

CAUSES AND TREATMENT OF DYSCTOCIA IN COWS IN SULAIMANI PROVINCE

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Received: 28 December 2015; **Accepted:** 30 January 2016**ABSTRACT**

A total of 25 native and cross breed cows from 2011 to 2013 were used to study the common causes and to find a suitable treatment for dystocia. Out of 25 cases of dystocia in cows, 15 (60%) results of maldispositions, 6 (24%) due to fetal abnormalities and 4 (16%) because of fetal emphysema. Calf status classified as; 20 (80%) was stillbirth and 5 (20%) was a live birth. While for the calf sex, 16 (64%), 9 (36%) for the male and female calf respectively. The result of the investigation showed that the dystocia in cows was 17 (68%), 8 (32%) cases related to primiparous and multiparous cows respectively. In the present study the type of treatment which are used in cows suffer from dystocia was 5 (20%), 4 (16%), 16 (64%) by manual, fetotomy and cesarean section respectively. Retained placenta, metritis and uterine prolapse are diseases that associated with the dystocia in 13 cows as 8 (61.53%), 4 (30.67%) and 1 (7.69%) respectively. The mortality rate in dam because of postpartum complications was reached 4 (16%).

Key words: *Dystocia, Cesarean section, Stillbirth, Treatment, Parity.*

INTRODUCTION

Dystocia or calving difficulty defined as difficult birth or parturition occurs when the first or second stage of labor is prolonged and assistance is required for delivery (Noakes *et al.*, 2009) and the need for increased attention to the loss of the cow and calf (Thompson and Wiltbank, 1983; Haskell 2014). The condition is also associated with a reduction in milk yield in the subsequent lactation and higher culling rate have been observed (Lombard *et al.*, 2007). Dystocia in cows influences the economics of the animal herd through calf loss, poorer subsequent reproductive efficiency of the dam, increased labor or veterinary costs, and occasional cow losses (Roberts, 1986; McDermott *et al.*, 1992). Furthermore, normal parturition is an important economic trait. So calving is a critical time in the cow-calf production cycle, and calving problems (Roberts, 1986). Dystocia and stillbirth can result in direct losses due to calf mortality, dam mortality and premature culling as well as the indirect cost due to additional veterinary services, labor and treatment (Berry *et al.*, 2007). A dairy cow has resulted in an increased incidence of dystocia, probably due to an increase of body weight of the calf and the change in its shape (Burfenig *et al.*, 1979). Dystocia is more frequent in the primiparous heifers and the fetopelvic disproportion

is the main cause of dystocia, whereas maldisproportions are common in pleuriparous cows (Thomson *et al.*, 1980). The two deterrents of fetopelvic disproportions are calf birth weight and maternal pelvic size (Uzmay *et al.*, 2010). The present study was conducted to determine the main causes and to find the suitable treatment for dystocia in cows as well as to know the postpartum diseases which are associated with dystocia in cows.

MATERIALS AND METHODS

The research was conducted on 25 dairy cows (native and cross breed) suffered from dystocia whereby some of them brought to the Veterinary Teaching Hospital of the College of Veterinary Medicine at the University of Sulaimani, while the other conditions were brought to the veterinary hospitals which are dependant to the Sulaimai Province. The study was carried out from 2011 to 2013. The age of the animals ranged from 2.5- 8 years. The total cases were diagnosed depending on the case history, physical and transvaginal examination. After the causes of dystocia were determined, which was fetal maternal or both causes, the selected proper treatment was done. Some of them were treated by force extraction after correction of abnormal presentation, position, posture of the fetus to the normal through using hands as well as other instruments such as obstetrical ropes and chains with lubricant materials. Partial fetotomy was done in some cases by using the fetotome instrument. The uncorrectable cases of dystocia were treated by cesarean section which is

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considered the best for delivery of the fetus. Cesarean sections performed through the left flank approach as under the local infiltration anesthesia with 2% lignocain as well as using a set of surgical instruments.

RESULTS

Table (1) lists the frequency of dystocia detected in 25 cows 15(60%) native and 10(40%) cross breed. The most common condition results in fetal dystocia which are classified as follows; 15(60%) cases due to fetal maldisproportions, 6 (24%) cases because of fetal abnormalities and 4 (16%) cases due to fetal emphysema. Out of 25 cases of dystocia, 20(80%) were stillbirth, and 5 (20%) were live birthed. While for the calf sex, 16 (64%) and 9 (36%) for the male and female calf respectively. The results of the investigation showed dystocia was associated with the dam parity. Where out of 25 cases were suffering

from dystocia, 17(68%) and 8(32%) cases were related to primiparous and multiparous cow respectively. In the present study the total treatment of the cases were 5(20%), 4(16%) and 16(64%) in manual, fetotomy and cesarean section respectively. Furthermore the treatment of dystocia in primiparous revealed that 3(12%), 2(8%), 12(48%) for manual, fetotomy and caesarean section respectively. While the treatment of dystocia in multiparous cows was 2(8%), 2(8%) and 4(16%) for the manual, fetotomy and cesarean section respectively. In the present study the results of calves born revealed that all deliver was single, whereby 16 (64%) male and 9 (36%) was female calves. In this research a number of postpartum diseases related to dystocia were observed, as 8 (61.53%), 4 (30.67%) and 1 (7.69%) for the retained fetal membranes, metritis and uterine prolapse respectively as in Table (2). Finally the mortality rate of the cows in this study was reached 4 (16%).

Table 1: The major causes and the proper treatment for dystocia in cows.

Item	No.%	Birth status		Calf sex		Manner delivery or treatment			Postpartum mortality (Cows) No.%
		Stillbirth No.%	Live Birth No.%	Male No.%	Female No.%	Manual No.%	Fetotomy No.%	Cesarean section No.%	
Fetal dystocia	15	10	5	9	6	4	3	8	2
Fetal maldispositions	(60%)	(20%)	(20%)	(36%)	(24%)	(16%)	(12%)	(32%)	(8%)
*Fetal abnormalities	6 (24%)	6 (24%)	----	4 (16%)	2 (8%)	1 (4%)	1 (4%)	4 (16%)	1 (4%)
*Fetal emphysema	4 (16%)	4 (16%)	----	3 (12%)	1 (4%)	----	----	4 (16%)	1 (4%)
Total	25 (100%)	20 (80%)	5 (20%)	16 (64%)	9 (36%)	5 (20%)	4 (16%)	16 (64%)	4 (16%)
Dam parity	17	14	3	10	7	3	2	12	2
(68%)	(54%)	(12%)	(40%)	(28%)	(12%)	(8%)	(48%)	(8%)	
*Primiparous	8 (32%)	6 (24%)	2 (8%)	6 (24%)	2 (8%)	2 (8%)	2 (8%)	4 (16%)	2 (8%)
*Multiparous	9 (36%)	8 (32%)	1 (4%)	4 (16%)	5 (20%)	4 (16%)	16 (64%)	4 (16%)	
Total	25 (100%)	20 (80%)	5 (20%)	16 (64%)	9 (36%)	5 (20%)	4 (16%)	16 (64%)	4 (16%)
Calves born	----	----	----	----	----	----	----	----	----
*Twins	25 (100%)	20 (80%)	5 (20%)	16 (64%)	9 (36%)	5 (20%)	4 (16%)	16 (64%)	4 (16%)
*Singles	25 (100%)	20 (80%)	5 (20%)	16 (64%)	9 (36%)	5 (20%)	4 (16%)	16 (64%)	4 (16%)
Total	25 (100%)	20 (80%)	5 (20%)	16 (64%)	9 (36%)	5 (20%)	4 (16%)	16 (64%)	4 (16%)

Table 2: Postpartum diseases after treatment of dystocia in cows.

Item	No. %
Retained fetal membranes	8(61.53%)
Metritis	4(30.67%)
Uterine prolapse	1(7.69 %)
Total	13 (100%)

DISCUSSION

The general causes of dystocia in cows are fetal attitude, fetal - maternal size mismatch and maternal related cause (Roberts, 1986, Arthur *et al.*, 1988.). In the present study the major cause of dystocia was results of fetal cases which was fetal maldispositions 15(60%), fetal abnormalities 6(24%) and fetal emphysema 4(16%) were common. Sloss (1974a), Uzmay *et al.* (2010), recorded similar observation. Stillbirth is a calf that born dead, the percentage of the cases reaches 20(80%) from the total birth status as in Table (1), and the result is lower than that of Citek *et al.* (2011) which was 180(70.31%) and higher than the rate of Lombard *et al.* (2007) which was 8.2%. Stillborn incidence for all calves increased significantly with increasing dystocia scores (Lombard *et al.*, 2007; Adamec *et al.*, 2006).

Alternatively indicates that stillbirth in dairy cattle is increasing and may have a genetic component (Steinbock *et al.*, 2003; Adamec *et al.*, 2006). In addition, calves born during winter were at decreased odds of stillbirth than calves born during autumn (Berger *et al.*, 1992) and this agree with the suggestion of Meyer *et al.* (2001) in which they found stillbirths were increased during summer compared with winter. These results were expected because the dystocia makes calves more prone to hypothermia and increased odds of death (Azzum *et al.*, 1993). The incidence of dystocia in cows tended to be higher with male than female calves, 16(64%) vs. 9(36%) as shown in Table 1. These results are higher than the incidence recorded by Philipson, (1976), Sieber *et al.* (1989), McDermott *et al.*(1992), Johanson and Berger (2003), Phocas and Laloe, (2003), Ettema and Santos (2004) and Gaafar *et al.* (2011) and Atashi *et al.* (2012). Where they reported that male born calves on average, weight more than female calves and caused a mismatch of fetal maternal size, which lead to increased chance of dystocia and greater mortality, especially in primiparous dams. A heifer that calves 2 years of age are more likely to experience difficult birth than that of 3 years because they have smaller pelvic areas (Laster *et al.*, 1973).

In this study another cause of dystocia in cows was recorded to be related to fetus. The percentages of fetal abnormalities and fetal emphysema were 6(24%) and 4(16%) respectively. These percentages are nearly similar to that observed by Sloss, (1974a); Youngquist and Shore, (1997), Zhang *et al.* (1999), Citek *et al.* (2011) and Tripathi *et al.* (2014). As they reported, the fetal origins of dystocia in cattle can be divided into those caused by excessive fetal size relative to the maternal pelvis (fetopelvic disproportion) and those caused by abnormalities of the fetal attitude. Fetal emphysema should always be suspected in prolonged cases of dystocia exceeding 24h which are associated with decomposition or decay of the fetus and accumulation of gases in the

subcutaneous tissue (Smith *et al.*, 1976; Purohit and Mehta, 2006). Different methods are used for the treatment of dystocia in cows in this study. It is important to give a set of indications for methods applicable to all the possible obstetrical conditions.

The proportion of calving that required assistance throughout correction and the traction (mutation) in this study was 5(20%) followed by 4(16%) and 16(64%) for the fetotomy and caesarean section respectively. The percentage rate of manual delivery in cows, in the present study was lower than 7.78%, 43.78% and 48.4% as mentioned by Arthur *et al.* (1988); Goyache and Gutierrez (2001) and Citek *et al.* (2011) respectively. Dufour *et al.* (1981), Roberts, (1986) and Cook *et al.* (1993) they referred that the major cases of bovine dystocia, resulting of fetal maldisposition. The incidence of calving that required for assistance was large, especially for primiparous dams in which more than 50% need assistance at delivery (Lombard *et al.*, 2007; Mee *et al.*, 2011).

In addition primiparous cows were most often affected, management should ensure heifers are inseminated at the proper age and body weight, and considered selecting potential sires (Sieber *et al.*, 1989; Berry *et al.*, 2007 and Zaborski *et al.*, 2009). Fetotomy have a percentage of 4(16%) as recorded in this study. It is lower than the percentage of Sloss (1974) which was 16.6% and Buchoo *et al.* (2008) which was 7.69%. Based on the results of the study, it appears that the treatment of dystocia in cows by cesarean section was more way recorded which were 16 (64%) and lower than Goyache and Gutierrez, (2001) which was 1.9%. The goals of cesarean section are preserved of the dam and calf and the future reproductive efficiency of the dam. The outcome of the cesarean section is a self-fulfilling prophecy (Newman and Anderson, 2005). The choice of fetotomy or cesarean section has always been a controversial subject (Sloss, 1974b; Campbell and Fubini, 1990). Wehrend *et al.* (2002) revealed that the fetotomy were done because the dystocia results due to incorrect of maldispositions, fetus become stuck during delivery.

The operation is a protracted and exhausting operation, including a wide range of expensive instruments. It may result in damage to the uterine wall, postoperative complications, sepsis and prolong after treatment (Dehghani and Ferguson 1982, Barkema *et al.*, 1992, Vaughan and Mulville, 1995). Results in Table (1) revealed that the effect of parity on the percentage of dystocia in cows, showed varied results from 17(68%) to 8(32%) in primiparous and multiparous dam respectively. These results are in accordance with those obtained by Quass *et al.* (1988) and Eriksson *et al.* (2004) they found that the frequencies of difficult calving and stillbirth were 6% of first parity and 1-2% at later parities in cattle. The result of this study showed 25 cases of dystocia in cows associated with single born calves. Menissier,

(1982) reported that the dystocia in double muscle cows is caused by modifying calf morphology. Thus, cesarean deliveries are required for 89.5% of the parturition in Belgian Blue cows (Fiems *et al.*, 2001). Oversize fetuses cannot be delivered normally and therefore, the decision to relieve dystocia either by fetotomy or cesarean delivery would depend on the condition of the fetus and/or the dam. An attempt can be made to remove dead fetal maldispositions and oversized fetuses in a relaxed birth canal by fetotomy but if this fails, cesarean section is the last resort (Purohit and Mehta, 2006). Postpartum diseases that associated with dystocia as in Table 2, the percentages of the diseases was 8(61.53%), 4(30.76%) and 1(7.69%) for the retained placenta, metritis and uterine prolapse respectively. The percentage of retained placenta reaches 8(61.53%), and the result is higher than the rate of Joosten *et al.* (1987), Heringstad *et al.* (2007) and Steinkbock *et al.* (2003) which was 6.6%, 2.7% and 3.9%, respectively, and also higher than 22%, and 9.5% as reported by Geverkci *et al.* (2006) and McClinktock, (2004) respectively.

The incidence of retained placenta in dairy cows in related to individual animal level and farm management factors such, feed quality, time of parturition, farm type, farm size, and housing system (Islam *et al.*, 2013). Stillbirth, difficult calving, fetotomy and cesarean section are caused increase a marked in the rate of retained placenta in dairy cattle. Metritis frequently occurs soon after calving and may severely comprise reproductive performance (Fourichon *et al.*, 2000).

Toxic puerperal metritis or septic metritis occurs with first 10 days after parturition (Sheldon *et al.*, 2006). In addition to bacterial causes, various risk factors related to management and individual cows are associated with uterine infection, including retained placenta, which increase the risk of metritis (Sandal *et al.*, 1979; Torres *et al.*, 1997, Hafez and Hafez, 2000, LeBlanc *et al.*, 2000, Kaczmarowski *et al.*, 2003), and postpartum uterine infection commonly occurs in cows as a sequel to dystocia (Markusfeld, 1987; Kanneene and Miller, 1994, Lewis, 1997, Bearden *et al.*, 2004). Lweis, (1997) and Galvao, (2013) they found that first calf heifers are at higher risk for uterine diseases during dystocia, stillbirth and prolapsed uterus. Finally, the results of the study revealed that the percentage of maternal death was reaches 4(16%) for primiparous and multiparous cow. This percentage is lower to that reported by (Sloss, 1974b). In general, the major causes of the death due to trauma of the pelvic organs when traction was applied, and irreversible damage to the pelvic nerves occurred frequently. As well as complicating factors such as paraplegia, sever septicemia and toxemia especially during cesarean section (Roberts, 1986; Newman and Anderson, 2005, Drillich, 2006).

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اسباب وعلاج عسر الولادة في الابقار في محافظة السليمانية

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مجموع ٢٥ بقرة محلية ومضربة كانت تعاني من عسر الولادة استخدمت في هذه الدراسة من فترة ٢٠١١ لغاية ٢٠١٣ في محافظة السليمانية التابعة لاقليم كردستان العراق. اظهرت نتائج الدراسة ان نسبة ١٥ (٦٠٪) من الابقار كانت تعاني من عسر الولادة بسبب الاوضاع الغير السوية للاجنة، وان ٦ (٢٤٪) من حالات عسر الولادة بسبب تشوهات الاجنة الهالكة، بينما ٤ (١٦٪) كانت ناتج عن وجود انتفاخ الاجنة الهالكة. كذلك بينت نتائج الدراسة بتصنيف العجول الى عجول هالكة وحيية، حيث وجدت ٢٠ (٨٠٪) من العجول هالكة بينما ٥ (٢٠٪) سجلت للعجول الحية. وقد اظهرت في هذه الدراسة تأثير عدد الولادات على حدوث عسر الولادة وكانت نسبتها على التوالي ١٧ (٦٨٪)، ٨ (٣٢٪) للابقار الاباكر ومتعدد الولادات على التوالي. جنس المولود لها تأثير على حدوث نسبة عسر الولادة في الابقار، حيث سجلت في هذه الدراسة نسبة ١٦ (٦٤٪)، ٩ (٣٦٪) لكل من ذكر وانثى عجل المولود وعلى التوالي. اما نوع العلاج المستخدم لحالات عسر الولادة في الابقار لقد وجدت نسبة ٥ (٢٠٪)، ٤ (١٦٪)، ٦ (٦٤٪) لكل من المناورة اليدوية والسحب، عملية تقطيع الجنين الهالك و العملية القيصرية وعلى التوالي. الحالات المرضية التي لوحظت في هذه الدراسة والتي كانت ناتجة او مربطة لابقار التي كانت تعاني من عسر الولادة هي حالات احتباس المشيمة، التهاب الرحم وتدلي الرحم والتي كانت ٨ (٥٣،٦١٪)، ٤ (٣٠،٦٧٪) و ١ (٧،٦٩٪) على التوالي. واخيرا سجلت في هذه الدراسة نسبة لابقار الهالكة والتي بلغت ٤ (١٦٪).