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Congenital Abnormalities in Two Holstein Calves with Spina Bifida Occulta, Tail Absence, Achondroplasia and Brachygnathia Inferior: A Case Report

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Abstract: Two Holstein calves were examined at February in 2005 in a large dairy Holstein farm in suburbs of Tehran province, Iran. One of calves was 47 days old and female. Weight of calf was 35.5 kg at the time of examination. Height of calf was 72 cm from whiter to hoof. Signs such as tail absence (Hypoplastic coccyx) and Spina bifida occulta were prominent on lumbosacral area. Presence of skin and hair coat at the area didn't permit neural structure of lumbar vertebrates to be exposed. Apart from the clinical signs of the calf, the calving was normal. Other calf was an 11 month old female calf that was examined the same time because of respiratory disorders. In clinical evaluation, Brachygnatia inferior (Mandibular) was observed. Further clinical examination did not show other congenital abnormalities such as hair lip and Clift palate.

Key words: Congenital abnormalities, tail absence, spina bifida occulta, achondroplasia, brachygnathia, calves

INTRODUCTION

Birth and offspring is the most important phenomena that were seen in a man and in an animal life. Occurring of congenital abnormalities in the obstetric time is based on genetically or congenitally that can affect on living them (Noden and Lahunta, 1985). In this aspect, evaluation of congenital disorders is always important in medical and veterinary medicine.

HISTORY

Two Holstein calves were examined at Feb. in 2005 in a large dairy farm in suburbs of Tehran province, Iran. One of calves was 47 days old and female with weight 35.5 kg at the time of examination. Height of calf was 72 cm from whiter to hoof. Signs such as tail absence (Hypoplastic coccyx) and Spina bifida occulta were prominent on lumbosacral area. Presence of skin and hair coat at the area didn't permit neural structure of lumbar vertebrates to be exposed. Apart from the clinical signs of the calf, the calving was normal. Weight of calving time for this calf was 25 kg that shows significantly lower weight in comparison with other calves at parturition time. In this farm mean weight between 40-50 days was 47±0.2 kg (Mean±SD) and height in an apparently normal calf was 81±3 cm (Mean±SD). Complete blood cell count did not significantly difference with an apparently normal calf in this farm. Based on clinical examination congenital abnormalities tail absence with spina bifida occulta and Achondroplasia or dwarfism was diagnosed. The second calf was an 11 month days-old female calf that was examined at the same time because of respiratory disorders. In clinical evaluation, Brachygnatia inferior (Mandibular) was observed. Further clinical examination did not show other congenital abnormalities such as hair lip and Clift palate.

Inherited tailnessness and tail deformity had reported with anus atresia and abnormality in urogenital system, but in the first calf these deformities were absent (Fig. 1 and 2) (Radostits *et al.*, 2007). Dogs with

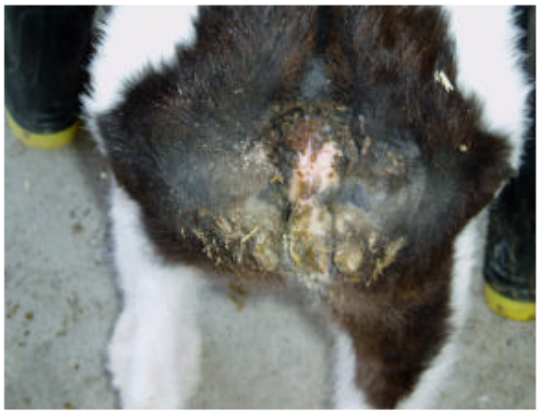

Fig. 1: Posterior view of calf with Spina bifida occulta, tail absence and Achondroplasia. Skin and subcutaneous tissue prevents to be exposed of neural structure of the lumbosacral area

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Fig. 2: Lateral view of calf with Spina bifida occulta, Tail absence and Achondroplasia. Dwarfism is dominant in this view

Fig. 3: Lateral view from head of the calf with brachygnathia inferior. Upper respiratory tract disorder is prominent with conjunctivitis

Fig. 4: Lateral view from head of the calf with brachygnathia

brachyocephall skull with short nose and most of manx cats deformity in tail vertebrates and sacrum area were seen with neural disorders in this part of the body, but the mentioned calf did not has any disorders of CNS or PNS of the limb or pelvis (Noden and Lahunta, 1985). In Dexter breed of cattle FGFR3 were recognized that can be causes of dwarfism and it is a receptor for growth factor in the fibroblastic cell membrane (Usha *et al*., 1997). Our case was a Holstein calf and we did not any study on gene factors and cell membrane receptors.

In spina bifida arch of the vertebrates is incomplete and if skin with subcutaneous structure covered the vertebrates it will be known to spina bifida occulta. Spina bifida could be seen in the thoracic vertebrates with absence of ribs and lumbosacral area (Noden and Lahunta, 1985; Boyd, 1985). One of lower jaw abnormalities is Agnathia and brachygnathia inferior (Noden and Lahunta, 1985; Nadalian, 2002) (Fig. 3-4). Single dominant gene thought to be causing this abnormality (brachygnathia inferior) in animals (Radostits *et al*., 2007). Brachygnathia inferior can produce by environmental and genetical factors (Radostits *et al*., 2007). In calves of Angus breed, it was reported that a single dominant gene produced this abnormality (Radostits *et al*., 2007). Heidari reported, in a study on 28 pedigree of Angus breed was recognized a single dominant gene in 7 cases (Heidari *et al*., 1985). The calves that have abnormalities such as brachygnathia will show problems such as milk drinking and aspiration pneumonia in the future of his or her life (Noden and De Lahunta, 1985; Nadalian, 2002; Blowey and Weaver, 1991). Griffith *et al*. (1987) categorized Clift palate in 4 groups and declared that we can use these models in human. In the second case soft and hard palate abnormalities or fissure were absent and clinically she shows respiratory disorders.

CONCLUSION

It is concluded that in a case may be we can find more than one congenital abnormalities such as case former, also although some congenital abnormalities not-life threatening, it usually considered an important defect if detected during respiratory system examination such as second case.

REFERENCES

Blowey, R.W. and A.D. Weaver, 1991. A Color Atlas of Disease and Disorders of Cattle, Wolf Publishing Ltd. 1st Edn., pp: 7, 12.

Boyd, J.S., 1985. Unusual case of spina bifida in a Friesian cross calf. Vet. Rec., 23: 116 (8): 203-205.

Griffith, J.W., B.A. Hobbs and E.K. Manders, 1987. Cleft palate, brachygnathia inferior and mandibular oligodontia in a Holstein calf. J. Comp. Pathol., 97 (1): 95-99.

Heidari, M., D.W. Vogt and S.L. Nelson, 1985. Brachygnathia in a herd of Angus Cattle. Am. J. Vet. Res., 46 (3): 708-710.

Nadalian, M.G., 2002. Disease of the ruminant's alimentary system. 2nd Edn. University of Tehran Press, pp: 51.

Noden, D.M. and A. De Lahunta, 1985. The embryology of domestic animals, published by William and Wilkins, translated by Ghazi, S.R., B. Radmehr and H. Rashidi (Eds.). 1st Edn. Press by the University of Shiraz, Iran, pp: 341, 273-275.

Radostits, O.M., C.C. Gay, D.W. Hinchcliff and P.D. Constable, 2007, Veterinary Medicine. 10th Edn. Saunders Company, pp: 280.

Usha, A.P., D.H. Lester and J.L. Williams, 1997. Dwarfism in Dexter cattle is not caused by the mutation in FGFR3 responsible for achondroplasia in humans, Anim. Genet., 28 (1): 55-57.