

Original Research Article

<https://doi.org/10.20546/ijcmas.2017.607.181>

## Congenital Arthrogyriposis and Bilateral Shoulder Flexion in Murrah Buffalo Calf: A Case Report

A. K. Ahuja\*, H. Singh, M. Honparkhe and S. Singhal

Department of Veterinary Gynaecology and Obstetrics, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab-141004, India

\*Corresponding author

### ABSTRACT

#### Keywords

Arthrogyriposis,  
Congenital,  
Shoulder flexion,  
Calf.

#### Article Info

Accepted:  
19 June 2017  
Available Online:  
10 July 2017

Arthrogyriposis is a common inherited deformity characterized by contracture of tendons and fixation of joints. In the present case, a pluriparous buffalo was presented in the clinics with the history of straining from 12 hours. After performing the caesarean section, a dead male buffalo calf was delivered with bilateral arthrogyriposis of carpal joint and fetlock joint in both the forelimb and fetlock joint in both the hind limb,

### Introduction

Arthrogyriposis is a common congenital defect that affects the joints of forelimbs and hind limbs, leading to fixation and immobilisation (Sprake, 2015; Andersson *et al.*, 2008). This abnormality was described more in calves, lambs, piglets and foals and seldom in goats, cats, dogs and human beings (Devi Prasad *et al.*, 2010; Shahrokhi and Gharib, 2011). Various breeds of cattle such as Hereford, Holstein-Friesian, Guernsey, Jersey, Ayshire and Brown Swiss have genetic predisposition to this condition (Hartley *et al.*, 1974; Greene *et al.*, 1973). Arthrogyriposis occurs mainly due to an alkaloid toxin that acts on the musculoskeletal system leading to permanent joint contracture in forelimbs and/or hind limbs (Shupe *et al.*, 1967a).

The affected limbs cannot be straightening out (Hartley *et al.*, 1974; Sprake, 2015) and may include incorrect articular arrangement or rotational irregularity. The defect is mostly seen as bilateral in the fore limbs and less often in the hind limbs. With the advancing age of calf the condition of arthrogyriposis deteriorates due to secondary effects caused by increased stress of weight gain and increased movement of animal (Keeler *et al.*, 1969; Shupe *et al.*, 1967b).

### History and clinical signs

A Murrah buffalo in its 4<sup>th</sup> parity was presented to clinics with the history of straining since 12 hours. The animal had surpassed the 1<sup>st</sup> stage of labour. The clinical

parameter shows a slight deviation from the normal. Per vaginum exam revealed the foetus in anterior presentation, dorsosacral in position but with bilateral shoulder flexion. No foetal reflex or/ movements were present.

The cervix was relaxed and completely dilated but due to oedema of the canal, space was not adequate for delivery of foetus so the buffalo was put on caesarean section.

**Fig.1** Joint fixation at carpel and fetlock joint in forelimb and at fetlock joint in hind limb



### **Treatment and Discussion**

The animal was given intravenous fluid, antibiotics and dexamethasone prior to operation. After restraining the buffalo in right lateral recumbency, left paramedian lapro-hysterectomy was performed using local infiltration of 2% lignocaine, along the incision line (4 inches above parallel to milk vein). The uterus was searched out for a dead abnormal male foetus/calf. After removing the placental shreds from the uterus, incision was sutured using chromic catgut no. 2 employing double layer of

Cushing's and Lambert pattern. The buffalo was administered intravenous fluid as inj. Dextrose Normal Saline (4 litre) and Normal Saline (5 litres), metrogyl (1.5 litres), Caborogluconate (450 ml, slow I/V) and antibiotic, antihistaminic and anti-inflammatory were administered. Following closure of the surgical wound, the dam was put under antibiotic cover of parenteral and intrauterine antibiotics. Skin sutures were removed after 14 days. The dead male calf was examined carefully and it clearly shows that fixation of carpel joint and fetlock joint in both the forelimb and fetlock joint in both the

hind limb, respectively (Fig. 1). The internal organs of calf were normal. In most of the cases the aetiology behind the arthrogryposis remains unknown, but the most accepted theory is the decreased limb movements of the foetus in uterus (Radostits *et al.*, 2007). Arthrogryposis is the stiffness or limited movements of one or more joints and change of posture and limb function due to permanent contracture of joints at birth (Doherty *et al.*, 2000). The extent of this malformation is variable and may affect only one, two, or four legs and the axial skeleton (Van Vleet, 2007). Arthrogryposis usually affects the fore and hind limbs and the distal joints (Belli, 2007).

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### How to cite this article:

Ahuja, A.K., H. Singh, M. Honparkhe and Singhal, S. 2017. Congenital Arthrogryposis and Bilateral Shoulder Flexion in Murrah Buffalo Calf: A Case Report. *Int.J.Curr.Microbiol.App.Sci*. 6(7): xx-xx. doi: <https://doi.org/10.20546/ijcmas.2017.607.181>