



## SHORT COMMUNICATION

### Delivery of Bulldog Type Achondroplasia Calf after Management of Dystocia in Sahiwal Cattle

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#### ABSTRACT

Achondroplasia or chondrohypoplasia fetalis is a hereditary disease reported in dogs, small ruminants, buffalo and some breeds of cattle. The newborn is characterized by short legs and a compressed skull with short upper jaw and a nose divided by furrows. In many cases, this has been declared as the cause of dystocia in cattle, buffalo and goats. The present case report is about a rare case of achondroplasia (bulldog calf) in the Sahiwal cattle breed of Pakistan. This study describes the clinico-pathological aspects of first case of bulldog type achondroplasia in Sahiwal cattle breed. The deformity of the fetal body resulted in dystocia and fetus delivery was made possible after correction of position of fetus through per vaginal approach.

#### INTRODUCTION

Domestic animals have been suffering from different types of developmental abnormalities which have been reported infrequently (Singh et al., 1978; Christopher and Singh, 1997; Shukla et al., 2007). Genetic diseases develop due to abnormalities in genes and chromosomes. These are very rare in numbers as one out of a thousand animals may develop genetic diseases. Genetic diseases involve every breed of cattle but some diseases are breed-specific. These diseases can lead to poor performance and structurally unsound animals. Various types of monstrous and anomalous fetuses have been reported in bovines (Noakes et al., 2009; Roberts, 2004, Singh et al., 2013). A bulldog (achondroplasia) fetus is characterized by having a compressed skull, a short upper jaw and a nose divided by furrows (Gentele and Testoni, 2006; Noakes et al., 2009; Pandey et al., 2010). The facial expression of fetus was similar with bulldog.

#### Case history

A Sahiwal cattle in her first parturition was examined with a history of labor pain and discharge of vaginal

fluid since last 24 hours. Per-vaginal examination revealed the rupturing of the water bag with a mispositioned dead fetus. The animal was exhausted due to repeated straining. The position and presentation of fetus was ascertained through per vaginal examination. The fetus was found having anterior longitudinal presentation, with dorso-sacral position. One fore-limb of fetus was protruding from the vulva and other forelimb was flexed from the shoulder joint. The head of the fetus was deformed; there were no fetal movements and other body reflexes.

#### Case description

The calf was aborted after 8 months of pregnancy and has a monstrous appearance. The limbs were extremely short, especially below the knee and hock joints. The head region represented a bulging cranium, depressed nose and distance between the nostrils was short. The lower jaw was elongated than the upper jaw. The tail was short and was originating far up from the calf's back. Excessive accumulation of fat on the subcutaneous abdominal region was found (Figure 1).

#### Treatment

Epidural anesthesia was used to control the straining of the dam. The per-vaginal approach revealed a dead calf



**Figure 1: Bulldog type achondroplasia in Sahiwal breed calf having short legs, distended abdomen, compressed head and micromelia (Lateral and ventral view).**

with abnormal flexion of shoulder joints and abnormal distension of the abdomen which were making the delivery of the fetus difficult. The dead fetus was extracted after correction of fetal presentation and forceful manual extraction using obstetrical chains and hook. The gross examination showed that the fetus was fully developed with distension of the abdominal cavity. The skin was fully developed with evident skin color and hair growth.

To restore the general health condition of the dam of the fetus, fluid therapy was offered by giving intravenous fluids containing Dextrose 5% with normal saline with a dose of 5ml per kg body weight (BW). Injection Ketoprofen was given @ dose rate of 3mg/kg BW for three days and an injection of Enrofloxacin were injected @ dose rate of 5mg/kg BW for five days.

## RESULTS AND DISCUSSION

Dystocia due to bulldog calf has been reported in cows (Kumbhar et al., 2011), buffalo (Pandey et al., 2010), and sheep (Manokaran et al., 2013). The disturbance in bone ossification may result into abnormal bone formation and body deformity (Noakes et al., 2009). In all the previously reported cases, the calves were having abdominal distension due to subcutaneous fat and anasarca. All the cases were forcefully extracted through per-vaginal approach. The present case of achondroplasia also had distended abdomen due to anasarca and subcutaneous fat and was expelled dead after forceful extraction.

The diagnosis of bulldog fetus was made based on the physical appearance of the deformities and variations from normality which was verified by already reported cases in different breed (Agerholm et al., 2004, 2016; Cabrera et al., 2016). The macroscopic changes found in the present case of study were similar to those described in different breeds including Jersey (Coelho

et al., 2013; Wurster et al., 2012), Punganur (Silva et al., 2014), Scottish Highland (Cabrera et al., 2016), Belted Galloway (Dittmer et al., 2015), Dexter (Harper et al., 1998), Holstein (et al., 2004, Agerholm et al., 2016), Nellore (Moura et al., 2014) and miniature Zebu (Struck et al., 2018). The extracted fetus was having the appearance of a bulldog with a long mandible and short upper jaw, nose divided by furrows, and protruded tongue. These findings are also reported earlier in cattle by Harper et al. (1998), Kumar et al. (2007) and in buffaloes by Christopher (2000) and Prasad et al. (2016). According to Harper et al. (1998) and Roberts (2004), these types of monsters are due to the recessive gene. But in present case, the breeding record and pedigree were not available as the dam of the fetus was purchased from a local market. In buffalo, there is report of delivery of bulldog fetus with Schistocephalus Fissilabrus anomaly (Selvaraju et al., 2018) but in the present case no such anomaly was noted. In Dexter breed, achondroplasia was also described with vertebral platyspondyly and extreme shortening of the ribs (Cavanagh et al., 2007) but in the present case of study, no vertebral deviation and shortening of ribs were noted. In mostly previously reported cases, the delivery of fetus took place after 8 months of pregnancy. Similarly, in the present case the delivery was also took place after 8<sup>th</sup> month of pregnancy. Use of epidural anesthesia to reduce the painful straining of dam was found effective in all the previously reported cases and was also proved effective in reducing the painful straining in the present case. The animal was also provided with supportive therapy using 5% dextrose infusion along with injection of Vit. B complex to overcome body exhausting. In conclusion, delivery of Bulldog type achondroplasia calf is manageable in Sahiwal Cattle.

### Authors' Contribution

All authors contributed equally to this manuscript.

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