The Iraqi J. Vet. Med., 10 (1986)

TRANSMISSION OF MYCOPLASMA BOVIGENTALIUM FROM EXPERIMENTALLY INFECTED BULLS TO COWS BY NATURAL SERVICE.

H. Mehdi, M.A.K. Fathalla, and J.M. Al-Aubaidi, College of Veterinary Medicine, University of Baghdad.

SUMMARY

Four Friesian bulls 3-6 Years old four Friesian heifers 18-24months old were used in this study. Three bulls were injected with 3 ml 3 davs old Mycoplasma bovigenitalium strain AL culture. One bull served as a control which recived broth only. Mycoplasma bovigenitalium organisms serologically similar to the injected strain was isolated from the experimental bulls. All the bullsshowed clinical signs of seminal vesiculitis with varying degress. Two of the infected bulls were left to service 4 clean virgin heifers for four months. All heigers required more than three services to concieve. Mycoplasma bovigenitalium serologically similar to the experimental strain was isolated from three cows at different periods.

INTRODUCTION

Among bovine mycoplasma species, Mycoplasma bovigenitalium is considered the most widely spread species which can cause bovine genital infection (Al- Aubaidi,1966; Oberry et al. 1967 and Erno et al. 1967). Therefore, it is most probably M. bovigenitalium may be involved as a causative entity in repeat breeding cows (Saaid and Al-Aubaidi, 1983). Hall and McEntee (1981) demonstrated that m.

bovigenitalium colud survive in frozen sen=men for a long time, consequently, when cows inseminated with mycoplasma contaminated semen, variuos degrees of genital tract infection resulted. However, reports concerning transmission of the infection by natural sevice are scarce. Therefore, this study was designed to investigate the effect of service by experimentally infected bulls with M. bovigenitalium on the reproduction of cows.

MATERIALS & METHODS

Four Friesian bulls, numbered 1, 2, 3, and 4, their ages ranged between 3-6 Years and four Friesian heifers, numbered 5, 6, 7, and 8 aged between 18-24 monthes were used in this experiment. They were housed separately but recieved the same management. Their internal external genitalia were examined clinically. Cows were checked for 20-30 minutes, three daily for signs of estrus. Semen was collected from the bulls by means of artificial vagina, while cervico-vaginal mucus was obtainen from cows by means of a sterile swabs. Semen and cervico-vaginal samples were cultured for mycoplasma before infection. Animals were also checked for brucellosis, vibriosis and trichomoniasis.

Experimental bulls were injected with 3 ml of 3 days old broth culture of M. bovigenitalium (strain AL)(Al-Aubaidi unplished data) directly into each seminal vesicle by a method previously described (Parsonson, et al. 1974). Control bull was recieved sterile broth only. Infected bulls were clinically observed for signs of abnormality, thier

temperature, rectal palpation of internal genital organs and culturing their semen was conducted.

Ten days postinoculation, bull no i was allowed to service cows no 5 6 while bull no 2 was left to service cows no 7 and 8 naturally for 4 months. Postservice cervico-vaginal mucus samples were regularly obtained from the cows cultured for mycoplasma. Cows were also checked for conception by rectal palpation. Identification of the isolated mycoplasma was done as described by parsonson et al. 1974.

RESULTS

Mycoplasma, brucella, vibrio and trichomonas organisms could not be isolated from semen and cervico-vaginal samples taken from allexperimental animals before infection. All experimental animals were clinically sound.

Inoculated bulls showed seminal vesiculitis (Fig. 1&2), as manifested by tenderness of the glands which was persisted for more than 10 days. They also exhibited arched back, elevated temperature for 2-3 days. Collected semen samples were blo9od tinged and regularly positive for M. bovigenitalium (Table 1). ain was exhibited for a short period of time then subsided later. Mycoplasma could not be isolated from the control bull.

Postcervice cervico-vaginal mucus samples were found positive for M. bovigenitalium in cows no 5 , 7 and 8 showed mucopurulent vaginal discharge with congestion of the vaginal mucous membrane. The discharge ceased after 6-7

Fig. 1 : The seminal vesicles of bull no. 1 shows gross enlargement of both glands at postmortem.

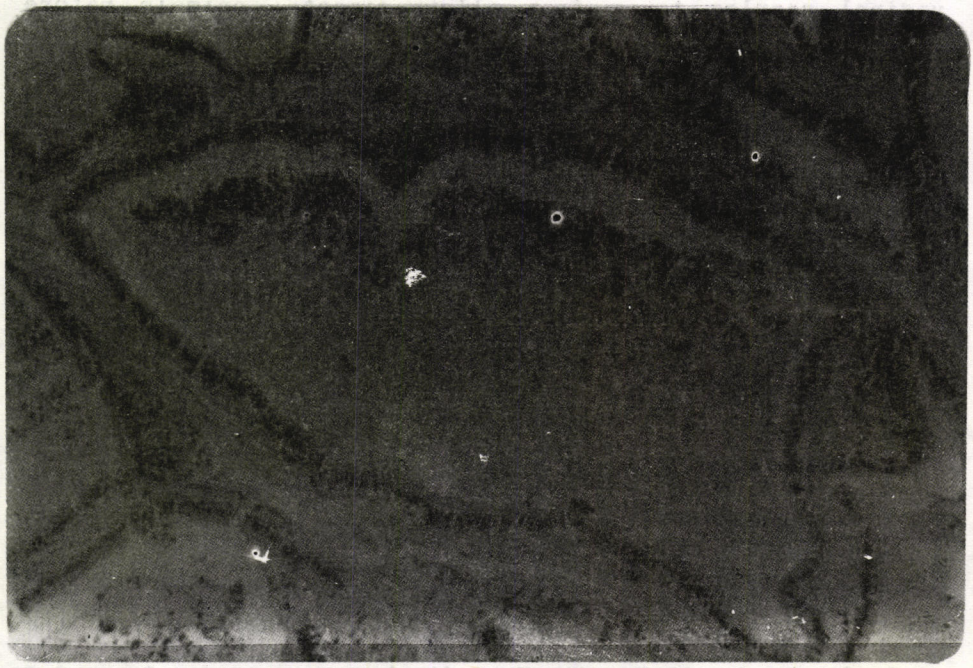

Fig. 2: Histological changes at the right seminal vesicle of bull no. 1, shows enlargement of the acini with acidophilic content and infiltration by inflammatory cells. (H & E X 100).

Table 1: Isolation of mycoplasma from the genital tract of bulls at postmortm

Seminal Vesicles	ampulla	prostate	vasdeference	epididymis	testes
bull no. R:L	R:L	R:L	R:L	R:L	R:L
1	+:+	+:+	+:+	+:+	+:+	+:+
2	+:+	+:+	+:+	+:+	+:+	+:+
3	-:+	-:+	-:+	-:+	+:-	+:-
4*	-:-	-:-	-:-	-:-	-:-	-:-

bull no.	Prepuce	penis	urethera	glanspenis
1	+	-	+	+
2	+	-	-	-
3	+	-	+	-
4*	-	-	-	-

* Control bull.

+ Positive for mycoplasma.

- Negative for mycoplasma.

R right.

L leth.

days. All cows exhibited regular estrous cycles, but required more than 2-3 services to concieve.

DISCUSSION

Early experiments indicated that M. bovigenitalium was able to survive and induce infection of the udder (Roberts, 1968), vagina (Afshar, et al. 1966) and seminal vesicles (Parsonson, 1970). The same phenomenon was also demonstrated in the present study. Seminal vesiculitis with varying degrees of clinical responces among the infected bulls in this study was similar to that observed by Erno (1967); parsonson (1970) and Al- Aubaidi et al. (1972).

The isolation of mycoplasma serologically simialr to M. bovigenitalium from the cervico-vaginal mucous samples of the three heifers serviced by the infected bulls is a clear indication that the organisms were transmitted by coitus through contaminated semen or could be from the prepuce. This view was also expressed by Al- Aubaidi and Fabricant (1968) who noted the same observation in a cow serviced by a naturally infected bull with M. bovigenitalium. Infected cows exhibited repeat breeding syndrome, this was also noted by Hirth et al. (1966) and by saaid and Al- Aubaidi (1983) when they inseminated cows with mycoplasma infected semen.

The failure to isloate mycoplasma from cow no 6 possibly might be related to the development of local immunity with disappearance of the organisms from the vagina. This finding was also reported Erno and philipsen (1969).

REFERENCES

Al- Aubaidi J. M. (1966): Technique for the isolation of mycoplasma from cattle. M. Sc. Thesis, N. S. V. C., Cornell University, Ithaca. N. Y.

Al- Aubaidi, J. M. and J. Fabricant (1968): Techniques for the isolation of mycoplasma from cattle. Cornell Vet. 58: 555-571.

Al- Aubaidi, J. M; K. McEntee; D. H. Lein and S.J. Roberts (1972): Bovine seminal vesiculitis and epididymitis caused by M. bovigenitalium. Cornell Vet 62: 581.

Afshar, A.; P. Stuart and R. A. Huck (1966): Granular vulvovaginitis (nodular venereal disease) of cattle associated with M. Bovigenitalium. Vet. Rec. 78: 512-519.

Erno, H. (1967): Mycoplasmosis: Demonstration of a pathogenicity of Danish strain of mycoplasma. Acta Vet. Scand. 8: 184-185.

Erno, H.; W. N. Plastridge and M. E. Tourtellotte (1967): Mycoplasma: Isolation from prepuce and semen of bulls. Acta Vet. Scand. 8:123.

Erno, H. and H. Philipsen (1969): Mycoplasmosis: Cervical and uterine inoculation of heifers with a Danish strain of M. bovigenitalium. Acta Vet. Scand. 10: 108-110.

Hirht, R. S.; S. W. Nielsen and W. N. Plastridge (1966): Bovine salpingeo oophoritis produced with semen containing mycoplasma. Path. Vet.3: 616-632.

Hall, C. E.; and k. McEntee (1981): reduced post-thawing survival of sperm in bull with M. bovigenitalium. Cornell Vet. 71: 111.

Parsonson, I. M. (1970): M.bovigenitalium: Experimental induction of genital disease in bulls. Ph. D. Thesis. Cornell University. Ithaca, N. Y.

Parsonson, I. M.; J. M. Al- Aubaidi and K. McEntee (1974): M. bovigenitalium: Experimental induction of disease in bulls. Cornell Vet. 64: 240

Roberts, H. D. (1968): Immunological responce in cows to M. bovigenitalium strain 1836. J. Hyg. 66:585.

Saaid, OM. and J. M. Al Aubaidi, (1983): Infertllity in heifers caused by pathogenic strain of M. bovigenitalium isolated from infertile bull semen. Cornell Vet. 37: 125-130.

انتقال المايكوبلازما بوفيجنيتاليوم نزويا الى الابقار من ثيران مصابة تجريبيا

هاشم مهدي، محمود عبد الرحمن فتح الله، و جواد مجيد العبيدي، كلية الطب البيطري ـ جامعة بغداد.

الخلاصة

حقنت ثلاثة ثيران في حويصلاتها المنوية بالمايكوبلازما بوفيجنيتاليوم وحقنت واحدة بالوسط الزرعي فقط واستخدمت كحيوان سيطرة ظهرت اعراض التهاب الحويصلة المنوية بدرجات متفاوته وقد عزلت المايكوبلازما من الثيران المحقونة. وعند السماح لاثنان من الثيران المصابة بالمايكوبلازما بتسفيد لاربعة ابقار بكر ظهرت فيها اعراض تكرار العراف واحتاجت لاكثر من ثلاثة تسفيدات للحصول على اخصاب، وقد عزلت المايكوبلازما نفسها من الابقار بفترات مختلفة وهذه اول تجربة يستدل منها الانتقال النزوي للمايكوبلازما من ثيران محقونة تجريبيا لابقار بكر.