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A retrospective study of incidence of dystocia in crossbred dairy cows

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Abstract
A retrospective study of incidence of dystocia was conducted on sixty dystocia cases in dairy crossbred cows presented to the Teaching Veterinary Clinical Complex, Veterinary College, Hassan. Out of sixty cases 36.67 and 63.33 percent were maternal and fetal causes of dystocia, respectively. Among the fetal causes, maldisposition of the fetus (38.33 percent) was the commonest cause of dystocia. Incomplete cervical dilatation (18.33 percent) was the major maternal cause of dystocia. Other causes of dystocia with low incidence include fetal emphysema, fetal oversize, fetal dropsy, fetal monster, uterine torsion, narrow pelvis and uterine inertia. A higher incidence of dystocia was recorded in primiparous compared to pleuriparous cow and it also associated with a male fetus compared to female fetus. Most of the cases were relieved pervaginally by mutation technique; uterine torsion was relieved by adopting modified Schaffer's method. Caesarean section was performed in cases where pervaginal delivery is not possible.

Keywords: Dystocia, Incidence, sex of the fetus, parity, crossbred dairy cow

1. Introduction
Dystocia is defined as delayed or difficult calving. It is one of the most important obstetrical conditions and requires immediate veterinary attention, causes severe economic losses to the dairy farmer as well as dairy owners [1]. Among the domestic animals, bovines are the most commonly affected species [2], which develops when the birth process is hindered by some physical obstacle or functional defect. Dystocia has been classified as maternal, fetal and placental type [3]. The present study evaluates retrospectively the incidence, causes and management of dystocia in sixty cross bred dairy cows presented to the Hassan Teaching Veterinary Clinical Complex.

2. Materials and methods
The present study was carried out on a total of 60 clinical cases of dystocia in crossbred dairy cows presented to the Teaching Veterinary Clinical Complex, Veterinary College, Hassan during the period of December 2017 to June 2018. Immediately after presentation, anamnesis and clinical status of each animal was recorded. The different causes and its incidences were tabulated and interpreted. Impact of parity of the dam and sex of the fetus on dystocia was evaluated. Causes of dystocia were diagnosed based on history and pervaginal examination. Transvaginal and transrectal examinations were performed to determine the direction, degree and location of uterine torsion. Dystocia was relieved by manual correction using mutation techniques, fetotomy and caesarean section. Most of the cases were relieved by mutational operations, traction and partial fetotomy [4]. Uterine torsion cases were relieved by modified Schaffer's method [5]. Cases in which pervaginal delivery is not possible and detortion failure, caesarean section was performed by adopting left oblique ventrolateral incision approach [6].

3. Result and Discussion
3.1 Parity of the dam
The incidence of various causes of dystocia is presented in Table 1 and Figure 1. The incidence of dystocia in first, second, third and fourth calving is 41.66, 15.75, 18.33 and 24.25 percent respectively. A higher incidence of dystocia was recorded in primiparous (41.66) compared to pleuriparous cows. This was in accordance with the various studies as stated that, higher incidence of dystocia in first calving heifer than pleuriparous [7-10]. The increased risk of dystocia in primiparae has been attributed to foetomaternal disproportion, immaturity and incomplete development in young heifers and over fatness and uterine inertia in older heifers

[11]. Calf from a primiparous cow was 2.5 times more likely to be born with assistance than if born from a multiparous cow [12]. Contrary to the present study, a higher incidence of dystocia was recorded in pleuriparous compared to primiparous cow [13].

3.2 Sex of the fetus

A higher incidence of dystocia was recorded in male fetus (58.33 percent) than with a female fetus (41.66). Almost similar incidence was recorded in previous study, as 55.33 percent in male and 44.67 percent in the female fetus [13]. Male calves are known to require more assistance at calving compared to female calves [14]. The incidence of dystocia was higher in pregnancies associated with male calves than female calves [10, 15]. Male calves have more difficult births. It results directly from their bigger size and greater birth weight. In addition, gestations with male calves are longer, which also influence the risk of dystocia [16].

3.3 Causes of dystocia

In the present study, dystocia due to maternal and fetal causes were 36.67 and 63.33 percent respectively. In a previous study a similar findings were recorded, as maternal and fetal causes were 35.92 and 64.08 percent respectively [13]. Contrary to the present study, a higher incidence of dystocia was recorded as maternal causes (78.89 percent) compared to fetal causes (21.11 percent) in cows [17].

3.3.1 Maternal cause

Among the maternal causes, uterine torsion, incomplete cervical dilatation, narrow pelvis and uterine inertia accounted for 11.67, 18.33, 5.00 and 1.67 percent respectively. In the present study incomplete cervical dilatation (18.33 percent) was the major maternal cause of dystocia in crossbred dairy cows. Somewhat similar incidence was recorded in previous study as 19.1 percent [18]. Cervical stenosis is one of the major causes of dystocia in a multiparous dairy cow [19, 20]. Animals showing narrowness in the cervix were older than the cows without cervical dystocia [21].

3.3.2 Fetal cause

Among the fetal causes, fetal maldisposition, fetal emphysema, fetal oversize, fetal dropsical condition and fetal monster accounted for 38.33, 11.67, 5.00, 5.00 and 3.33 percent respectively. In the present study the major fetal cause of dystocia was fetal maldisposition (38.33 percent). This was in accordance with the various studies as stated that, fetal disposition was the major fetal cause of dystocia in cattle [22, 23]. In dairy cattle, incorrect fetal orientation of a dead fetus was the most frequent cause of dystocia [22]. It is thought that these are probably due to reduced viability and activity of the offspring [24]. Various types of fetal dystocia due to fetal maldisposition have been reported in cattle and buffalo. It is thought that these are probably due to reduced viability of the offspring. Failure of the fetus to rotate from the intrauterine position to the normal parturient position may result in dystocia.

3.4 Management of dystocia

Majority of the fetal maldisposition cases were relieved by applying mild to moderate traction after correcting the fetal postural abnormalities by applying mutation techniques. Uterine torsion was relieved by adopting modified Schaffer's method. Partial fetotomy was done in irreducible fetal dystocia cases, where no space is available for manual correction. Fetal dropsical condition presented was fetal ascites, after relieving the ascitic fluid by making an incision at the umbilical region, by applying forced traction, fetus was relieved. Caesarean section was opted as a last resort in delayed cases, some irreducible uterine torsion, fetal monster (dicephalus monster) and where pervaginal delivery is not possible. In the present study most of the cases were relieved pervaginally, whereas few cases required caesarean section. A similar method was adopted to relieve dystocia in the previous study [25].

Table 1: Incidence of dystocia in dairy cows

Maternal cause	Cow % (n)	Fetal cause	Cow % (n)
Uterine torsion	11.67 (7)	Fetal maldisposition	38.33 (23)
Incomplete cervical dilatation	18.33 (11)	Fetal emphysema	11.67 (7)
Narrow pelvis	5.00 (3)	Fetal oversize	5.00 (3)
Uterine inertia	1.67 (1)	Fetal monster	5.00 (3)
-	-	Fetal dropsy	3.33 (2)
Total	36.67 (22)	Total	63.33 (38)

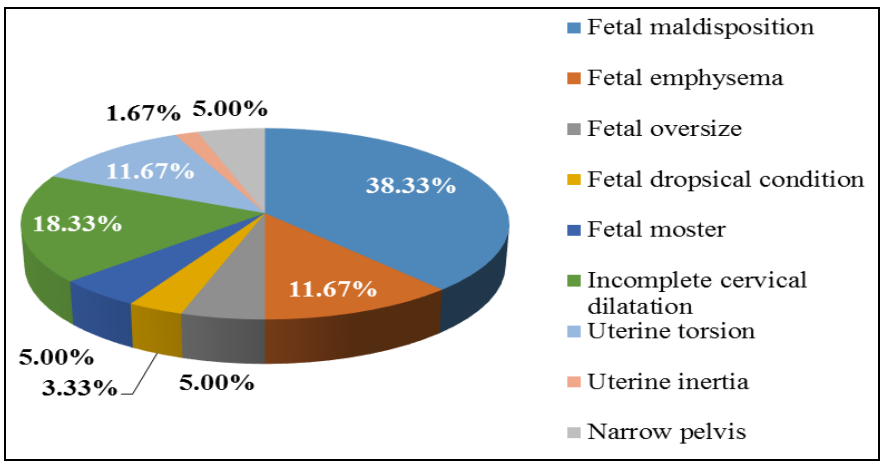

Fig 1: Incidence of dystocia in dairy cows

4. Conclusion

In conclusion, fetal cause of dystocia was very common compared to maternal cause in the present study. Among the fetal causes, fetal maldisposition was the major cause of dystocia, whereas incomplete cervical dilatation was the major maternal cause of dystocia in crossbred dairy cows. Dystocia was observed to be more common with the delivery of male calf than the female calf and it also associated with primiparous compared to pleuriparous cow. Fresh cases can easily be managed manually but delayed cases needs surgical intervention. Mutation techniques were used to relieve the majority of dystocia cases followed by fetotomy and caesarean section. Most of the cases were relieved by mutational operations, traction and partial fetotomy. Uterine torsion cases were relieved by modified Schaffer's method. Cases in which pervaginal delivery was not possible and detortion failure, caesarean section was performed by adopting left oblique ventrolateral incision approach as per the standard operative procedure.

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