Vet.Med.J.,Giza. Vol.57, No.1. (2009):115-131

EVALUATION OF A MODIFIED SURGICAL TECHNIQUE FOR CORRECTION OF VAGINAL AND UTERINE PROLAPSE IN BOVINE

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Recived 24/05/ 2009.

Accepted 18/06/2009.

SUMMARY

This study was carried out on 81 cows (48 vaginal and 33 uterine prolapses) and 83 buffalo-cows (53 vaginal and 30 uterine prolapses) belonging to 8 commercial dairy farms located in Beni-Suef, El-Menia and El-Fayoum provinces in the period from January 2006 to December 2008. A modified surgical technique and epidural analgesic regimen were applied on the investigated animals and compared with the field traditionally used technique. A total of 81 cases of prolapses from 3330 calveings (2.43 %) were recorded, 48 cases (1.44%) of them were vaginal prolapse and 33 cases (0.99%) were uterine prolapse. Concerning buffalo cows, out of 1680 calvings, a total of 83 cases (4.94 %) had prolapses, including 53 cases (3.15%) vaginal prolapse and 30 cases (1.78%) uterine prolapse. The incidence of reproductive tract prolapse was higher in multiparous aged cows (93.75 % and 87.88 % vaginal and uterine prolapse, respectively) than in primiparous cows (6.25 % and 12.12 % vaginal and uterine prolapses, respectively) and also higher in cows with poor body condition scores (1.66 % vaginal and 1.10 % uterine) than in well fed animals with good body condition score (1.05 % vaginal and 0.91 % uterine). Buffalo cows showed the same trend. About 45.83% of cows with vaginal and 33.33% of cows with uterine prolapse were previously suffered from vaginal prolapse, while only 16.66% of cows with vaginal and 12.12% of those with uterine prolapse were previously suffered from uterine prolapse. This indicated that uterine prolapse is not a heritable condition, and it is not likely to reoccur, and there is no need to cull the cow as long as she breeds back, controversial to vaginal prolapses that reoccur and are heritable and needs culling of the cow and her heifer offspring. The investigated fertility parameters in unaffected animals were better than females affected with prolapses, although better non significant differences were detected with modified method than traditional ones. The incidence of postoperative complications in groups of animals treated with the modified technique were

significantly ($p<0.01$) lower than in animals treated with traditional technique. Concerning the survival rate of the affected animals, higher percentages were recorded after using the modified technique. In general, the prognosis was favorable for uncomplicated cases. In conclusion, early hygienic interference and prompt treatment using the modified technique may be imperative to improve the prognosis by reducing the postoperative complications and increasing the future fertility of affected animals.

INTRODUCTION

The peri- and early postpartum period in the dairy cow is very important from a reproductive perspective point of view. Vaginal and uterine prolapse, retained fetal membranes, and metritis, are examples of disturbances that occur early post partum (Gustafsson, et al., 2004). Uterine prolapse in cattle is a historic topic that is well discussed in scientific veterinary literatures and texts, and argued at legendary proportion between practitioners. The condition occurs sporadically and is recognized easily, but sometimes it is not so easily repaired. Vaginal and uterine prolapses are uncommon peri-parturient complications in the cows and buffalo cows, and when they occur, rapid and effective treatment is required to ensure the survival, recovery and continued fertility of the affected animal (Miesner and Anderson, 2008).Reported incidence of uterine prolapse varies from 0.002 % (Roine and Saloniemi, 1978) to 0.6 % (Correa, et al., 1992) of calvings in cattle, meanwhile it was 2-3 % in buffalo (Abdel Fattah, 1994 and Ahmed and Kawther Zaher, 2008). Uterine prolapse usually occurs immediately post-partum in the first 24 hours, although there are rare incidences of its occurrence several days after calving. Prolapse of the vagina, which may include a portion of the uterus and the bladder, most frequently appeared immediately before or after parturition (Cox, 1987).Various predisposing factors have been suggested for uterine prolapse in the cow as poor body condition (Cuneo, et al., 1993), assisted calving in heifers and hypocalcaemia in older cows (Odegaard, 1977; Risco, et al., 1984; Roberts, 1986; Risco, et al., 1994; and Ahmed, et al., 2005), open cervix, slack pelvic ligaments and abdominal straining, or by vaginal prolapse (Gustafsson, et al., 2004), or chronic disease, and paresis (Potter, 2008). On the contrary to uterine prolapse, vaginal prolapse are recurring problems (Gustafsson, et al., 2004). The etiology of vaginal prolapse includes increased intra-abdominal pressure, grazing on pastures of high estrogen contents or feed-born Fusarium mycotoxins, deeper and broader pelvis, increased amount of peri-vaginal fat, cervicitis, vaginitis, abscess of bartholin's gland, vaginal wound and low serum level of zinc especially in buffaloes (Roberts, 1971; Noakes, et al., 2001; Kelkar, et al., 1989; and Smith, et al., 2006). Most of the veterinarians involved in the investigations of uterine prolapse were reasonably accurate in their ability to predict long term survival

of the animals but not as good in predicting ability to conceive again (Jubb, et al., 1989).Mortality rate up to 20 % due to uterine prolapse was recorded and shock was a common cause of death, and there was a general agreement in the literature that the risk of repetition of the condition at subsequent calvings is small (Noakes, et al., 2001). However, the prognosis for future fertility will depend on several factors as bacterial contamination and the degree of trauma to the uterus, and 25 % of cows recovered from uterine prolapse and presented for insemination were later culled due to infertility compared to 5.5 % in unaffected animals (Murphy and Dobson, 2002). The treatment aims to push back the uterus as soon as possible and there are some tips and tricks which makes this process easier (Van der Weijden, et al., 1999). Several methods have been used for treatment of vaginal and uterine prolapse such as dorso-lateral vaginopexy against the para-vaginal tissues (Misra and Angelo, 1981); cervical fixation to the prepubic tendon through the vaginal floor (Kerz, 1966); or vulval suturing or clips (Narcisimhan, et al., 1975 and Rifat, et al., 1987).Posterior epidural analgesia is recommended during reduction and fixation of prolapsed genitalia (Hall and Clark, 1984). Epidural injection of steroidal anti-inflammatory drugs is effective in treatment of low back pain with wide safety margin (Price and Price, 2004). Single epidural shot of dexamethazone in combination with bupivacaine provided a significant effect on post operative pain relief (Rabin, et al., 2004). The present investigation aimed to improve the vulval fixation after reduction of vaginal or uterine prolapse in large ruminants and a modified technique for vulval fixation was used and evaluated from the surgical and obstetrical points of view.

MATERIALS AND METHODS:

The animals:

Over a three years period (2006-2008), a modified technique was applied for treatment of vaginal and uterine prolapses in cows (48 and 33 cases, respectively) and buffalo cows (53 and 30 cases, respectively) as shown in table 1, Fig 1, 2, 3, and 4. These cases belonged to six commercial dairy farms of Friesian and cross breed cows (Frisian X Balady) with a total number of 3330 cows and two buffalo farms of 1680 buffalo cows. The animals were classified according to the body condition scores, previous history of prolapse, parity, and the status of current parturition. Body condition scores were assigned into poor, fair and good; the previous history of prolapse included vaginal and uterine prolapse; the classification of parity was primiparous and pleuriparous; and the status of current parturition was categorized into normal birth and dystocia with different degrees of assistance. Reproductive data of these animals were obtained from the farms records.

Anesthesia :

Caudal epidural analgesia was performed in both cases of vaginal and uterine prolapse. Each treated animal was epidurally injected with 8-10 ml Mepecaine-L® (mepivacaine HCl 2 % and levonordefrin 0.06 mg/ml, Alexandria Co. for Pharmaceuticals, Alexandria, Egypt). In cases

with uterine prolapse we co-inject epidurally 20 mg dexamethasone (Dexacortyl, Coophavet, ancenis-France) for each animal.Positioning of the animal

In cases of vaginal prolapse, the animals were restrained in standing position to facilitate reduction of the prolapsed vagina, while in cases of uterine prolapse, the recumbent animals were placed in sternal position and their hind legs pulled behind them (Potter, 2008).

Reduction of the prolapsed organs

In cases of uterine prolapse ,the placenta was removed gently and the uterine surface was cleansed with diluted antiseptic solution (povidine iodine 10 %) at body temperature (Sloss and Dufty, 1980). The prolapsed organ was elevated to the level of the ischium; this enabled easier reduction and helps relieve vascular compromise. Elevation was achieved by either one or two assistants suspend the organ in a sheet or towel. Warm towel with massage was alternately applied on the prolapsed uterus to reduce its size and facilitate reduction. Replacement started at the cervical pole of the organ (closest to the vulva), the organ was gently and smoothly pushed back into position, and complete eversion of the horns was ensured by using a bottle as an arm extension. After complete reduction of the prolapsed uterus we applied broad spectrum antibiotic (2-4 gm Oxytertacycline HCl tablets) locally intrauterine. Because of the associated link between prolapse and hypocalcaemia, animals were subjected to calcium therapy, and they also injected with uterine tonic (ergometrine) and systemic antibiotic (Parker, 1986; Noakes, et al., 2001 and Radostits, et al., 2007).

Modified technique for fixation of the vulval lips

Vulval closure was done by using vulval truss composed of blunt ended double halves of plastic cylinder of 1-2 cm width and 6-8 cm length (Fig. 5). These trusses were fixed on the lateral sides of the vulval lips by using a double silk number 3 as suture material passing through the main bulk of the vulval lips as well as the holes in the fixation trusses. Fixation of the plastic two halves was done by one mattress stitch at the upper 2/3 of the vulva to facilitate voiding of urine and prevent lochial retention in cases of uterine prolapse as shown in (Fig 6 and 7).

Stitch was dressed day after day by mild antiseptic solution and removal of the vulval trusses was done directly before parturition in cases of vaginal prolapse, and one week postpartum in cases of uterine prolapse.

Traditionally treated animals

It included 33 vaginal and 38 uterine prolapses in cows, and 32 vaginal and 28 uterine prolapses in buffalo cows. Records of the traditionally treated animals were obtained from previous non-published data for the Authors since 2004-2005. With respect to the traditional treatment, preparation, washing with mild antisepsis, and reduction of the prolapsed organs were done in the same manner of the modified technique, then after vulval fixation was done by using mattress stitches and gauze as suturing materials. The aforementioned anesthetic product was used without addition of dexamethasone. The dressing with antiseptic and removal of stitches were done as that of the modified technique.

Statistical analysis

Statistical analyses of the fertility indices were performed using the mixed procedure of SAS (1996). The incidence of vaginal and uterine prolapse and the postoperative complications were calculated by using Binomial distribution according to Thirkettle (1985)

RESULTS

In general from our investigation we observed that cows with prolapsed uterus are often in shock and at great risk for fatal hemorrhage and will die if not promptly medically treated. If the cows survive treatment, she will develop temporary uterine infection and be slower to breed back.

1-Effect of animal species on the incidence of vaginal and uterine prolapse:

A total of 81 cases of prolapse from 3330 calving (incidence of 2.43 %) were recorded, 48 cases (1.44%) of them were vaginal prolapse and 33 cases (0.99 %) were uterine prolapse. Regarding buffalo cows, a total of 83 cases of prolapse from 1680 calving (4.93 %) were recorded 53 cases (3.15%) of them were vaginal prolapse and 30 cases (1.78 %) were uterine prolapse (Table 1).

2-Effect of body condition score (BCS) on the incidence of vaginal and uterine prolapse:

The data of the present study revealed that the incidences of both vaginal and uterine prolapse were affected by body condition score of the dams especially in late stages of pregnancy. A lower incidences of vaginal (1.05%) and uterine (0.91%) prolapse were recorded for cows with good body condition score (BCS) compared with that recorded for cows with poor BCS, where the values were (1.66%) and (1.10%) for vaginal and uterine prolapse, respectively, in animals with poor BCS Nearly, the same trend was recorded for buffaloes (Table 1).

3-Effect of previous history of reproductive tract prolapse on the incidence of vaginal and uterine prolapse

Regarding the effect of previous history of reproductive tract prolapse on the reoccurrence percentage of vaginal or uterine prolapse, the results of the present study showed that 45.83 % of cows with vaginal and 33.33 % of cows with uterine prolapse were previously suffered from vaginal prolapse, while about 16.66% of cows with vaginal and 12.12 % with uterine prolapse were previously suffered from uterine prolapse as shown in (Table 1).

Concerning buffaloes, nearly the same results were obtained where about 37.73 % of buffalo cows affected with vaginal prolapse and 36.66 % with uterine prolapse were previously suffered from vaginal prolapse. Meanwhile only 9.43 % of buffaloes affected with vaginal and 16.66 % of buffaloes affected with uterine prolapse were previously suffered from uterine prolapse (Table 1).

4-Effect of the parity on the incidence of vaginal and uterine prolapse

The results of the current study revealed a significant higher incidence of vaginal (93.75 %) and uterine (87.88 %) prolapse in pleuriparous cows than that

recorded for primiparous cows (6.25 % and 12.12 % for vaginal and uterine prolapse, respectively).

The same results were recorded for buffaloes, as higher incidences of both vaginal (86.79 %) and uterine (83.33 %) prolapse were recorded for pleuriparous buffalo cows and lower incidences of vaginal (13.2 %) and uterine (16.66 %) prolapse were recorded for primiparous buffalo cows (Table 1).

5-Effect of status of last parturition on the incidence of vaginal and uterine prolapse

The results of the present study revealed that dystocia usually associated with high incidence of uterine prolapse in both cows (60.60 %) and buffaloes (70 %). Moreover, high percentage of cows (89.58 %) and buffaloes (88.68 %) suffered from vaginal prolapse will need external veterinary help at time of parturition (Table 1).

6-Effect of type of prolapse and method of vulval fixation on the subsequent fertility

a- Interval to first estrus

In general, the interval to first estrus was significantly prolonged in cows affected with either vaginal or uterine prolapse than unaffected cows. Moreover, the technique of vulval fixation had no significant effect on the interval to first estrus (table2). Regarding buffalo cows, nearly the same results were obtained.

b- Interval to first service

Our results showed no significant differences between cows suffered from vaginal prolapse and treated with the traditional technique (60.75 ± 2.18) and those affected with uterine prolapse either treated with the modified (67.87 ± 2.63) or traditional (70.68 ± 2.77) technique, also no significant differences were detected between cows suffered from vaginal prolapse and treated either with the modified (54.73 ± 1.31) or the traditional (60.75 ± 2.18) one. Meanwhile significant differences were recorded among cows affected with vaginal prolapse which treated with the modified technique (54.73 ± 1.31) and both cows affected with uterine prolapse either treated with the modified (67.87 ± 2.63) or the traditional technique (70.68 ± 2.77) and unaffected cows (46.42 ± 0.22) (Table 2).

Concerning buffalo cows, the results of the present study indicated that uterine prolapse was significantly increased the intervals to first insemination when compared with either vaginal prolapse or unaffected animal groups (Table 2).

C-Number of services per conception (NSPC)

The results of the present study revealed that the groups of cows affected with uterine prolapse required significantly more services to conceive when compared with unaffected cows or cows affected with vaginal prolapse and treated with the modified technique. While in buffalo cows with uterine prolapse required significantly more services to conceive when compared with unaffected buffalo cows or buffalo cows affected with vaginal prolapse (Table 2).**D-Days Open**

The results of the present study revealed that, the days open in cows suffered from uterine prolapse and treated with the traditional method (179.03 ± 3.82) was significantly longer than that recorded for unaffected cows (113.32 ± 0.19) and cows suffered

from vaginal prolapse treated with modified (120.83 ± 1.59) or traditional (135.81 ± 2.28) techniques (Table 2).

Concerning buffaloes, the results of our study revealed that, the days open in animals suffered from uterine prolapse were significantly longer than that recorded for cows suffered from vaginal prolapse. Moreover the modified technique of vulval fixation was significantly decreased the days open (Table 2).

7-Effect of vulval fixation technique on the incidence of postoperative complications

The results of the present study revealed that the total postoperative complications were significantly ($P < 0.05$) decreased from 60.60 ± 8.5 after using the traditional technique to 25 ± 6.25 after using the modified technique in correction of vaginal prolapse in cows and the same was observed in animals affected with uterine prolapse. The same trend was also recorded for buffaloes (Table 3).Cases that had been badly treated by veterinarians suffered from pelvic pain and high degree of perineal tenesmus like birth pain therefore the stitches ruptured within few hours and the vulval lips underwent laceration with severe vaginitis (Fig. 8).Concerning the survival rate of the affected animals, there were no significant differences detected between the traditional and modified technique of treatment. Moreover higher percentages of survival rate were obtained with vaginal than with uterine prolapse (Table 3).

8-Beneficial effects of combination of epidural mepivacine and dexamethasone

Pelvic pain and perineal tenesmus were controlled after caudal epidural administration of mepivacaine HCL 2% for an average period about 3.5 hours whereas epidural injection of mepivacaine HCl 2% in combination of with dexamethasone controlled pain and tenesmus for an average period about 8 hours. Moreover, systemic effects of dexamethasone like animal calmness and welfare were noticed in animals suffered from uterine prolapse.

DISCUSSION

The recorded incidence of cow genital tract prolapse in the present study was 2.43 % including 1.44 % vaginal and 0.99 % uterine prolapse. These results are consistent with that reported previously (Roine and Saloniemi, 1978 and Correa, et al., 1992). Meanwhile the incidence in buffaloes was significantly higher (4.94 %) including 3.15 % vaginal and 1.78 % uterine prolapse.These results are consisted with Abdel-Fattah (1994) and Ahmed and Kawther Zaher (2008). Moreover a higher incidences (10 -14 %) of genital tract prolapse in buffaloes were recorded by Samad, et al. (1987) and Bhatti, et al. (2006). Regarding predisposing factors affecting the incidence of genital tract prolapse, it was observed that the incidences of vaginal and uterine prolapse in pleuriparous cows (93.75 % and 87.88% respectively) are significantly higher than that recorded for primiparous cows (6.25 % and 12.12 % respectively). Nearly the same results were recorded for buffaloes. Meanwhile a lower incidence of vaginal and uterine prolapse (1.05 % and 0.91 % respectively) were recorded for cows with good BCS compared with that recorded for cows with poor BCS. The results of the present study revealed that

dystocia usually associated with high incidence of uterine prolapse in both cows (60.60 %) and buffaloes (70 %). These results are consistent with that early reported by Cuneo, et al. (1993) and Ahmed, et al. (2005). Moreover a various predisposing factors have been suggested for uterine prolapse in the cow like poor body condition (Cuneo, et al., 1993), assisted calving in heifers and hypocalcaemia in older cows (Odegaard, 1977; Risco, et al., 1984; Roberts, 1986; Risco, et al., 1994; and Ahmed, et al., 2005), open cervix, slack pelvic ligaments and abdominal straining or by vaginal prolapse (Gustafsson, et al., 2004) or chronic disease, and paresis (Potter, 2008).Our results revealed that about 45.83 % of cows with vaginal and 33.33% of cows with uterine prolapse were previously suffered from vaginal prolapse, while about 16.66 % of cows with vaginal and12.12 % with uterine prolapse were previously suffered from uterine prolapse. This indicated that uterine prolapse is not a heritable condition, and it is not likely to reoccur. Therefore, there is no need to cull the cow as long as she breeds back. Meanwhile, vaginal and cervical prolapses reoccur and are heritable; therefore, it is probably best to cull the cow and her heifer offspring.

The incidence and effects of vaginal and uterine prolapse on subsequent reproductive performance is of particular interest to producers and is a topic that until now has received little attention especially in small holders. However marked reduction in fertility rate was noted following all types of prolapse. For example, the NSPC were significantly higher in animal suffered from uterine prolapse when compared with unaffected animals and consequently the days open in cows suffered from uterine prolapse and treated with the traditional method (179.03 ± 3.82) was significantly longer than that recorded for unaffected cows (113.32 ± 0.19) as shown in Table 2. These results agree with that reported by Patterson, et al., (1981) who concluded that, prolapse of the reproductive tract resulted in detrimental effects on subsequent fertility. Murphy and Dobson (2002) found that the calving-to-conception interval was 50 days longer for re-bred prolapse cases compared with matched controls and it might be due to that more than 90% of uteri are contaminated in the first days postpartum (Bondurant, 1999). Calving insults, including dystocia, uterine prolapse, and retained fetal membranes, diminish uterine ability to eliminate contaminated organisms, moreover the prolapsed uterus has a disrupted surface epithelium in contact with fluid and tissue debris that can support bacterial growth and may result in toxic puerperal metritis (Konigsson, et al., 2002 and Azawi, et al., 2007). Cows and buffaloes recovered from toxic puerperal metritis, established metritis, or endometritis can become chronic cases (Melendez et al., 2004) causing high economic losses due to prolonged days open and prolonged intercalving interval resulting in involuntary culling (Jainudeen, 1986 and Karimi, et al., 2004).Proper position of the animal during treatment is very important and treatment aims to push back the uterus as soon as possible and there are some tips and tricks which makes this process easier (Van der Weijden, et al., 1999). However several methods were documented for retention of the prolapsed vagina and/or uterus; such as dorso-lateral vaginopexy against the para-vaginal tissues (Misra and Angelo, 1981), Another methods depending on either cervical fixation to the prebubic tendon

through the vaginal floor (Kerz, 1966),or vulval suture or clips (Narcisimhan, et al., 1975 and Rifat, et al., 1987). Sternal recumbency on soft bed and extending the rear limbs out behind the animal, during reduction of prolapsed uterus, forced the animal to rest on the stifle joints and permits the pelvis to be tripped forward that facilitates the reduction process. There is little danger of creating femoral paralysis or damage to the stifles as the animal is flaccid due to the recumbency and epidural medication (White, 2007).Epidural analgesia combined with dexamethasone had beneficial effects during reduction and fixation of prolapse genitalia (Hall and Clark, 1984). Epidural injection of steroidal anti-inflammatory drugs is effective in treatment of low back pain with wide safety margin (Price and Price, 2004). Even though a single shot of dexamethazone in combination with bupivacaine into epidural space provided significant effect on post operative pain relief (Rabin, et al. 2004). Acute noxious stimulation of peripheral tissues leads to sensitization of dorsal horn neurons of the spinal cord by the release of the excitatory amino acids such as glutamate and aspartate that activate N-methyl-D-aspartate receptors resulting in calcium ions influx. The increased intracellular calcium leads to activation of phospholipase A2, the rate - limiting enzyme in prostaglandin synthesis, which convert membrane phospholipids to arachidonic acid. Simultaneously, there is up-regulation of the expression of cyclo-oxygenase- 2 in spinal cord, lead to prostaglandin E 2 syntheses and resultant hyperalgesic state (Abram, et al., 1994).

Corticosteroids are capable of reducing prostaglandin syntheses by inhibiting phospholipase A 2 through the production of calcium–dependent phospholipids binding proteins called annexins and by inhibition of cyclo-oxygenase -2 during inflammation (Yao, et al., 2001). However the dose of epidural dexamethasone required for the prevention of the central sensitization and the time of onset and duration of action is not well known (Lubenow, et al., 2001), thus the efficacy of peri-operative use of corticosteroids and bupivacaine was investigated by Glasser, et al., (1993) and Allam (2008) who concluded that combination of long–acting anesthetic agents and corticosteroids can reduce the postoperative discomfort and subsequently the length of postoperative hospital stay.

The prognosis for future fertility will depend on many factors such as bacterial contamination and the degree of trauma of the uterus. Generally the prognosis is favorable for uncomplicated cases when there has been no serious damage to the uterus (Murphy and Dobson, 2002). The survival rate in the current study was higher than that reported previously. In one study, two-week survival rate (72.4 %) was found (Gardner, et al., 1990), while other studies recorded survival rates of 73.5 % (Jubb, et al. 1990) and 80 % (Murphy and Dobson, 2002). Survival rate after repair of uterine prolapse in beef cattle was 73.5 % and 84 % conceived in the mating period following the prolapse (Jubb, et al., 1990). Murphy and Dobson (2002) reported that the mortality rate was 20 % and shock was a common cause of death due to uterine prolapse. This high survival rate may be referred to the early and prompt interference.

Table 1: The Incidence percent of vaginal and uterine prolapse in relation to BCS, previous history of prolapse, parity and history of the current parturition.

Items			BCS			Previous history of prolapse		Parity		History of current parturition		Total
			Poor	Fair	Good	Vag. Pr.	Ut. Pr.	Primi	pleuri	Normal	Dystocia	
Cows (N=3330)	Vag. Pr.	No	27/1624	14/1038	7/668	22/48	8/48	3/48	45/48	5/48	43/48	48/3330
		%	1.66	1.35	1.05	45.83	16.66	6.25	93.75	10.41	89.58	1.44
	Ut. Pr.	No	18/1636	9/1038	6/656	11/33	4/33	4/33	29/33	13/33	20/33	33/3330
		%	1.10	0.87	0.91	33.33	12.12	12.12	87.88	39.4	60.60	0.99
Buffalo (N=1680)	Vag. Pr.	No	25/620	20/638	8/422	20/53	5/53	7/53	46/53	6/53	47/53	53/1680
		%	4.03	3.13	1.89	37.73	9.43	13.2	86.79	11.32	88.68	3.15
	Ut. Pr.	No	14/620	13/638	3/422	11/30	5/30	5/30	25/30	9/30	21/30	30/1680
		%	2.26	2.04	0.71	36.66	16.66	16.66	83.33	30.00	70.00	1.78

BCS=body condition score, Vag.Pr. = Vaginal prolapse , Ut.Pr. =Uterine prolapse, and No = number

Table (2): Effect of type of prolapse and method of vulval fixation on the subsequent fertility parameters

Species	Affection	Technique	Interval to 1st estrus	Interval to 1st service	NSPC	Days Open
Cows	Vaginal Prolapse	Modifi. (45)	0.78±1.58^{b}	4.73±1.31^{b}	.34±o.26^{a}	20.83±1.59^{a}
		Trad. (29)	3.07±2.34^{ab}	0.75±2.18^{ab}	.65±0.45^{ab}	35.81±2.28^{b}
	Uterine Prolapse	Modif. (30)	7.21±2.20^{ab}	7.87±2.63^{a}	.01±0.52^{b}	42.53±5.85^{bc}
		Trad. (31)	1.33±2.01^{a}	0.68±2.77^{a}	.82±0.59^{b}	79.03±3.82^{d}
	Unaffected	2800)	1.53±0.32^{c}	6.42±0.22^{c}	.02±0.02^{a}	13.32±0.19^{a}
Buffaloes	Vaginal Prolapse	Modif. (48)	0.86±2.28^{c}	8.12±1.86^{c}	.54±0.20^{a}	50.62±1.75^{a}
		Trad. (27)	2.04±1.91^{bc}	8.51±2.29c	.67±0.26^{a}	67.62±2.29^{b}
	Uterine Prolapse	Modifi.(24)	8.92±2.66^{bc}	00.12±3.29^{b}	.15±0.31^{b}	87.17±2.94^{c}
		Trad. (23)	5.95±1.47^{b}	08.26±3.54^{b}	.29±0.33^{b}	01.33±3.08^{d}
	Unaffected	1500)	3.17±0.56^{a}	2.87±0.58^{a}	.73±0.63^{a}	49.44±0.36^{a}

NSPC= number of services per conception, Means within the same column in the same species with different alphabetical are significantly different at $p< 0.05$

Table (3): Post operative complications in modified and traditional technique of vulval fixation

Post – operative complications		Vulval laceration		Suture rupture		Continuous straining		Vaginitis		Postpartum metritis		Permanent scar		Total complication		Survival rate	
Technique		Mod.	Trad.	Mod	Trad.	Mod	Trad	Mod	Trad	Mod	Trad	Mod	Trad	Mod	Trad	Mod	Trad
Cows	Vaginal prolapse	1/48	2/33	2/48	1/33	3/48	4/33	4/48	5/33	2/48	3/33	0/48	5/33	12/48	20/33	45/48	29/33
		2.08 ± 2.06	6.06 ± 4.15	4.16 ± 2.88	3.03 ± 2.98	6.25 ± 3.49	12.12 ± 5.68	8.33 ± 3.98	15.15 ± 6.24	4.16 ± 2.88	9.09 ± 5.00	0.0	15.15 ± 6.24	25.00 ± 6.25a	60.60 ± 8.50b	93.75 ± 3.53a	87.88 ± 5.77a
	Uterine prolapse	2/33	2/38	1/33	2/38	2/33	3/38	2/33	3/38	3/33	6/38	0/33	6/38	10/33	22/38	30/33	31/38
		6.06 ± 4.15	5.26 ± 3.62	3.03 ± 2.98	5.26 ± 3.62	6.06 ± 4.15	7.89 ± 4.37	6.06 ± 4.15	7.89 ± 4.37	9.09 ± 5.00	15.79 ± 5.91	0.0	15.79 ± 5.91	30.30 ± 7.14a	57.89 ± 8.21a	90.91 ± 5.99a	81.58 ± 6.82a
Buffalo cows	Vaginal prolapse	1/53	2/32	2/53	2/32	2/53	3/32	4/53	2/32	2/53	2/32	1/53	5/32	12/53	16/32	48/53	27/32
		1.89 ± 1.86	6.25 ± 4.27	3.77 ± 2.62	6.25 ± 4.27	3.77 ± 2.62	9.37 ± 5.15	7.55 ± 3.62	6.25 ± 4.27	3.77 ± 2.62	6.25 ± 4.27	1.89 ± 1.86	15.62 ± 6.42	22.64 ± 5.75a	50.00 ± 8.33b	90.57 ± 4.05a	84.37 ± 6.52a
	Uterine prolapse	1/30	1/28	1/30	2/28	2/30	3/28	2/30	4/28	4/30	6/28	1/30	4/28	11/30	20/28	24/30	23/28
		3.33 ± 3.28	3.57 ± 3.51	3.33 ± 3.28	7.14 ± 4.86	6.66 ± 4.55	10.71 ± 5.84	6.66 ± 4.55	14.28 ± 6.61	13.33 ± 6.20	21.42 ± 7.75	3.33 ± 3.28	14.28 ± 6.61	36.66 ± 8.80a	71.42 ± 8.60b	80.00 ± 7.43a	82.14 ± 8.47a

Values with the same letter in the same row within the same species are not significantly different, Mod =Modified technique Trad.=Traditional techneque

Fig (1)

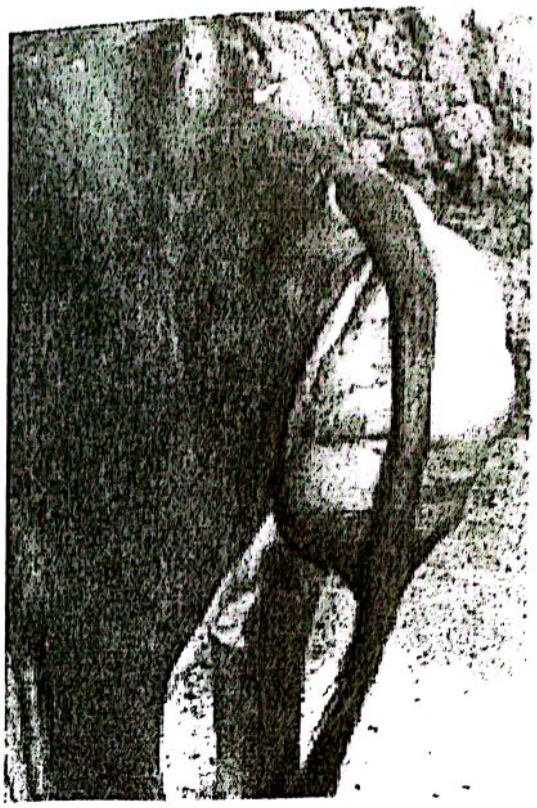

Fig (2)

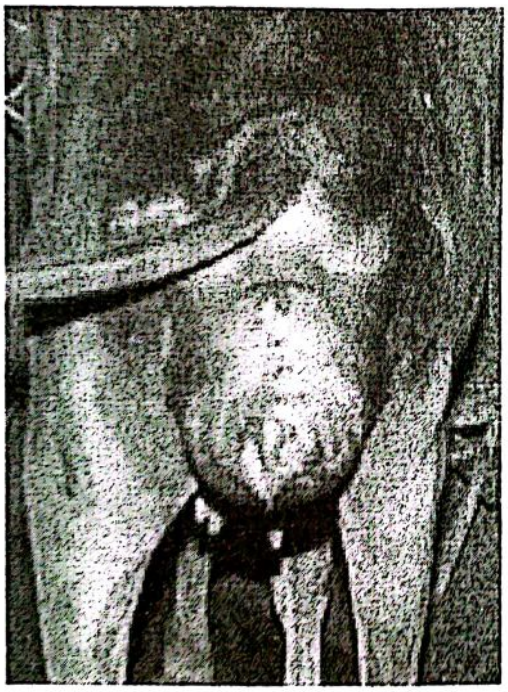

Fig (3)

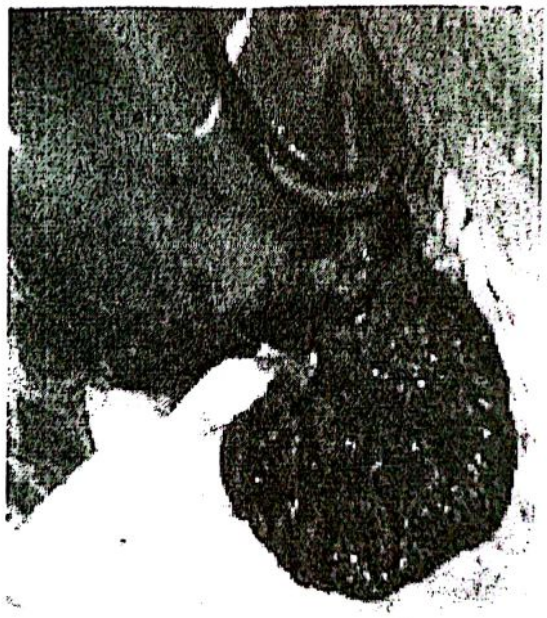

Fig (4)

Fig (1 & 2) buffalo cows with recent vaginal prolapse

Fig (3) A Balady cow with vaginal prolapse

Fig. (4) Cross breed cow with uterine prolapse

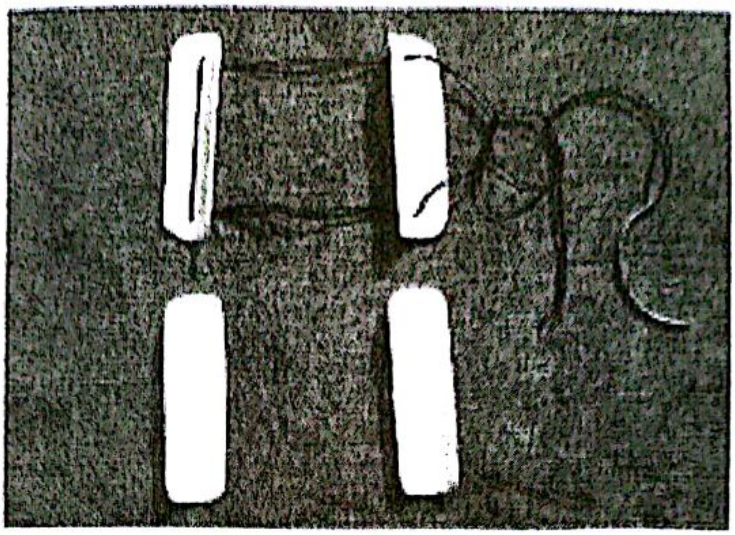

Fig (5) Vulval truss composed of blunt ended double halves of plastic cylinder of 1-2 cm width and 6-8 cm length with double silk number 3 as suture material.

Fig (6)

Fig (7)

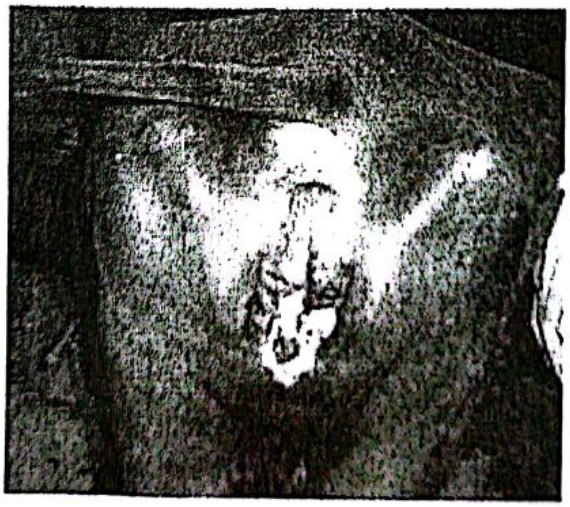

Fig (8)

Fig(6 & 7) Vulval fixation by using Vulval trusses and Silk

Fig (8) Underwent laceration with severe vaginitis with the use of traditional method of vul val fixation

REFERENCES

Abdel-Fattah,M.(1994): Some studies on the surgical affections of the genital system in farm animals. MVSc Thesis,., Cairo Uni, Beni-Suef branch.

Abram S.E., Marsela ,M. and Yaksh ,T.L.(1994): Analgesic and neurotoxic effects of intrathecal corticosteroids in rats. Anesthesiology ,81:1198-1205

Ahmed, S.; I. Ahmad, L. A. Lodhi, N. Ahmad and H. A. Samad (2005): Clinical, haematological and serum macromineral contents in buffaloes with genital prolapse. Pakistan Vet. J., 25(4): 167-170

Ahmed, W.M. and Kawther S. Zaher (2008): A Field Contribution on the Relation Between Reproductive Disorders and Bovine Viral Diarrhea Virus Infection in Buffalo-Cows J. Agric. & Environ. Sci.,3 (5): 736-742, 2008

Allam N.E.(2008):Comparative study between epidural dexamethasone with or without bupivacaine for postoperative pain relief after laparoscopic cholecystectomy. MSe Med.el-Minia Uni.Egypt.

Azawi, O. I., Omran, S. N. and Hadad, J. J. (2007): Clinical, Bacteriological, and Histopathological Study of Toxic Puerperal Metritis in Iraqi Buffalo. J. Dairy Sci. 2007. 90:4654-4660.

Bhatti, M. S. ; Ahmad I., Ahmad, N., Lodhi I. A. and Ahmad, M. (2006): Epidemiological study of genital prolapse in buffaloes kept under different systems and serum micromeniral contents. Pakistan Vet. J. 26(4): 197-200. 197

Bondurant, R. H. (1999): Inflammation in the bovine female reproductive tract. J. Anim. Sci. 77:101–110.

Correa, M. T., Erb, H. N. and Scarlett, J. M. (1992): A nested case control study of uterine prolapse. Theriogenology 37:939-45.

Cox, J.e. (1987): Surgery of the reproductive tract of large animals.3rd ed.P 129-132.Liverpool-liverpool University press

Cuneo, S. P.; Card ,C. S. and E. J. Bicknell (1993): Injured and diseases of beef cattle associated with calving.Vet.Surg.22 : 431-435.

Gardner IA, Reynolds JP, Risco CA, Hird DW. (1990): Patterns of uterine prolapse in dairy cows and prognosis after treatment. J Am Vet Med Assoc. 1990 Oct 15;197(8):1021-4

Glasser, R.S.,Knego R.S. and Delashaw J.B.(1993): the perioperative use of corticosteroids and bupvacaine in the management of lumber disc disease .J.Neurology ,78:383-387.

Gustafsson, H.;Kornmatitsuk, B.; Königsson, K. And Kindahl, H.(2004): Peripartum and early post partum in the cow –physiology and pathology Proceedings of the 23rd World Buiatric Congress, Québec, Canada .

Hall, L. W. and Clarke, K. W. (1984): Veterinary anesthesia. 8th ed., ELBS, Baillere Tindall-London.

Jainudeen, M. R. (1986): Reproduction in water buffalo. Pages 443–449 in Current Therapy in Theriogenology. D. A. Morrow, ed.W.B. Saunders, Philadelphia, PA.

Jubb, T. F., Malmo, J., Bringgtling, P. and Davis, G. M. (1990): Survival and fertility after uterine prolapse in dairy cows. Aust. Vet J. 67:22-4.

Karimi, H. I., H. A. I. Manspeaker, R. Anvari, A. F. Moradina, A. I. Neamattillahi, and K. Niksam. (2004): The study of important factors on reproduction of Azerbaijan buffaloes (Bubalus bubalis). Page 613 in Proc. 23rd World Buiatrics Congr., Québec, Canada.

Kelkar MA, Khar SK, Mandakhot VM. (1989): Studies on antepartum prolapse of the vagina in buffalo--plasma trace element concentrations. Arch Exp Veterinarmed. ;43(2):315-8.

Kerz, P. D. (1966): Correction of vaginal prolapse in the bovine. Vet. Med. Small Animal Clinic. 61: 888-890.

Konigsson, K., H. Gustafsson, and H. Kindahl. (2002):15-ketodihdro-PGF2, progesterone and uterine involution in primiparous cows with induced retained placenta and post partal endometritis. Reprod. Domest. Anim. 37:43–51

Lubenow T.R.,Ivankovich A.D.,and Mc Carthy R.J. (2001): Management of acute postoperative pain. Clinical anesthesia ,4th ed.philadelphia:lippincott Williams and Willins inc.1403-34

Melendez, P., J. McHale, J. Bartolome, L. F. Archbald, and G.A. Donovan. (2004): Uterine involution and fertility of Holstein cows subsequent to early postpartum PGF2 treatment for acute puerperal metritis. J. Dairy Sci. 87:3238–3246

Miesner MD, Anderson DE (2008): Management of uterine and vaginal prolapse in the bovine.Vet Clin North Am Food Anim Pract. ;24(2):409-19, ix.

Misra, S. S. and Angelo, S. J. (1981): Vaginopexy technique for the management of recurrent utero-vaginal prolapse in bovines. Ind. Vet. J., 58: 576-580.

Murphy AM, Dobson H.(2002): Predisposition, subsequent fertility, and mortality of cows with uterine prolapse. Vet. Rec. 2002; 151: 733-735.

Narcisimhan, K.S.; Quaynam, A.; and Gera, K.L. (1975): A method for retention of recurrent prolapse of the vagina in cow. Ind. Vet. J., 52: 311-313.

Noakes, D; Parkinson,T. J. and England, G.W (2001): Arthur's Veterinary Reproduction and Obstetrics ,8th ed. P.145-151

Odegaard, S.A. (1977): Uterine prolapse in dairy cows. A special study with special reference to incidence, recovery and subsequent fertility. *Acta. Vet. Scand.*, 63(Suppl.): 124.

Parker, C. D. (1986): Uterine prolapse in the cow Veterinary Record 118 p. 310.

Patterson, D. J.; R. A. Bellows and P. J. Burfening (1981): Effects of Caesarean Section, Retained Placenta and Vaginal or Uterine Prolapse on Subsequent Fertility in Beef Cattle. J Anim Sci 1981. 53:916-921.

Potter ,T.(2008): Prolapse of the uterus in the cow. UK Vet – Vol 13 No 1.P160-164

Price MO, Price FW.(2004):Efficacy of topical ketorolac tromethamine 0.4% for control of pain or discomfort associated with cataract surgery. Curr Med Res Opin. ;20(12):2015-9.

Rabin D, Hon BA, Pelz DM, Ang LC, Lee DH, Duggal N.(2004): Infiltrating spinal angiolipoma: a case report and review of the literature 1: J Spinal Disord Tech.;17(5):456-61.

Radostits, O., Gay, C., Hinchcleff, B., and Constable, P. (2007): Veterinary medicine, A textbook of the diseases of cattle, sheep, pigs, goats, and horses. 10th ed., Saunders Elsevier, London.

Rifat, J. F.; Amin, A. J.; and Soliman, A. S. (1987): Treatment of recurrent vaginal prolapse in cows. Alex. J. Vet. Sci., Vol. 3, No. 2: 329-333.

Risco C.A., Drost, M. and Thatcher, W.W.(1994): Effects of retained fetal membranes, milk fever, uterine prolapse or pyometra on postpartum uterine and ovarian activity in dairy cows. Theriogenology 42:183.

Risco C.A., Reynolds J.P., Hird D. (1984): Uterine prolapse and hypocalcemia in dairy cows. JAVMA, 185: 1517.

Roberts, S.J. (1986): Veterinary Obstetrics and Genital diseases, 3rd ed. Edward Brothers Michighan, U.S.A., p. 233-240.

Roine , K. and Saloniemi, H. (1978): Incidence of some disease inconnection with parturition in dairy cows. Acta Veterinaria Scandinavica 19:341-53.

Samad, H. A., Ali, C. S., Rehman N. U., Ahmad, A. and Ahmad, N. (1987): Clinical incidence of reproductive disorders in buffaloes. Pakistan Vet. J., 7(1): 16-19.

SAS User's Guide (1996): SAS User Guide. SAS Inst. Inc., Cary, NC.

Sloss V. and Dufty ,J.H.(1980): Handbook of Bovine Obstetrics.Waverly Press,Inc.baltimore.MD 21202,USA.,P.193-194.

Thirkettle,G.L. (1985): wheldon's –Business Statistics and Statistical Methods.9th ed.BcoM(lond) FIS

Van der Weijden B, Schuijt G and Vos P. (1999): Handling of postpartum reproductive problems-Dutch experiences. *In*: Impaired reproductive performance in postpartum cows. Proceeding symposium SLU, CRB report 6; 9-25.

Smith, T.K., G. Diaz-Llano, S.N. Korosteleva, and M. Yegani. (2006): The effect of feed-borne Fusarium mycotoxins on reproductive efficiency in dairy cows, sows, and broiler breeders pp. 367-372. in: Nutritional Biotechnology in the Feed and Food Industry.

White, A. (2007): Uterine prolapse in the cow. UK Vet 12:1-3. Jubb TF, Malmo J, Brightling P, Davis GM. (1990): Survival and fertility after uterine prolapse in dairy cows. Aust Vet J.;67(1):22-4.

Yao, X. L., Cowan M.J. and Gladwin M.T.(2001): Management of acute postoperative pain. Clinical anesthesia ,4th ed.philadelphia:lippincott Williams and Willins inc.1403-34

تقيـــيم طريقـــة جراحيـــة معدلـــة لعـــلاج إنقـــلاب المهبـــل و الـــرحم فـــى الماشـــية

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أجريت هذه الدراسة على عدد ٨١ بقرة تعانى من إنقلاب رحمى أو مهبلى (٤٨ حالة إنقلاب مهبلى و ٣٣ حالة إنقلاب رحمى) ، بالإضافة إلى ٨٣ جاموسة (٥٣ حالة إنقلاب مهبلى و ٣٠ حالة إنقلاب رحمى) تنتمى هذه الحيوانات إلى ثمانية مزارع ألبان فى محافظات (بنىسويف – المنيا – الفيوم) خلال الفترة من يناير ٢٠٠٦ حتى ديسمبر ٢٠٠٨، إستخدم فى هذه الدراسة طريقة معدلة لحقن المخدر فوق الام الجافية بالإضافة إلى طريقة معدلة للتثبيت المؤقت لشفرتى المهبل .

تنتمى هذه الحيوانات المصابة إلى عدد ٣٣٣٠ بقرة ، ١٦٨٠ جاموسة ، سجلت هذه الدراسة معدلات إنقلاب مهبلى و رحمى بلغت ٤٣,٢ % فى الأبقار مقسمة إلى ٤٤,١ % إنقلاب مهبلى و ٠.٩٩ % إنقلاب رحمى ، بينما بلغت هذه النسبة فى الجاموس ٩٤,٤ % فى الأبقار مقسمة إلى ١٥,٣ % إنقلاب مهبلى و ١.٧٨ % إنقلاب رحمى .

إستنتج من هذه الدراسة إرتفاع معدل الإنقلابات التناسلية فى الأبقار و الجاموس متعددة الولادات عنها فى الحيوانات ذات الولادة الواحدة و كذا زيادة هذه المعدلات فى الأبقار و الجاموس ذات الإكتناز الدهنى المنخفض (نحيفة) عنه فى الحيوانات ذات معدل الإكتناز الدهنى العالى .

أثبتت هذه الدراسة أن إحتمالية تكرار حدوث الإنقلابات الرحمية و المهبلية كان غالبا فى الحيوانات التى عانت سلفا من إنقلابات مهبلية عنه فى الحيوانات التى عانت سلفا من إنقلابات رحمية مدللا ذلك على أمكانية توريث الإنقلاب المهبلى .

لوحظ أيضا من هذه الدراسة أن معدلات الأداء التناسلى كانت أقل فى الحيوانات المصابة عن مثيلاتها التى لم تصب بإنقلابات تناسلية ، كما لوحظ أيضا قلة حدوث مضاعفات جراحية و إرتفاع معدلات البقاء على قيد الحياة بعد إستخدام الطريقة المعدلة .

يستخلص من هذه الدراسة ضرورة التدخل المبكر و الصحيح للإبقاء على حياة الحيوان و الحفاظ على معدلات خصوبة عالية .