs. Occurrence and morphology in an abattoir survey. Aust Vet J 1977;53(4):153-62.
11. Thaller G, Dempfle L, Hoeschele I. Investigation of the inheritance of birth defects in swine by complex segregation analysis. Journal of Animal Breeding and Genetics 1996;113:77-92.