

CLINICAL STUDY ON FETAL CONGENITAL DEFECTS CAUSING DYSTOCIA IN AWASSI EWES

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ABSTRACT

Out of 193 clinical cases of dystocia in awassi ewes were treated, 27 (13.9%) ewes were suffered from dystocia due to fetal congenital defects. Various forms of congenital defects were observed including arthrogyriposis 25.9%, brachygnathia and anasarca 18.5% for each, hydrocephalus 11.2% ascitis and dicephalus 7.4% for each, cyclopia, conjoined twins and schistosoma refluxes 3.7 % for each. The defects were occurred more frequently in male lambs (74.1 %) than in female lambs (25.9 %). Prenatal losses were reported in 96.2% of the cases.

Dystocia cases caused by congenital defect were treated by caesarian section (74.1%), manual correction and traction (14.8 %) or by fetotomy (11.1 %). The results indicates increasing the morbidity rate of fetal congenital defects in Mosul at this period, and showed that caesarean section was the best and safest method for the treatment of dystocia caused by congenital defects.

دراسة سريرية عن التشوهات الخلقية في الجنين المسببة لعسر الولادة في النعاج العواسي

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فرع الجراحة والتوليد، كلية الطب البيطري، جامعة الموصل، الموصل، العراق

الخلاصة

تم علاج ١٩٣ حالة سريرية لعسر الولادة في النعاج العواسي، عانت ٢٧ (١٣.٩%) منها من عسر الولادة بسبب إصابة الجنين بالتشوهات الخلقية. لوحظت أنواع مختلفة من التشوهات الجنينية شملت؛ تصلب المفاصل (٢٥.٩%)، تشوهات الفك العلوي والاستسقاء (١٨.٥%) لكل منها، موه الرأس (١١.٢%)، الحبن والجنين الثنائي الرأس (٧.٤%) لكل منهما، العين الواحدة، التوائم الملتصقة والجنين المسخ (٣.٧%) لكل منهما. لوحظ ان التشوهات الخلقية أكثر حدوثا في الحملان الذكور (٧٤.١%) بالمقارنة بنسبة حدوثها في الحملان الإناث (٢٥.٩%). شكل نفوق الأجنة قبل الولادة نسبة (٩٦.٢%). تم علاج حالات عسر الولادة المتسببة عن الأجنة المشوهة بأجراء العملية القيصرية (٧٤.١%)، التصحيح اليدوي والسحب (١٤.٨%) أو بأجراء التقطيع أَلجنيني (١١.١%). أثبتت النتائج زيادة نسبة الإصابة بالتشوهات الخلقية في الجنين في محافظة الموصل خلال هذه الفترة كما تبين أن العملية القيصرية هي الطريقة الأمثل والأمن لعلاج حالات عسر الولادة المتسببة عن التشوهات الجنينية.

INTRODUCTION

Congenital defects are abnormalities of structure, function or both present at birth (1). Different congenital defects in lambs have been reported as one of the causes of dystocia such as arthrogryposis, brachygnathia, hydropsy, schistosoma refluxes and double monster (2-4). During the embryonic period 14–35 days the embryo is highly susceptible to teratogenes (5), but this decreases with age except for its later differentiating structures such as cerebellums, palate, cardio vascular system and urogenital system (1,6). Congenital defects are caused by genetic (recessive genes), environmental factors (toxic plants, drugs, viruses, physical agents and nutritional deficiencies) or by their interaction (7,8). The teratogenic factors may be lethal, semi lethal or compatible with life (6), this lead to economic losses manifested by increasing prenatal mortality and decrease maternal productivity (5). The frequency of congenital defects varies according to breed, geographic location, season, sex, age of the parent and level of nutrition (6,8).

The present study aimed to determine the lamb's congenital defects causing dystocia and to investigate the best method for its treatment.

MATERIALS AND METHODS

During the period from November 2002 to August 2005, 193 ewes suffered from dystocia were referred to the clinic of obstetric section, college of veterinary medicine, university of Mosul, Iraq. After careful vaginal examination 27 ewes were diagnosed as dystocia due to the presence of fetal congenital defects, which were classified according to the body system primarily affected (5). The treatment was given either by manual correction and traction, fetotomy or by caesarean section.

RESULTS AND DISCUSSION

Out of 193 dystocia cases examined 27 (13.9 %) were congenitally deformed (Table 1). This observation were similar to those reported previously (2,9-11), but it is higher than finding of (3,12-14). The higher morbidity rate in this study might be due to distribution of an abnormal genes within herds as a result of treating and breeding lambs which were congenitally deformed. Congenital defects were observed more frequently in male lambs (74.1%) than in female lambs (25.9%), this finding was in agreement with previously studies (2,3, 9,10,12). It might be due to the higher proportion of dystocia cases in ewes caring male lambs which their birth weight is higher than female lambs (6.15%). Prenatal losses (96.2 %) were observed in all cases except one lamb suffered from dicephalus which was died 48 hours after birth. The high mortality rate might be due to inherited lethal genes or due to direct effects of dystocia, similar observation was reported in sheep (10) and in cattle (16).

Arthrogryposis was the greatest anomaly observed in the present study (25.9%), similar incidence was reported by (2,3). This defect characterized by permanent joint contraction (Fig.1). This defect caused by autosomal recessive genes or viruses (7,11), or due to highly environmental temperature (6).

Brachygnathia superior had an incidence of 18.5 %, similar finding have been reported previously (2,3,16). One lamb was associated with hydrocephalus (Fig. 2) another one associated with Cyclopia (Fig.3). The defect may be caused by received gene, viruses or due to ingestion of teratogenic plants (7,11).

Anasara had an incidence of (18.5 %), it was characterized by massive generalized subcutaneous edema causing great increase in the fetal size and placenta appeared abnormally thick and odematous (Fig. 4). One case was companied with partial hairlessness (Fig. 5).

Table 1: Congenital defects causing dystocia in relation to sex.

Congenital defects	No. of lambs		Total	%
	male	female		
Arthrogryposis	5	2	7	25.9
Brachycnathia	3	2	5	18.5
Anasarca	4	1	5	18.5
Hydrocephalus	3	0	3	11.2
Ascitis	1	1	2	7.4
Dicephalus	1	1	2	7.4
Double monster	1	0	1	3.7
Cyclopia	1	0	1	3.7
Schistosoma reflexus	1	0	1	3.7
Total	20	7	27	100

The incidence of this condition was in agreement with (18) but higher than those observed previously in sheep (2) and in cattle (19). This defect caused by autosomal recessive gene (6).

Hydrocephalus formed an incidence of (11.2 %), similar finding were observed in sheep (2) and in cattle (3,11). It characterized by abnormal distension of the upper cranial bones owing to accumulation of excessive cerebrospinal fluid in the cerebral chambers (Figs. 2 and 6), the etiological factors including dietary deficiency, infections and genetic factors.

Ascites was the lowest defect concerning fetal dropsy (7.41%), similar observation has been reported by (3). Affected lambs appeared with excessive destination of the abdomen due to accumulation of excess amount of fluids in the peritoneal cavity, *Brucella abortus* infection is the main cause of this defect (5).

Dicephalus (Fig. 7) were seen in two lambs (7.41 %) the condition has not been previously reported in awassi sheep, but similar observation has been reported in calves (3,17), its cause might be either aging of ova (5) or inherited (8).

Double monster (Fig. 8) observed in one lamb (3.7 %). It was characterized by mono capsules with duplication of both cranial and caudal ends of fetuses which were joined at sternal region, the condition has not been reported previously in Mosul, but similar observation have been reported in calves (4,6). The condition occurs due to abnormal duplication of the germinal area leading to partial duplication of the body structure (5).

Cyclopia had an incidence of (3.7 %). A single orbit was located centrally at the fetal cranium with the absence of eyelids (Fig. 3). Similar observation has been reported previously (2,9). This defect might occur either due to ingestion of teratogenic plant (veratrum californicum) (20) or inherited (11).

Schistosoma reflexus has seen in one lambs (3.7%), similar observation have been reported by (2,6). It was characterized by marked ventral curvature of

lamb's vertebral column and the viscera were exposed, the causes of this abnormality is uncertain.

The results of various methods of treatment were presented in (Table 2). Caesarean section had a higher success rate for dystocia treatment caused by defected lambs (74.1%) than those which were treated by manual correction and traction (14.8%) or fetotomy (11.1%). Similar observation has been reported previously (2,3,10,12,13).

Table 2: Results of various methods of treatment of dystocia in Awassi ewes.

Congenital defects	Caesarean section	Fetotomy	Manual correction and traction
Arthrogryposis	5	2	0
Brachynathia	1	1	3
Anasarca	5	0	0
Hydrocephalus	3	0	0
Ascitis	2	0	0
Dicephalus	2	0	0
Double monster	1	0	0
Cyclopia	0	0	1
Schistosoma reflexus	1	0	0
Total	20	3	4

In conclusion the results of the present study indicates increasing morbidity rate of ovine congenital defects in Mosul. And caesarean section was the best and safest method for treatment of dystocia caused by lamb congenital defects especially those interfered with fetal size. More studies required to investigate the genetic or environmental factors responsible for those congenital defects.



Figure 1: Arthrogryposis in lamb.



Figure 2: Brachygnathia superior with hydrocephalus.



Figure 3: Brachygnathia superior with cyclopea. Note the single Orbit on the cranium.



Figure 4: Anasarca in lamb.



Figure 5: Anasarca companied with partial hairlessness.



Figure 6: Hydrocephalus in lamb.



Figure 7: Dicephalus in lamb.



Figure 8: Double monster.

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