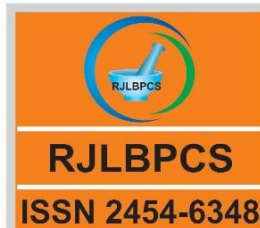


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## A COMPARISON BETWEEN PROLAPSE AND MINERAL DEFICIENCY IN IRAQI LOCAL CATTLE AND BUFFALO COWS (*BUBALUS BUBALIS*)

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**ABSTRACT:** The present project is conducted to investigate the incidence rate of some reproductive problems. One of these problems is the genital prolapse and mineral deficiency in cattle and local buffaloes cows (*Bubalus bubalis*) in some villages around Baghdad (Al-Fudhalia, 7 Nisan and Basmaia). However to design appropriate manners for correction and treatment of such reproductive disorders for those two important animals in the country, they were kept under different management conditions. The data on animals, cattle (257) and local buffalo cows (383) during 2014, and cattle (290), buffalo (404) during 2015 where their animals were reared. A complete data on the case history, owner complains, clinical examinations for reproductive status, private clinics and veterinary hospitals were documented during 2014-2015. The results revealed that genital prolapse percentage for cattle were 5.45%, 3.44% during 2014, 2015 respectively as for the mineral deficiency percentages 11.67%, 7.58% during 2014, 2015 respectively, the results in buffalo cows prolapse percentages 5.22%, 3.71% during 2014, 2015 respectively, mineral deficiency percentages 8.61%, 6.68% during 2014, 2015 respectively. The highly significant differences ( $p \leq 0.01$ ) between species were observed yearly and during some months in the years of the study. From this study we concluded that management programs differences and environmental changes may lead to monthly and yearly differences in reproductive disorders capability.

**KEYWORDS:** Reproductive Disorders, Cattle, Buffalo, Iraq

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## 1. INTRODUCTION

Uterine prolapse is a non-hereditary complication occurring immediately after parturition and occasionally up to several hours afterwards and quite easily recognized when pink tissue is seen protruding beneath the tail [1]. Among prepartum reproductive disorders vaginal prolapse is considered to be the major problem causing heavy economic losses to the farmers [2]. Also noteworthy prolapse of the uterus is a common complication of the third stage of labour in the cow [3]. [4]. Uterine prolapse is invariably associated with hypocalcaemia and results in lack of uterine tone and delayed cervical involution [5]. Generally in ruminants the prolapse is a complete inversion of the gravid cornua also in buffalo a complete inversion of the previously gravid uterus is a common complication of the third stage of labour and its incidence is usually affected by the seasonal and regional factors as well as parity [6]. Livestock needs the balanced and suitable levels of all the requirements of nutrients for their animal health and production in any physiological stage. Minerals represent essential nutrients having a pronounced function in the life of organisms as their imbalances exert undesirable effects, especially in ruminants. Thus microelements and macro elements have been known to be very essential for livestock growth, or may act as cofactors involved in many structural molecules in living organisms. Mineral deficiency especially hypocalcaemia results in myometrial fatigue and delays cervical involution and both of which could predispose to uterine prolapse [7; 8]. The needs of ruminants and the plasma level of different minerals is affected by the physiological stages of cow [9]. Deficiency of calcium, phosphorus and magnesium levels in the last period of pregnancy and at the parturition might be possible causes of post parturient uterine prolapse in cows [10]. Sub-clinical deficiencies of Ca, P, Cu and Zn were observed with maximal deficiency of Cu in both crossbred cattle and buffaloes [11]. Hypocalcaemia and foods containing estrogenic substances, such as subterranean clover pasture in soybean meal, moldy maize and barley, injuries and diseases of the puerperal period may result in a high incidence of uterine prolapse [12; 13]. Minerals level meets the needs of ruminants and the plasma level of different minerals is affected by the physiological stages of cow.

## 2. MATERIAL AND METHODS

This study included local cattle cows (257) in 2014 and (290) in 2015, and local buffalo cows (*Bubalus bubalis*) 383 in 2014 and 404 in 2015. A full case history and owner complaint of each animal were recorded, general health condition and recto genital examination for gynecological, reproductive status and / or disorders were documented. Data analyzed statistically by using SAS-Statistical Analysis System to study the different reproductive problems and the significant differences between incidence percentages of reproductive problems were compared by chi-square

test[14]

## RESULT AND DISCUSSION

The results presented in (Table 1) show that the percentages of prolapse in cattle were 5.45 and 3.44% during 2014 and 2015 respectively, while they were 5.22 and 3.71% during 2014 and 2015 in buffaloes respectively. There were no significant differences between the two species for two years (Table 2), mineral deficiency percentages for Iraqi cattle which were 11.67% in 2014 and 7.58% in 2015, whereas it was 8.61, 6.68% for Iraqi buffaloes cows in 2014, 2015 respectively, However these differences were no significant throughout the two years, (Table 2). Significant differences ( $p < 0.05$ ) were exhibited between cattle and buffaloes on August, and October in 2014 in uterine prolapse and the same significant difference ( $p < 0.05$ ) had been found on February. As for the uterine prolapse in buffaloes it differed significantly ( $p < 0.01$ ) on March between them in 2014 and on April, May and October in 2015, Insignificant differences in prolapse between cattle and buffaloes were shown at the other months in both years 2014 and 2015. Buffaloes also showed highly significant differences ( $p < 0.01$ ) between months in 2014 and 2015 respectively, (Table 2). Cattle and buffaloes had no significant differences in mineral deficiency throughout the whole months in 2014, except August and October which differed significantly ( $p < 0.05$ ). In 2015 mineral deficiency was exhibited significant differences ( $p < 0.05$ ) between cattle and buffaloes on February and March only, whereas on October 2015 it showed highly significant differences ( $p < 0.01$ ), in mineral deficiency observed throughout the months in 2014 and 2015 highly significant differences ( $p < 0.01$ ) for both cattle and buffalo cows, (Table 3). The highly significant differences ( $p < 0.01$ ) which had been observed between cattle and buffaloes in this study may be due to many factors related to environment. Comparing our results with the study by [15- AL] revealed low percentage for uterine prolapse in Iraqi buffaloes were 32.3% - 44.36% this may be due to management programme [16;17], but the results of vaginal and uterine prolapse in Islamabad and Rawalpindi by [18], were indicated only in buffalo 3.05 and no case in cattle, while milk fever (mineral deficiency) was noticed (2.31% and 3.87%) in cattle and buffalo simultaneously they were showed low percentages compared with our study results. Also in Pakistan pre and postpartum vaginal prolapse observed was 66.2 and 22.4%, respectively whereas postpartum uterine prolapse in buffalo occurred with the rate of 11.4% [19], however the

percentages are considered high to be compared with our own results. As a result of inadequate calcium intake during the last periods of pregnancy or first periods of lactation, the body may meet the required need of calcium through calcium mobilization from bones. If hormonal mechanisms are inadequate, for example in the case of an inactive parathyroid gland, mobilization is delayed and blood calcium concentration is reduced with the resultant development of milk fever. It has been communally estimated that 0.3 % - 0.5% of all calving in cattle terminate in a prolapse of the uterus [20] . High percentages were shown in India, sub-clinical mineral deficiencies prevalence of Ca, Cu, Zn and Pi in cattle were (26.36, 57.74, 19.67 and 35.11) respectively and( 19.35, 48.09, 19.06 and 23.86) respectively in buffaloes [21] . Also in a study by [22] , in buffalo prevalence of uterine prolapse (22.5) that was high percentage than in our study. But in other reproductive health problems observed with lower prevalence include vaginal prolapsed, abortion, mixed and uterine prolapsed having 3.44%, 2.56%, 1.03%, and 0.76% respectively in the study farms of the area of Southern Ethiopia [ 23] .In buffalo in Pakistan [24] , reported a high percentage genital prolapse reached ( 42.0% ) , as the one reported by [ 25 ] , the incidence of prepartum vaginal prolapse ( 42.9%) in buffaloes . A high percentage was recorded by [26] , about (64.8% ) of cases of prolapse Cervico- vaginal in buffalo . prolapsed as high as 43% has been reported by [27] .While low percentages about milk fever were noticed in cattle and buffalo about (2.31% and 3.87 %) simultaneously [28].Our conclusion that cattle and buffaloes in Iraq suffered from genital prolapse and minerals deficiency in a medium percentage than in the other countries and this may be duo to management programme and environmental conditions.

**Table (1) The percentages of prolapse and mineral deficiency in Iraqi cattle and buffaloes during 2014-2015.**

No	Years	Aspect	Cattle affected percentage %	buffaloes affected percentage %
1	2014	Prolapse	5.45(15/257)	5.22(20/383)
2	2014	mineral deficiency	11.67(30/257)	8.61(33/383)
3	2015	Prolapse	3.44(10/290)	3.71(15/404)
4	2015	mineral deficiency	7.58(22/290)	6.68(27/404)

**Table (2) Prolapse numbers and percentages in Iraqi cattle and buffaloes during 2014-2015**

Month	cattle % during 2014	Buffalo cows % during 2014	Chi Square Value	cattle % during 2015	buffalo cows % during 2015	Chi Square Value
Jan	2(13.33)	2(10.00)	NS	2(18.2)	2(13.33)	NS
Feb.	1(6.67)	1(5.00)	NS	0(00.00)	1(6.67)	NS
Mar.	0(00.00)	3(15.00)	6.11**	0(00.00)	1(6.67)	NS
April.	3(20.00)	1(00.00)	5.48*	2(18.2)	0(00.00)	6.85**
May.	2(13.33)	0(00.00)	NS	2(18.2)	0(00.00)	6.85**
Jun.	1(6.67)	2(00.00)	NS	1(9.09)	2(13.33)	NS
Jul.	1(6.67)	2(10.00)	NS	0(00.00)	1(6.67)	NS
Aug.	1(6.67)	1(00.00)	NS	2(18.2)	1(6.67)	5.53*
Sep.	0(00.00)	1(5.00)	NS	0(00.00)	1(6.67)	NS
Nov.	1(6.67)	1(5.00)	NS	1(9.09)	2(13.33)	NS
Oct.	1(6.67)	4(20.00)	5.47*	0(00.00)	3(20.00)	7.61**
Dec.	2(13.33)	2(10.00)	NS	0(00.00)	1(6.67)	NS
Total	15(42.9)	20(57.00)	5.47*	10(42.03)	15(57.7)	5.51*
Chi Square Value	42.9**	57.1**	.....	.....	.....	.....

Note :.NS : non Significant , \*\* : ( $p \leq 0.01$ ) , \* : ( $p \leq 0.05$ )

**Table ( 3) mineral deficiency numbers and percentages in Iraqi cattle and buffaloes during 2014-2015**

Month	cattle % during 2014	Buffalo cows % during 2014	Chi Square Value	cattle % during 2015	buffalo cows % during 2015	Chi Square Value
Jan	4(13.33)	3(9.09)	NS	3(13.63)	2(7.40)	NS
Feb.	3(10.00)	2(6.06)	NS	3(13.63)	1(3.70)	4.92*
Mar.	2(6.67)	4(12.12)	NS	1(4.54)	3(11.11)	4.01*
April.	1(3.33)	1(3.03)	NS	1(4.54)	0(00.00)	NS
May.	2(6.67)	1(3.03)	NS	2(9.09)	1(3.70)	NS
Jun.	2(6.67)	4(12.12)	NS	3(13.63)	4(14.81)	NS
Jul.	2(6.67)	2(6.06)	NS	1(4.54)	1(3.70)	NS
Aug.	5(6.67)	1(3.03)	5.22*	4(18.18)	3(11.11)	NS
Sep.	2(6.67)	1(3.03)	NS	0(00.00)	0(00.00)	NS
Nov.	4(13.33)	5(15.15)	NS	3(13.63)	5(18.51)	NS
Oct.	1(3.33)	6(18.18)	6.12*	0(00.00)	5(18.51)	6.85**
Dec.	2(6.67)	3(9.09)	NS	1(4.54)	2(7.40)	NS
Total	30(42.9)	33(57.1)	5.31*	22(44.09)	27(55.1)	4.38*
Chi Square Value	13.7**	9.65**	.....	9.29**	8.44**	.....

Note.NS : non Significant , \*\* : ( $p \leq 0.01$ ) , \* : ( $p \leq 0.05$ )

### CONFLICT OF INTEREST

There are no conflicts of interest to disclose.

**REFERENCES**

- [1] Roberts, S.J. Veterinary obstetrics and genital diseases, 2nd edn. C.B.S. Publisher and distributors, Delhi. (1971). pp. 308-313.
- [2] Khan, M. Z.; Verma. S. K. and S. K. Khar.. Studies on antepartum prolapse of vagina in buffaloes. Haryana Agri. Univ. J. Res., (1984). 14(3): 282-285.
- [3] Joseph, C.; Kulasekar, K.; Balasubramanian, S.; Kathiresan, D.; Veerapandian, C. and Pattabiraman, S.R.: An unusual complication of post-partum uterine prolapse in a she buffalo-a case report. Indian Vet. J. (2001).78:57-58.
- [4] Sane, C.R; Luktuke, S.N; Deshpand,B.R.; Kailini, A.S; Velhenker, D.P.; Hukeri; V.B. and Kodagali, B.S.. Text book of reproduction in farm animals ( Theriogenology). Dadasaheb phalke, Road, Bombay-400014-(1982), pp: 672-703.
- [5] Pathak, M. M. and kiraman ,J.K. Blood serum calcium, inorganic phosphorus and magnesium at different stages of pregnancy in Surti buffaloes. Indian J. Anim. Sci., (1987). 57: 398-402.
- [6] Arthur, G.H., D.E. Noakes and H. Pearson. In Veterinary Reproduction and Obstetrics (Theriogenology), 6th ed. Bailliere and Tindal, London,(1996), 302-307, 384-389.
- [7] Akhtar ,M.S, I. a. lodhi,I; Ahmad,Z.; Qureshi, I and Muhammad, G. 1..Serum concentrations of calcium, phosphorus and magnesium in pregnant nili-ravi buffaloes with or without vaginal prolapse in irrigated and rain fed areas of punjab, pakistan Veterinary World, (2009) . Vol.2(4):149 .
- [8] Murphy A. M. and Dobson. H.: Predisposition, subsequent fertility and mortality of cows with uterine prolapse Vet. Rec. (2002), 151, P.p. 733-735.
- [9] Khan Z. I.; Bayat. A.; K. Ahmad, M.; Sher, M.; Mukhtar, K.; Hayat ,Z. and Tufarelli, V.. Evaluation of macrominerals concentrations in blood of lactating and dry Desi cows .Rev.MVZ Córdoba ,( 2015). 20(2):4622-4628, 2015.
- [10] Khamees.H. A.; Alfars, A; and Fahad, T.A.. The relationship between the postpartum uterine

prolapse incidence and some macro minerals serum level deficiency in cow in Basra province. . Coll. of Vet. Med.- Univ. of Basra.-AL-Qadisiya Journal of Vet. Med. Sci. (2014), Vol. 13 No. 1 .94

[11] Bhatti, M. S.; Ahmad, I.; Ahmad ,N.; lodhi, A. and Ahmad, A.Z. Epidemiological survey of genital prolapse in buffaloes kept under different systems and serum micro mineral contents .Vet. Archiv. 82, (2006), 26(4): 197-200, 11-24, 20. Pakistan Vet. J.

[12]Roberts S. J.: Injuries and diseases of the puerperal period. In: Veterinary Obstetrics and Genital Diseases (Theriogenology). 2nd ed. [Indian reprint]. CBS Publishers and Distributors, New Delhi, India, (2004). Pp 300-335.

[13]Marques L. C.; Marques J. A.; Peiro J. R.; Oliveira J. A. and Mendes L. C. Serum calcium, phosphorus and magnesium levels in cows with cervicovaginal or uterine prolapse. Arquivo-Brasileiro-de-Medicina-Veterinaria-e-Zootecnia, (1996). 48(2): 165-173.

[14] SAS / STAT Users Guide for Personal Computers Release 9.1 SAS. Institute. Cary and N.C. USA 2010.

[15]AL- Hamedawi T. M, A. Mohammad A. H. AL-Timimi, I. HSome Observation on Uterine Prolapse in Iraqi buffaloes . Kufa Journal For Veterinary Medical.( 2014). Sciences. Vol. (5) No. (1).

[16] AaL-Said A.H.N.; AL-biaty, N.M.and Abd,S.A .Clinical study of some reproductive disorders in Iraqi buffaloes in the south of Baghdad. Iraqi Journal of Science and Technology (2012);3(1): 17-24.

[17]Arthur, G.H.; Noakes,D.E. and person, H. Veterinary reproduction and obstetrics (8th) ed., Sanders on imprint of Elsevier; London. (2008) .p:824-832.

[18] Ishaq ,K.; Ullah. N.; Ahmed, T. and Yaqoob, M.. Incidence of Reproductive Disorders in Cattle and Buffalo Around Islamabad and Rawalpindi. Pakistan J. Zool. Suppl. Ser. (2009), No.9, pp. 69-71.



- [19] Samad, H.A. and Qureshi, Z.I. Clinical prevalence of reproductive disorders in the buffalo. Proceed. Regional workshop on reproductive disorders in buffaloes 23-24 July, National Agriculture Research Centre, Islamabad, Pakistan, (2001). pp. 7-9.
- [20] Luktuke, S.N. and Choudhury, G.. Studies on the incidence of physiological and pathological termination of pregnancies in Haryana females. Indian Veterinary J. (1965). 42: 930-36.
- [21] Randhawa, S.; Zukum, O. and Rakesh, R.. Prevalence of macro and micro-mineral deficiencies in hydrofluorotic cross bred cattle and water buffaloes in Bhatinda district of Punjab, India J. Veterinary Sci .Technolo. (2013), 4:4 <http://dx.doi.org/10.4172/2157-7579.S1.003>.
- [22] Durrani, A.Z.; Kamal, N.. Prevalence of genital tract problems in clinical cases of various species of animals. Journal of Animal and Plant Sciences ,(2009); 19(3):160-162.
- [23] Adane, H.; Yisehak, T.; Niguse, T.. Assessment of Major Reproductive Disorders of Dairy Cattle in Urban and Peri Urban Area of Hosanna, Southern Ethiopia. Animal and Veterinary Sciences (2014); 2(5): 135-141.
- [24] Atwal, K.S.; Prabhakar, S. and Ghuman, S.P.S.. Prevalence of various reproductive disorders in buffaloes in seleniferous areas of Punjab. Ind. J. Anim. Reprod.(2002). 23(2): 187-188.
- [25] Seitaridis, K. and E.. Clinical incidence of reproductive disorders in the buffalo. Pakistan Vet.J., (1987) . 7(1): 16-19.
- [26] Tomar, S.S. and Tripathy, V.N. Incidence and association among certain reproductive problems in Murrah buffaloes. Ind.J. Dairy Sci. (1994). 47(12) 1050-1052.
- [27] Samad, H.A.; Ali, C.S.; Rahman, N.U.; Ahmad, A and Ahmad, N. Clinical incidence of reproductive disorders in buffaloes. Pakistan Vet. J, (1987). 7(1): 16-19.
- [28] Bhoi, D.B. and S.S. Parekar.. Post-Partum Uterine Prolapse in a Non-descript Buffalo. Veterinary World, (2009). 2(4):149.