

## **Incidence and Causes of Dystocia in Small Ruminants in Sokoto Metropolis, Northwestern, Nigeria**

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**Abstract:** Small ruminants contribute very significantly to the meat and less importantly to milk production in Nigeria and thus compliment the production from cattle in meeting the huge demand for animal protein source for the huge and affluent population in urban areas and other towns in Nigeria. The productivity of these animals is however, negatively affected by diseases and increasingly other non- infectious reproductive diseases or conditions. Dystocia together with other problems like stillbirth, pregnancy toxemia, mastitis, orchitis are among the most common reproductive conditions affecting these animals apart from disease and poor nutrition. This paper was designed as a retrospective study on the incidence and causes of dystocia in sheep and goats over a six months period - June, 2015 to November, 2015. A total of 142 cases of dystocia were recorded at the clinic over the period of the review out of which 110 (77.46%) cases were in sheep while 32 (22.54%) occurred in goats. The principal causes of dystocia in both sheep and goats were fetal malpresentation and twinning with 25.45% and 23.62% respectively. Other causes included ringworm, fetal oversize, and monsters and prolapse. Various methods were employed in managing dystocia and included manual traction, caesarian section as well as drugs. It was concluded that dystocia was a major reproductive problem in small ruminants and management of the condition must be improved to save the pregnant animals and their young ones.

**Keywords:** Incidence, causes, dystocia, small ruminants, sokoto

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### **INTRODUCTION**

The population of sheep and goats in Nigeria is estimated to stand at around 22.1 million and 35.0 million respectively and a larger proportion of these animals and other livestock are concentrated in the dry northern part of the country [1]. Between 70 – 80 % of the nation's population of over 140 million are engaged in agriculture and livestock production in one form or the other as a major occupation. In particular, sheep and goats are important animals in subsistence agriculture on account of their unique ability to adapt and still thrive under harsh environmental conditions [2]. These small ruminants are owned by large proportion of the rural population where they serve as a source of meat, milk, manure and other dairy products as well as serving as a means of economic security providing a ready source of family income [3]. The common breeds of sheep in Nigeria include Yankasa, Ouda, Balami and the West African Dwarf (WAD) while goat breeds include the Red Sokoto Goats (RSG), West African Dwarf, Kano brown and the Sahelian white [4]. Compared with the temperate breeds which are normally well fed, they are slow maturing and, in general, not very productive. But this may be due to poor nutrition and bad health. Breeding is generally

uncontrolled. The rams and bucks are kept with the females at all the time. Traditional methods of sheep husbandry in Nigeria and as in other parts of the tropics are almost all extensive. Supplementary feeding is not normally done in extensive systems where animals are allowed to roam the streets during the day. In semi intensive and intensive systems however, some form of supplementation is given on daily basis in the form of corn, groundnut leaves and cake and also cotton seed cake together with mineral salt licks. At night, the sheep are often housed for one reason or another, especially in the wetter tropics during the rains. There is zero-grazing here and there, for example in the outskirts of large towns and in the rain forest where free-ranging livestock is a nuisance.

The productivity or efficiency of livestock production is largely dependent on reproductive performance and several factors are known to affect the reproductive performance of farm animals among which are diseases, poor husbandry practices, the environment as well as poor nutrition especially during the long period dry season [5, 6]. Infertility in animals, which may be due some infections or other causes, is known to be a major problem that accounts for serious

economic losses in the livestock industry and is a common cause for the culling of animals. Apart from disease, faulty management also leads to most of the parturient problems in sheep and goats [6]. Under good condition of intensive sheep and goats' management, birth losses usually range between 8 - 12 %. Under extensive husbandry conditions, losses of 15 – 20 % are accepted to be inevitable. The main causes of lamb losses are: suffocation in the birth membranes; difficult birth; weather too cold; starvation; diseases; infection (e.g. navel infection); nutritional deficiencies. It is normal that the losses at birth with young ewes and kids are higher than with older dams.

Dystocia is a common problem in lambing ewes and does about to kid. A definition of dystocia is lambing which takes more than one hour after rupture of the foetal membranes. There is great breed variability in the incidence of dystocia especially in European breeds. The contributing factors to occurrence of dystocia include age of ewe, gender of offspring, large or small birth weights [7] small pelvic dimensions and reduced uterine activity due to hypocalcaemia [8]. Dystocia in Nigeria have been reported by several authors to result from various causes [6, 9-13]. Studies on reproductive problems affecting small ruminants in the study area have not been consistent with the last recorded study undertaken close to or over a decade ago [14, 15]. This article reports on the findings of the analysis of the incidence and causes of dystocia in sheep and goats in Sokoto over a six months period.

## MATERIALS AND METHODS

### Study Area

The study was conducted in Sokoto metropolis, the capital of Sokoto state in northwestern Nigeria. The state lies geographically along longitude 11° 30' to 13° East and latitudes 4° to 6° North covering an area of 26,648.48 sq kilometers. The climate of the state is semi-arid with two major distinct seasons – namely wet and dry seasons with the wet season starting late in May and ends in September. The dry season starts from October with the cold, dry dust-laden

harmattan wind lasting till February. Between the months of March to May, the weather is hot and dry with temperatures reaching a peak 43°C. The vegetation falls within the Sahelian zone which is suitable for the cultivation of grains, cash crops and animal husbandry. The state is a major livestock producer with an estimated cattle population of 2.4 million heads, 2.9 million goats and 1.988 million sheep [16]. The major occupation of the vast majority of the population is arable farming as well as livestock rearing.

Data was collected from the clinical case report sheets available from the records of documented cases of dystocia in ewes and goats over the period of the study covering six months from June, 2015 – November, 2015 at Sokoto State Veterinary Clinic, Aliyu Jodi Road, Sokoto. Analysis was made with regards to specie, breed, age, possible cause of condition as well as management of the cases to relieve the condition in affected animals. Percentage distribution was employed to analyze and results presented in form of tables.

## RESULTS

Some 142 cases of dystocia were recorded in both sheep and goats during the period of the study. A total of 110 (77.46%) of these cases were observed in sheep while 32 (22.54%) were in goats (Table 1). The breeds of sheep presented included Ouda, Balami and Yankasa breeds while the goat breeds recorded in the study were Sokoto red goats, Sahelian and West African dwarf breeds. Breed distribution of dystocia is depicted in table 2. More cases were observed in the months of November 51 (31.38%) and August 49 (26.34%) than in other months (Table 3). In both sheep and goats, fetal causes of dystocia were more prevalent 102 (71.83%) than of maternal causes 40 (28.17%). Other causes of the condition in both sheep and goats are presented in Table 4. In terms of management of dystocia in these animals, the various methods employed included caesarian section (22.54%), manual traction (41.54%), drugs (24.65%) and other unclassified means (Table 5).

**Table 1: Frequency of dystocia in sheep and goats on monthly basis**

Specie	June	July	Aug	Sept	Oct	Nov	Total
Sheep	11	13	26	6	18	36	110
Goats	4	2	6	3	5	12	32
<b>Total</b>	<b>15 (10.56%)</b>	<b>15 (10.56%)</b>	<b>32 (22.54%)</b>	<b>9 (6.34%)</b>	<b>23 (16.20%)</b>	<b>48 (33.08%)</b>	<b>142 (100%)</b>

**Table 2: Distribution of dystocia based on breeds in sheep and goats**

Sheep Breed	No (%)	Goats Breed	No (%)
Ouda	45 (40.91)	Sokoto red	10 (31.25)
Balami	29 (26.36)	WAD	13 (40.62)
Yankasa	36 (32.73)	Sahelian	9 (28.13)
<b>Total</b>	<b>110 (100)</b>		<b>32 (100)</b>

**Table 3: Frequencies of maternal and fetal causes of dystocia in sheep and goats**

Cause	Sheep	Goat	Total
Maternal	36 (32.73%)	4 (12.50%)	40
Fetal	74 (67.27%)	28 (87.50%)	102
<b>Total</b>	<b>110</b>	<b>32</b>	<b>142</b>

**Table 4: Frequencies of specific causes of dystocia in sheep and goats**

Cause	Sheep	Goats	Total	Percentage
Twinning	26	10	36	23.62%
Fetal Oversize	14	6	20	12.72%
Malpresentation	28	12	40	25.45%
Monsters	6	-	6	5.45%
Ringworm	19	2	21	17.27%
Prolapse	10	2	12	9.10%
Toxaemia	7	-	7	6.36%
<b>Total</b>	<b>110</b>	<b>32</b>	<b>142</b>	<b>100%</b>

**Table 5: Management methods of dystocia in sheep and goats**

Management	Sheep	Goats	No of cases	Percentage %
Manual traction	45	14	59	41.54
Calcium gluconate	16	3	19	13.38
Oxytocin	14	2	16	11.27
Caesarian section	23	9	32	22.54
Unclassified	12	4	16	11.27
<b>Total</b>	<b>110</b>	<b>32</b>	<b>142</b>	<b>100</b>

## DISCUSSION

Results from the present study have shown that dystocia occurred more in sheep 110 (77.46%) than in goats 32 (22.54%). The preponderance of dystocia in sheep over other domestic ruminants has also been reported in other studies [6, 15, 17]. In this study, it may be explained by the fact that in the study area, sheep, in absolute terms, are more numerous than goats and therefore more are presented to the clinic. Also, sheep are more favoured for the religious rites of sacrifices and naming ceremonies. Goats on the other hand, are not quite favoured for rearing in the locality which may not be unconnected to the taboo that eating goat's meat has health implications and could even lead to leprosy [18] and therefore less and less are reared by the people. According to some authors [19-23], dystocia has breed disposition. Results in this study also showed breed disposition and are consistent with the reported results of [24, 23]. In the present study, more cases of dystocia were recorded in Uda breed 45 (40.9%) than in other breeds of Yankasa 36 (32.74%) and balami 29 (32.73%). The uda breed is a breed that has adapted well to the harsh, hot and dry environment of the savannah and sahel and has a high population in the area. Additionally, the large body size of these breeds of sheep means they frequently carry twins and triplets which thus makes them more predisposed to the possibility of coming down with dystocia. In goats however, more cases of dystocia occurred in the West African dwarf breed 13 (40.62%) than in both of sahelian and Red Sokoto goats breeds. This may be attributed to the relatively small size of the West African dwarf goats and coupled with high frequency of

twinning and triplets in these animals and size of the individual kids are large [25, 26, 23]. And only very few are found in the area which is a semi arid. It is also a possibility that the recorded cases were from crosses of this breed since it is a breed that is found in the rain forest areas of Nigeria.

In terms of period of occurrence, more cases were recorded in November 48 (33.80%). This is a period which coincides with the dry season when there is little in the field for the animals to graze on and this, coupled with poor nutrition and management by owners, makes the animals more stressed, thus further predisposing them to this condition. Furthermore, the nomadic nature of these animals adds to compound the stress they go through [14].

Dystocia is usually regarded as being either of maternal or fetal origin [27, 12]. In the present study, majority of the cases (71.83%) were of fetal origin and included mal presentation, fetal oversize, monsters and twinnings. This result contrasted with the result of [23] who reported more of maternal causes of dystocia in Saudi Arabia but is in agreement with reports by [31, 22]. The preponderance of fetal dystocia may be attributed to the high frequency of twinnings amongst both sheep and does. Alternatively, it could be due to the poor state of the nutrition and management of these pregnant animals [21] which may be exacerbated by the sizes of the fetuses which is particularly the case especially in primiparous ewes and does [32, 22].

According to some authors [33-35], dystocia can be managed through various ways either medically or surgically. In small ruminants in particular, [36] stated that due to the small diameter of the pelvis, only limited manual manipulation of the fetus is possible to relieve dystocia. This might explain why most of the cases (41.54%) of dystocia in the present study were handled using manual traction. The preference of this method might also not be unconnected with the fact that little cost is involved unlike if they are managed via surgery. This is because in Sokoto, sheep are kept for religious and other traditional reasons- naming ceremonies, sallah festive rites- and therefore little investment is involved. Additionally, the dearth of trained veterinary staff to manage these animals even where surgery (caesarian section) is indicated may be the reason why majority of the cases were handled through manual traction. Less than a quarter of the cases (22.54%) were managed through caesarian section. According to [37], caesarian section is an effective method of treatment of dystocia in ruminants especially when it is performed early after onset of labour. It is probable that caesarian section was employed in the present study because the animals were in active state and labour might have started when the animals were presented at the clinic by the owners. It was also highly likely that the clients had the financial wherewithal to afford the cost for caesarian section on their animals. This is quite possible especially when such clients are educated and enlightened.

The use of drugs to handle dystocia has also been reported to be of value in animals. Oxytocin and calcium borogluconate were used respectively to manage 11.27% and 13.38% of the cases of dystocia in the present study. The relative ease with which they are obtained and their cheap cost might have been the reason for their use to manage the condition.

It is concluded from the present study that dystocia constitutes a major reproductive problem among small ruminants in Sokoto metropolis and can hinder or affect their productivity. A lot of lamb wastage can result from such condition and this can have negative effect on the ability of the people to improve on the performers of their animals. We recommend that more practical and reliable means of handling such cases should be encouraged among veterinary personnel as well as the need for more training of such staff. More in depth study may be needed in genetic research to find ways of reducing the incidence of this problem in animals in the study area.

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