Management and Prevention of Dystocia

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KEYWORDS

• Dystocia • Heifer • Utrecht method • Malpresentation • Uterine torsion
• Calving ease • Large offspring syndrome

KEY POINTS

- Dystocia is primarily an issue in primiparous females, and the most common cause of dystocia in heifers is fetal oversize.
- Assistance should be early and the delivery process should proceed in a steady and methodical manner to avoid injury to the dam and the neonate.
- Prevention of dystocia can be most effectively accomplished by breeding selection.
- Assisted reproductive technologies can present challenges for the dam during parturition and the calf during the transition to extrauterine life.

Video content accompanies this article at http://www.vetfood.theclinics.com

INTRODUCTION

Dystocia, defined as difficult birth, is an important economic issue in the both the beef and dairy industry. Consequences of dystocia include increased calf morbidity and mortality, increased cow morbidity and mortality, reduced subsequent fertility in cows, and increased labor. Efforts to minimize dystocia will improve overall herd health and profitability.

Dystocia continues to be an important issue for the cow–calf industry despite an apparent decrease in incidence during the last 20 to 30 years.[1] The National Animal Health Monitoring System in the United States reported a decrease in hard pulls in heifers from 7.4% in 1992-1993 to 3.4% in 2007-2008.[2] During the same period, the percentage of cows requiring assistance at calving, however, did not change.

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RISK FACTORS FOR DYSTOCIA

Fetal-Dam Disparity

Numerous research reports and field trials have examined the risk factors associated with dystocia. In nearly all studies, cow age, or parity, at calving and fetal-dam disparity are listed as the highest risk factors. In a 2002 study in Canada, Waldner[3] looked at 29,970 full-term births from 203 privately owned cow-calf herds with an overall dystocia risk of 8.9%. Odds ratios were calculated for cow age and dystocia (**Table 1**).

In that same study, incidence of dystocia by age was 17.3% for primiparous calving and 2.9% to 4.7% for multiparous cows (Cheryl Waldner, Saskatoon, Saskatchewan, personal communication, 2015) (**Table 2**).

The incidence of calving difficulty in first-calf beef heifers is significantly higher than in mature cows in nearly every study examined when confounding factors are eliminated.[4,5]

In dairy females the incidence of dystocia is also highest in first-calf females. In a study of 666,341 births from 1985 to 1996 in the Midwest United States, the percentage of cows in each of 3 categories (1, no assistance; 2, slight problem; and 3+, needed assistance) is annotated[6] (**Table 3**).

Abnormal Fetal Position

The incidence of malpresentation or malposture is reported to be between 0.91% and 4% of all births in beef cattle, with this factor representing 13% to 22.4% of all dystocias.[7,8] The most common abnormal presentation in beef and dairy cattle is posterior-dorsal followed by foreleg deviations, head deviations, and breech presentations.[7–9] Though fetal malposition occurs at a low incidence (<5% of all births),[4] it is the most common cause of dystocia in multiparous cows, accounting for 20% to 40% of cases.[5] Malpresented calves have a 2 times higher risk of dystocia and a 5 times higher risk of stillbirth.[4] Abnormal fetal position is most common in cases of twin pregnancies (4 times higher risk).[4] If the calf is in an abnormal presentation, position, or posture, any manipulation of the calf needs to be done when the cow is standing. To aid in manipulation of the calf, the cow should be given epidural anesthesia of lidocaine along with an intramuscular injection of 10 mL of 1:1000 epinephrine. The epidural reduces straining by the cow and the epinephrine allows relaxation of the uterus to facilitate fetal manipulations. It takes approximately 2 minutes for the epinephrine to cause relaxation of the uterus and is expected to be effective in most cases. The authors' experience is that it may not be as effective if the calf has been dead for an extended period of time.

Using obstetric lubricant is indicated on all cases of assisted delivery, especially when a malpresentation is involved. Lubricant diluted with warm water can be

Table 1
Herd-adjusted final multivariable model of the association between cow attributes and the odds of dystocia in calving season 2002 (n = 29,970 calves and N = 270 herds)

Cow Age Category	Odds Ratio	95% CI	*P*-Value
Bred replacement heifer	6.52	5.80–7.34	.00001
3 y old (2nd calf)	1.64	1.42–1.88	.00001
4 y old (3rd calf)	1.24	1.06–1.46	.01
Mature cows (5–10 y)	reference category		
Cow age ≥10 y	1.06	0.86–1.30	.61