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TREATMENT AND CONTROL OF MYCOTIC ABORTION AMONG BUFFALO - HEIFERS (With One Table)

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كيفية العلاج والسيطرة على الاجهاض الفطري في الجاموس

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شمل هذا البحث دراسة ظاهرة تفشي الاجهاض في عدد ٣٦ من بين عدد ٥٥ (٦٣.٦٣%) عجلة جاموسي عشار. وقد ثبت تشيخ كلاً من فطر *Aspergillus fumigatus* و *Cryptococcus neoformans* الكريبتوكوكس في احداث هذا الاجهاض وذلك من خلال الصورة الاكلينيكية وكلاً من الفحص البكتريولوجي والهستوباثولوجي لعينات الاجهاض. وقد تم خفض معدل الاجهاض الى أدنى مستوى وذلك باستخدام عقار الفلوسين المضاد للفطريات بجرعة ٣٠ جرام لكل حيوان لمدة سبعة أيام متتالية. كما أسفر استخدام محلول اللوتاجين والذي تم حقنه في أرحام الحيوانات المجهضة بمعدل ١٥٠ مليلتر مرتين بينهما فترة أسبوع عن استعادة تلك الحيوانات للنشاط التناسلي الدوري خلال اسبوعين بعد الحقنة الثانية. كما اتضح من الفحص التناسلي خلال ٢ - ٣ شهور عقب العلاج أن عدد ٢٨ جاموسة كانت عشاراً وذلك من بين عدد ٣٦ جاموسة التي تم علاجها بنسبة ٧٧.٧٨%.

SUMMARY

An abortion outbreak in 36 out of 55 (65.45%) pregnant buffalo-heifers was investigated. *Aspergillus fumigatus* and the yeast-like fungi (*Cryptococcus neoformans*) were incriminated as the main cause of abortion among those animals through detection of clinical finding, cultural and histopathological examination of abortion materials. Oral administration of the antifungal drug (Flucin) at the rate of 30 g/animal/day for 7 days reduced the rate of abortion to a minimum among the rest of pregnant animals.

Intrauterine infusion of 150 ml of 4% Lotagen solution two times with one week interval into aborting animals, 2-3 weeks after abortion, resulted in normal cyclic changes in those animals, two weeks after second infusion. Rectal examination of treated animals, 2-3 months following first treatment, revealed that 28 out of 36 (77.78%) of them were pregnant.

INTRODUCTION

Abortion in cattle and buffaloes due to mycotic causes is well recognized and different incidences were recorded throughout the world during the last few years. WILLIAMS, *et al.* (1977) revealed that mycotic abortion represented 13.4 to 24.9% of all abortions investigated annually in a large area of southern England between 1959 and 1966. STUKER, *et al.* (1979) found that 8.6% out of 3963 bovine abortions in Switzerland were due to fungal infections. FONSECA and LOSSON (1980) recorded an incidence of 9.7% bovine mycotic abortions in Belgium. and KROGH (1985) reported that 101(14%) out of 748 cases of bovine abortions were caused by Fungi in Denmark. PAL, *et al.* (1985) mentioned that 5.1% of abortions of 31 buffaloes and 22 cows in India, were attributed to mycotic infection.

DEAS (1981) concluded that the incidence of mycotic abortion increased with the change of traditional methods of making hay to the now common method of direct hay baling in the field. He added that by the time of use of that hay and dry feed, many stored bales are unfit for feeding and contain large quantities of fungal spores. BIBERSTEIN (1986) revealed that agents causing systemic mycosis are components of the natural microbial flora of the external or internal environment of the animal. Animals are constantly exposed to such organisms via the respiratory or intestinal route without any observable effects. He added that their assumption a pathogenic role depends on factors that change this environmental equilibrium. Concerning treatment and control of cases of mycotic abortion, WATSON (1979) revealed that withdrawal of the offered food to aborting animals and its replacement with clean not-mouldy food reduced the number of cases of abortion. He added that Nystatin irrigation have been used to remove persistent infection from the uterus of the mare. BIBERSTEIN (1986) mentioned that a reasonable preventive step is the elimination of mouldy feeds as there appears to be a fairly firm correlation between conditions favoring mouldy growth and the occurrence of mycotic abortions.

The present work was carried out to control an abortion outbreak due to mycotic infection among a herd of pregnant buffalo-heifers. This is beside treatment of aborting animals and evaluation of their subsequent fertility.

MATERIAL and METHODS

The investigated herd included 55 pregnant buffalo-heifers that were kept at one of the dairy farms, belonging to Assiut Governorate. Over the course of 2 months period, 36(65.45%) animals aborted at different stages of pregnancy. Seven aborted fetuses, together with their placentas, were collected directly after abortion and subjected to careful post mortem examination, direct examination of wet-preparations and stained

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smears from foetal stomach contents (F.S.C) and placentas, cultural and histopathological examinations. All the examinations revealed that the main cause of abortion among those animals was a mixed fungal infection with *Aspergillus fumigatus* and *Cryptococcus neoformans* (ZAGHLOUL and SHEHATA, 1991). Strict hygienic measures were adopted, including disposal of abortion material, thorough cleaning and disinfection of the place, isolation of aborting animals, together with change of food with a new batch and change of the source of drinking water. All animals were given an oral daily dose of Flucin powder (antifungal) of 30 g/animal for 7 days. Moreover, 2-3 weeks after abortion, each aborting cow was given an intrauterine infusion of 150 ml of 4% Lotagen solution (B Y K Gulden Pharm., Germany). One week later, each cow received a second infusion of Lotagen. Treated cows were rectally examined, one week after the second infusion, for detection of ovarian cyclic changes and/or palpable abnormalities in genital organs. Buffalo-cows with normal genital organs and active ovarian cyclic structures were moved to clean yard and adult buffalo-bulls were mixed with them for natural service. All cows were rectally examined, 2-3 months after mating, for pregnancy diagnosis.

RESULTS

The results of treatment and follow-up of the 36 aborting buffalo-cows are presented in table (1). The oral administration of the antifungal drug (Flucin), together with the application of the mentioned hygienic measures, reduced the rate of abortion markedly among the rest of pregnant animals. The outbreak started with 25 abortions out of the 55 pregnant animals and by the commencement of the above treatment, only 11 out of the 30 pregnant heifers aborted. The remaining 19 pregnant heifers gave birth to living fetuses at full-term. The intrauterine therapy using 2 infusions of Lotagen proved to be effective. Rectal examination, 2 weeks after the second infusion, revealed that most of the cows were have normal genitalia together with active ovarian cyclic structures. Moreover, rectal examination of these cows 2-3 months after leaving them with bulls, revealed that 28(77.78%) of them were pregnant. Only 2 of the treated cows have chronic endometritis and 2 were having smooth ovaries. The remaining 4 cows were not pregnant, although they showed normal uterus together with cyclic ovarian structures.

DISCUSSION

The obtained results revealed that application of the different hygienic measures, isolation of aborting animals, offering clean batch of food, together with the administration of the antifungal drug (Flucin), evoked a remarkable effect toward reduction of

the rate of abortion among the pregnant buffalo-heifers. These results are in agreement with those previously reported by WATSON (1979), RYAN and WYAND (1981), SHERIDAN, *et al.* (1985) and MUNOZ and GONZALEZ (1987) who revealed that the rate of mycotic abortion among pregnant cows and mares, was reduced to a great extent after the application of different hygienic control measures. BIBERSTEIN (1986) added that medical treatment of deep mycosis in food animals is a virtually unexplored field, in part because antifungal drugs suitable for such treatment are relatively new and have not been adequately tested in food producing mammals. He also classified the present antifungal drugs into 3 chemical categories, the second group of them is 5-fluorocytosine (Flucytosine), which is readily absorbed from the gastrointestinal tract and is generally well-tolerated. The usefulness of this drug so far has been confined largely to the treatment of infections due to yeast-like fungi, particularly candidiasis and cryptococcosis. These facts coincided very well with the obtained results at the present work, as the oral administration of the antifungal drug (Flucin) played a major role in decreasing the number of cases of abortion which was basically caused by the yeast-like fungus "*Cryptococcus neoformans*" together with *Aspergillus fumigatus*.

Moreover, the intrauterine therapy of aborting cows, using Lotagen solution infusion, proved to be a remarkable factor in retaining the normal physiological condition of the genital organs as well as the ovarian cyclic activity of the treated animals and the consequent high pregnancy rate among those animals. In this respect, WILLIAMS, *et al.* (1977) revealed that although a degree of endometritis is inevitable in mycotic abortion, subsequent reproductive performance will be governed in part by the severity of the uterine changes and their duration. They added that 148 cases of mycotic abortion were followed by normal pregnancy. WATSON (1979) reported that Nystatin intrauterine irrigation have been used to remove persistent mycotic infection from the uterus of mares.

Therefore, it can be concluded that control of outbreaks of mycotic abortion should be based upon the application of strict hygienic measures, together with administration of antifungal drugs. The intrauterine therapy of aborting animals and the gynaecological follow-up of such cases will play an important role in the reestablishment of normal reproductive performance of those animals.

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Table (1)
Results of treatment and follow-up of aborting buffalo-cows

Stage of abortion	No. of animals	Rectal finding 3 m. after 1st treatment					
		Preg.	proestrus	estrus	C.L. & norm. uterus	S. Ovaries	Ch.endomet
5th month	5	3	-	-	1	-	1
6th month	8	6	-	1	-	1	-
7th month	9	8	-	-	-	-	1
8th month	10	8	-	-	1	1	-
9th month	4	3	1	-	-	-	-

S. ovaries = Static ovaries

Ch. endomet. = Chronic endometritis