



Research Article

EFFECT OF SEASONS AND SOME HORMONES ON OCCURRENCE OF UTERINE PROLAPSE IN LOCAL BUFFALOES BREED IN BASRA PROVINCE

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Abstract

The present study was aimed to evaluate the uterine prolapse in local buffaloes breed. The study was conducted from August 2015 to May 2016 on 120 local buffaloes breed with 3 - 14 years old which was reared in Basra province (Basra – Iraq). Animals were divided into two groups. The first group was included with 40 diseased animals with uterine prolapse and the second group includes 80 animals without uterine prolapse served as control. Diseased buffaloes were diagnosed on the bases of clinical manifestation, since uterine prolapse were evaluated after 6 - 72 hours post calving. The results of the present research showed that 33.3 % was the overall incidence of uterine prolapse. However, according to season the incidence were 50 %, 10 %, 15 % and 25 % for winter, summer, spring and autumn respectively, these percentage rates represented the percentage from infected case only. Uterine prolapse occurred during 6 - 72 hours after calving, since the highest percentage (52.5 %) was recorded during first 6 - 24 hour after calving. Moreover, the incidence of uterine prolapse in male births was 67.5 % compared with 32.5 % female births. Twenty five animals (62.5 %) were developed uterine prolapse with retained fetal membranes. Results were also indicated significant $p < (0.05)$ increase in serum estrogen and cortisone in diseased animals compared with controls. It had been concluded that uterine prolapse may be seasonal in occurrence especially in winter time, moreover increase serum estrogen and cortisone levels may be causing of uterine prolapse.

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1. Introduction

Buffaloes are one of the most important livestock since ancient times all over the world (Bruford *et al.*, 2003). This species is also known as the world second most important milk producing animal (Bhatti *et al.*, 2009). Genital prolapse is an important reproductive disorder in the buffaloes, its incidence had been

shown to be 46 % among obstetrical problems in this species (Samad *et al.*, 1987). Post-partum prolapse of uterus through vulva was an obstetrical non-hereditary complication of third stage of labor, commonly observed in the cattle, buffalo and ewes, occasionally in sows and rare in bitches, queens and mares (Bhol and Parekar, 2007).

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Prolapse of genitalia is one of the major problems causing heavy economic losses to livestock owners through negative influence on

the productive and reproductive performance of the buffalo (El-Wishy, 2007). A prolapsed uterus is highly prone to mechanical injury, trauma and environmental contamination, this may lead to increase maternal morbidity and even the death of the animal because of trauma, laceration, subsequent hemorrhage, tissue necrosis, bacterial contamination, hypocalcaemia, stress incontinence and shock (Jana and Ghosh, 2004). The exact etiological factors of uterine prolapse was unknown, however different factors have been associated, these includes specific conditions such as poor uterine tone, increased straining, the weight of retained fetal membranes, moreover conditions that increased intra-abdominal pressure including excessive estrogen content in the feed might also associated too (Hannie, 2006). Occurrence of postpartum uterine prolapse might be due to increase estrogen and decreased calcium levels during third trimester of pregnancy which caused greater relaxation of pelvic structures and reduced vaginal and uterine muscle tone (Roberts, 2004). The clinical signs depend on the duration of the prolapse and on the occurrence of hemorrhage due to rupture of the uterine vessels, the female may presented no major signs except for the protruding mass at the vulva or she can evidence signs of dehydration, hypothermia and shock (Davidson, 2009). It was regarded as an emergency condition and should be managed before excessive edema, mucosal trauma, contamination and fatal hemorrhage lead to a grave prognosis (Miesner and Anderson, 2008). To retain the prolapsed mass after proper treatment and through transvulvar suturing techniques have been tried (Bhattacharyya *et al.*, 2007). The disease were considered as one of the important complication or sequel of abnormal parturition which might lead to economic losses there for the study were aimed to describe the disease cases and their clinically clarification and evaluate the effect of some factors on the incidence of uterine prolapse such as season, weather, feeding, age, type of parturition and estimate of some hormones estrogen and cortisone.

2. Materials and methods

The study was conducted on 120 local buffaloes breed, 3 - 14 years old, divided into two groups: first group were include 40 diseased animals with uterine prolapse and the second group were include 80 animals without uterine prolapse. Ten ml of blood was collected from 20 animals from each group within 6 - 72 hrs after calving in clean, sterilized, plane test tubes by jugular vein puncture. Serum was separated from blood samples by centrifugation at 5000 rpm for 15 minutes and then the serum samples were stored at -20 °C until analysis. Serum hormones (Estradiol 17 β and cortisone) concentration was determined by using commercial kits (Estradiol 17 β Elisa kit and Cortisone Elisa kit) (China). When the animal brought to the clinic or to the consultant veterinary hospital of the College of Veterinary Medicine, many important data were record in the "card of data" that arranged in this study such as date, address, type of diet, floor, season at parturition, number of late calving, type of parturition and other data. The significance of variations between prolapsed animals and non-prolapsed animals were statistically analyzed using (SPSS) student t-test $P \leq 0.05$ (Steel *et al.*, 2006).

3. Results

The results showed that the relationship between many factors such as seasons, sex of newborns, type of parturition, occurrence time and number of calving that effect on the occurring of uterine prolapse in Iraqi buffaloes. The ratio of uterine prolapse was 33.3 % (40/120), furthermore about 25 animals (62.5 %) were develop uterine prolapse with retained fetal membranes. Seasonal occurrence of uterine prolapse was recorded, whereas the high percentage was recorded in winter time compared to other seasons (Fig -1). The effect of newborns sex on the occurrence of uterine prolapse was recorded, the high percentage of uterine prolapse was recorded in animals that calved a male calf compared to animals that calved a female calf (Fig - 2). The present study showed that the uterine prolapse occurred during

any time postpartum especially during the first 72 hours after calving and the high percentage recorded during 6 - 24 hours after calving (Fig - 3).

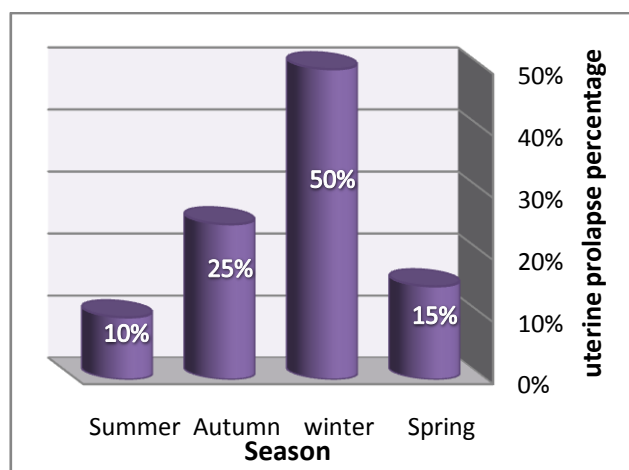


Figure - 1: Percentage of uterine prolapse according to the seasons of the year

Control group (without uterine prolapse)	60.71 ± 5.83	10.17 ± 3.008
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*Refers to significant differences at ($p \leq 0.05$)

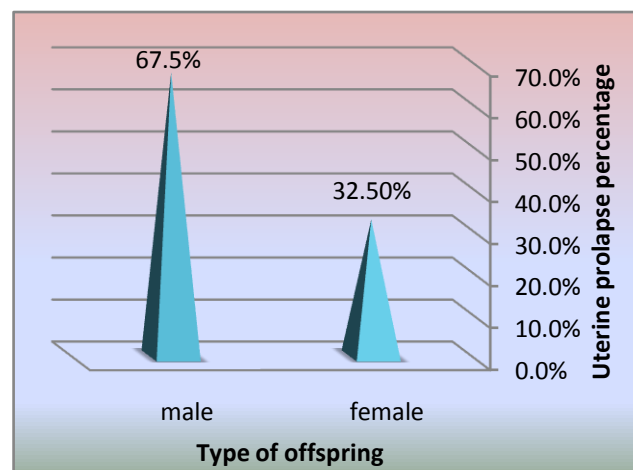


Figure – 2: Percentage of uterine prolapse according to the sex of the offspring

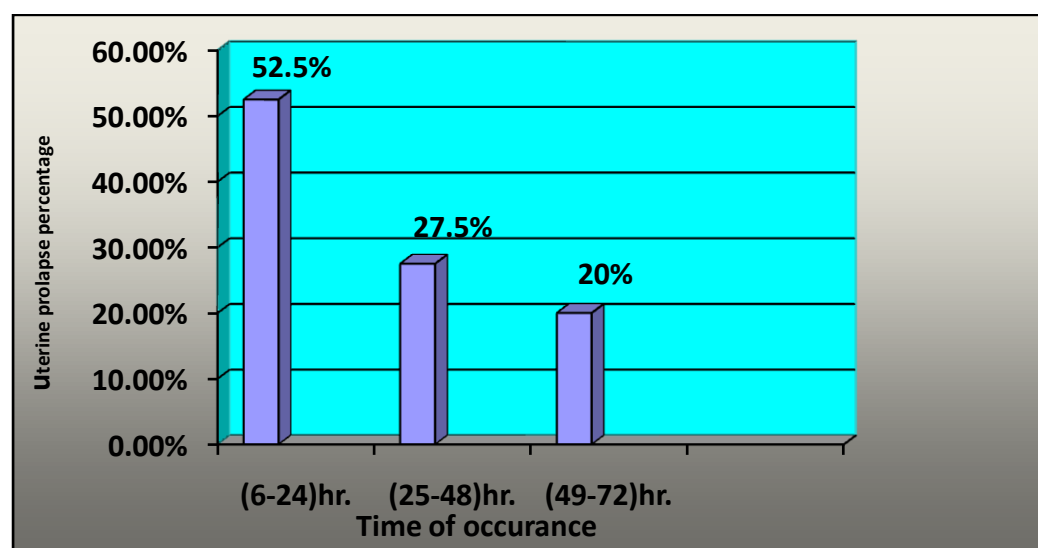


Figure - 3: Percentage of uterine prolapse in buffaloes according to time of occurrence

Table - 1: Values of serum estrogen and cortisone (mmol/l) in uterine prolapse and control group (n = 20)

Animals groups	Parameters	
	Estrogen serum level	Cortisone serum level
Diseased animals group (with uterine prolapse)	119.31 ± 15.95*	59.91 ± 16.40*

The laboratory part of the present study showed the increase in serum level of estrogen and cortisone in the diseased animals group comparative with the control animals group (Table - 1).

4. Discussion

Uterine prolapse is one of the major problems causing highly economic losses in the

livestock. The exerted mass was edematous, enlarged and smeared with uterine discharge (Barua *et al.*, 2015). In the present study, percentage of uterine prolapse was 33.3 % and this result agreed with (Ahmed *et al.*, 2005; Al Hamedawi *et al.*, 2014). On however, these result does not agreed with the results of Rabbani *et al.* (2010) because of environmental and management difference. Results of the present research were also showed highest percentage of uterine prolapse recorded in winter time compared to other seasons, since this result might due to the maximum calving rate that where occurred in the winter months. It haven been shown that calving during winter season may be develop dystocia and other reproductive problems that resulting from lack of enough exercise which leading to increase the occurrence of uterine prolapse at this time (Cady, 2012). However, this result was consistent with the results recorded by (Hassan *et al.*, 2007; Hussain *et al.*, 2007; Khatri *et al.*, 2013). In contrast, it was different than that indicated with the findings of Bhatti *et al.* (2016) who recorded that the highest percentage of uterine prolapse were occurred in the humid summer due to increase the calving in this season.

Highest percentage of uterine prolapse was indicated during 6 - 24 hours after calving, this result also mentioned by Manfield (2006). Since, Kumbhar *et al.* (2009) recorded the occurrence of uterine prolapse at same time due to increase intra- abdominal pressure, uterine inertia and loss of muscular tonicity. Furthermore, the post-partum uterine prolapse may be resulted due to excessive traction on retained fetal membrane, forced fetal extraction, hypocalcaemia and extreme laxity of the perineum and vulval lips. The results of Arthur *et al.* (2001) were also showed the similar findings.

The present study recorded the high percentage of uterine prolapse where occurred after calving of male calf. Holland *et al.* (1993) also mentioned the male calves are required more assistance at calving combated to female calves. Moreover, the male calves have longer gestation period which influence the risk of dystocia (Newman *et al.*, 1993). Furthermore, the present

study was agreed with the findings of Correa *et al.* (1993) and Ali (2008) who reported higher occurrence of uterine prolapse with male type calves.

Hormonal disturbance may be considered as one of the important factors that effect on the occurrence of uterine prolapse, dystocia and others calving disorders. Furthermore, nutritional status of the dams also has an effective role in the occurrence of calving disorders (Citek *et al.*, 2009; Nahkur *et al.*, 2011). Foods containing estrogenic substances such as subterranean clover pasture, soybean meal, moldy maize and barley, may result in a high incidence of uterine prolapse (Noakes *et al.*, 2001).

In the present study, there are significant differences in serum estrogen level between prolapsed animals and control group were found an increase in estrogen level in prolapsed animals. Since, Levis (1997) and Roberts (1998) were also recorded high estrogen level as main cause of uterine prolapse. In the present study, there are significant differences in serum cortisol level between prolapsed animals and control group were found an increase in cortisol level in prolapsed animals. The high level of cortisol may be resulting in retained fetal membrane that increased risk for the occurrence of uterine prolapse. Moreover, Michal *et al.* (2006) were reported that high cortisol in blood of animals with retention fetal membrane .

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