



## Dicephalus in Hybrid Saanin Goat in Sudan-Case Report

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### Abstract

The most common of congenital defect is dicephalus, its mean the fetus born with duplicated head and complete separation of the head. In our case A-6-years old pregnant of hybrid saanin goats was delivered manually the male kid of goat was born dead [its died inside of the uterus before delivered] and the dam she died after 9 hours from parturition. the kid had single body and four nose, four ears, four eyes, two mouth, two mandibles, two maxillae, with two forelimbs, and two hind limbs. The best method for obstetrical intervention is by manually deliver of dam goat to relief the dystocia condition, and sometimes we need to do C-section in complicated cases or due to abnormalities fetus presentation. Dicephalic fetus in hybrid saanin goat may be occur due to predisposing factors that are mentioned previously in our report.

**Keywords:** Dicephalus; Hybrid Goat; Congenital; Pregnancy; Dystocia; Obstetric

## Introduction

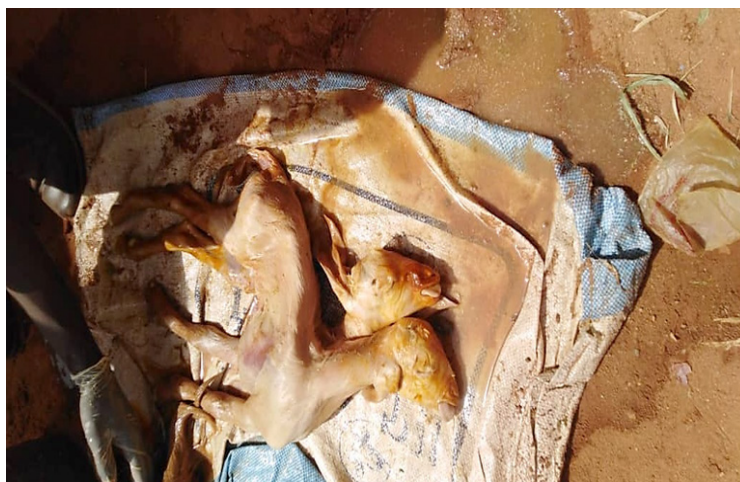
Dicephalus is one of most congenital defect in the animals especially goat, its mean double head in goat fetus [1]. Congenital defects are induced by genetic or environmental factors including infectious diseases, viruses, drugs, poisonings, plants, mineral salts, and vitamin (A, D, E) deficiency, hormonal factors, and physical reasons or by their interactions [2]. Etiological information about the congenital duplication anomalies is rarely available. It is not known precisely whether they are caused by genetic or environmental factors, or both [3]. Dicephalus, as one kind of conjoined symmetrical twins described as an abnormality of incomplete separation of heads resulting from twin-ning in humans and animals The reported incidence of is 2 in 27 anomalous twin lamb [4]. To contribute to the knowledge of congenital defects, the morph -pathological features of cranial duplication (Dicephalus)are described in this case report.

## Case Report

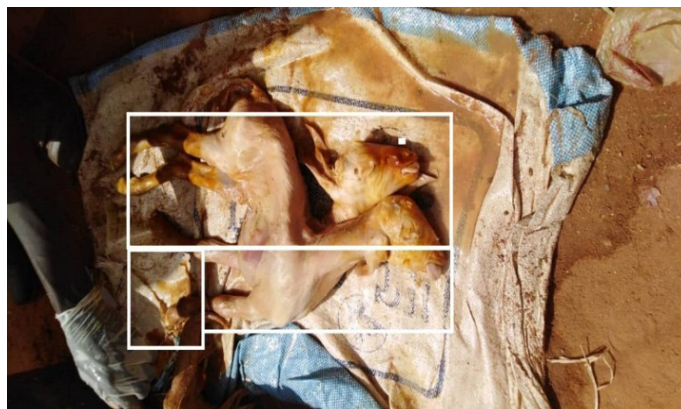
A-6-year old pregnant goat with fourth parturition was referred to our local veterinary clinic, located in Nile east area in

Khartoum bahri-sudan. It was found that the fetus in posterior presentation, dorso-sacral position, with extended posture of hind limbs. And a dicephalic fetus was detected with physical examination via vaginal method because the animal suffering from dystocia and after our rabidly intervention manually we are successfully delivered the nanny goat with dicephalic malformed male kid of goat with 3kg weight and crown rump-length 47cm was born, the kid was born died, and the mother also she died after 9hours unfortunately. when we asked the owner about the goat history and is there is any previously congenital defect or not he say no and the goat was normal in all its parturition.

The kid had a single body with duplicated symmetrical heads attached to single neck that was classified as a cranial duplication (dicephalus). Externally, the dicephalus goat had a single body with duplicated heads that were of almost the same size and shape, four eyes, four ears, two mandibles, two maxillae, two forelimbs, and two hind limbs (Figure 1). Two heads were separated from each other to one third of the lower area of the neck and the distance between two heads was 15 cm.



**Figure 1:** A dicephalic fetus with double head and single body, with two forelimbs and two hindlimbs



**Figure 2:** Double head that signed with blue arrows in dicephalus kid goat

## Discussion

The causes of congenital defects include inherited diseases, drugs, nutritional deficiencies, enzymes and trace elements deficiencies, infectious and toxic environmental agents, and physical agents and interactions between them [5]. In our case, there was no history of any similar anomaly in the herd, nor of specific teratogen and drug administration. However, due to the climate variation and the seasonal movement of the animals, investigation of the environmental causes of the anomaly is very difficult. In many conditions, clinicians may not keep a good history of the mother and detection of a causative agent may be impossible. In the present study, we did not detect the causative agent, stated that the cause of many congenital anomalies are essentially unknown [6] however, the important known causes are prenatal infection with a virus, teratogens ingested by mother, vitamin deficiency (A and folic acid), genetic factors and/or combination of these. In goats, congenital malformations related to genetic and environmental factors constitute a substantial proportion of cases of bone pathology [8]. Different congenital defects have been reported as one of the causes of dystocia such as arthrogryposis, brachygnathia, hydropsy, schistosoma reflexes, and double monster [9]. Embryonic duplications, as congenital abnormalities, have been reported in small ruminants since 1916 [10]. There is no data available on the precise chronology of this anomaly during the pregnancy in ruminants, but it is generally believed that if twinning is not initiated until after the embryonic disk is formed, two centers of axial growth may result instead of one. So, if they are not sufficiently separated, conjoined twins could result [11]. Dicephalus or duplication of the head is a kind of conjoined twinning or congenital duplications by which two animals have been partially separated in the head region. This anomaly has been observed extremely rarely in horse, occasionally in dog and cat, and, not uncommonly, in cattle and sheep [12].

## Conclusions

The congenital defects especially dicephalus condition is most common in goat than other species, [bovine-ovine-equine-porcine-buffalo.... etc.]. the predisposing factors that may help or lead to this condition such as; environmental factors, genetics and, teratogenic factors, nutritional deficiency and vitamins [vit A, D, E, Folic acid], enzymes they are play very important role in in this condition so we must be awareness about it, the most common methods for rabidly interventions for this condition is obstetrical maneuvers and may need to C-section in sometimes if the goat can't delivery normally.

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