

THERAPEUTIC EFFECTS OF THE MOXIBUSTION ON DELAYED UTERINE INVOLUTION IN POSTPARTUM DAIRY COWS

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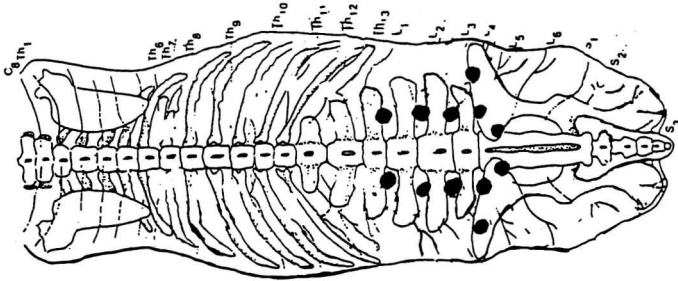
Introduction

A calving interval of 12 months has been considered to be a goal of reproductive management of dairy cows. Delay of postpartum uterine involution and ovarian resumption of them results in extension of calving intervals and hence, causes major economical loss. It is therefore, very important to carry out reproductive check and to give proper treatment to cows with delayed reproductive recovery. For the treatment delayed uterine involution, some antibiotics have been infused in utero with indistinct effect^{1 2 3}. Recently, administration of PGF_{2α} or it's analog has been provided to be more effective on the postpartum uterine losses than the antibiotics treatment^{4 5}. Preventive effect of GnRH on cows with endometritis following retained placenta in resumption of ovarian cycle has also been reported⁶. The acupuncture and the moxibustion therapy has been known to facilitate uterine contraction and ovarian function in cattle^{7 8 9}. These methods have some advantages over the administrations. The treatments have neither side effect or drug residue, and easy to accomplish and economical. This paper reports therapeutic effects of the moxibustion on cows with delayed uterine involution.

Material and methods

Forty-eight Holstein Friesian cows were diagnosed as delayed uterine involution by rectal palpation and vaginoscopic examination on the regular reproductive check at an interval of 2 weeks in commercial dairy farms, located in Kitami district in Hokkaido between December 1985 to March 1987. Cows having a ex-gravid uterine horn with a diameter of 5cm or larger and swelling of uterine wall on the rectal palpation, and pus or abnormal cervical mucus, and congestion of of the cervix on the vaginoscopy on 21st and 34th days of lactation. Those cows which had delayed uterine involution 21st day of lactation, but no longer on 34th day were considered to be cases of spontaneous recovery, they were, therefor, not used for therapeutic trials. Forty-eight cows with delayed uterine involution were divided into three groups. The first group of 16 cows were subjected for the moxibustion therapy, the second group of 17 cows was injected intramuscular with 25 mg PGF_{2α}-THAM salt (Nihon Upjohn, Tokyo), and third

last group of 15 cows were treated with an intra uterine infusion of 500 mg. ampicillin. The second and third groups of cows served as positive controls. For the moxibustion therapy, the moxas of the quail egg size was applied to 12 points which would stimulate the uterus and ovaries (Fig.1). The moxas was burnt for 10 to 15 minutes. This was repeated daily for 3 days.



Moxibustion Point

Responses of the uterus and ovaries were examined by rectal palpation, vaginoscopic examination, bacterial examination examination of the cervical swab as well as by milk progesterone determination for 4 weeks at an interval of one week. The diameter of the cervix as well as both uterine horns were estimated per rectum and the cervical swab was obtained for bacterial examination. Milk samples collected by farmers from quarters of the udder into a polystyrene tube three times weekly (Mon.Wed.Fri.). After defatting milk samples by centrifuge 3500 rpm for 20 minutes, progesterone concentration in skim milk were determined by enzyme immuno assay(EIA) ^{10 11}.

Results

The cows with delayed uterine involution given the moxibustion therapy, as well as those treated with antibiotics and PGF_{2α}, showed a rapid decrease of cervical diameter and difference in the sizes between the gravid and non-gravid uterine horns (fig.2 and 3). Incided endometritis diagnosed by the abnormality in the cervical mucus also decreased gradually following treatments with the moxibustion, antibiotics or PGF_{2α} (Fig.4). Although, there were no significant difference in the uterine involution among the cows treated by different methods. The cows treated with PGF_{2α} or ampicillin tended to show better response in terms of the uterine involution.

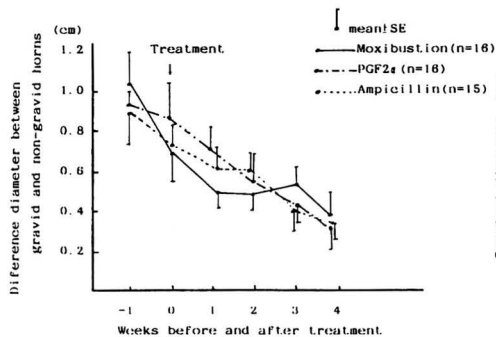


Fig.3 Changes in difference between sizes of the gravid and non-gravid horns in cows with delayed uterine involution after treatment.

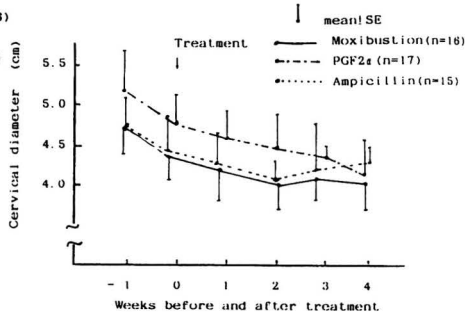


Fig.2 The changes in size of the cervix in cows with delayed uterine involution after treatment.

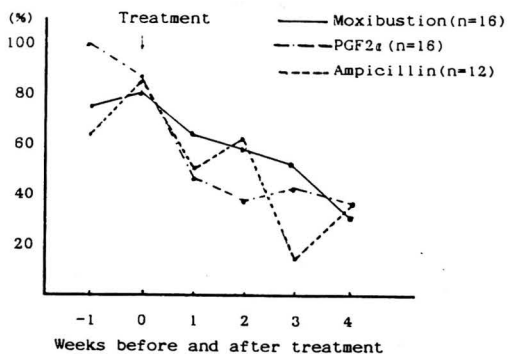


Fig.4 Changes in the incidence of abnormal cervical mucus in cows with delayed uterine involution after treatment. Percent of cows with abnormal cervical mucus.

Milk progesterone profiles before and after the different methods of treatment were classified into three types (Fig.5). Type 1: cows had inactive ovaries before treatment and responded with ovulation and corpus luteum formation after treatment (n=11, 22.9%). Type 2: cows had inactive ovaries and did not respond to the treatments (n=11, 22.9%). Type 3: cows had corpus luteum before treatment and showed the normal ovarian function after treatment (n=26, 54.2%). Percents of cows showing a positive response after treatment in cows having inactive ovaries was 66.7%(4/6) after the moxibustion therapy, 45.5%(5/11) after the PGF2α injection and 40.0%(2/5) after the ampicillin infusion in utero. There was a tendency that the moxibustion was more effective on cows with ovarian inactivity associated with delayed uterine involution than the other treatments. Reproductive performance in cows with delayed uterine involution treated with the moxibustion and the other methods and in cows with

normal uterine involution is summarized in Table 1. The cows with delayed uterine involution had a lower first insemination conception and a lower interval between parturition and conception than the cows with normal uterine involution, although the differences were not statistical significant among the groups of cows treated with the different methods. The moxibustion-Treated group showed the highest interval 1st insemination conception rate and shortest interval from parturition to conception. The ampicillin-Treated group showed unsatisfactory reproductive performance in terms of the conception rate and calving to conception interval.

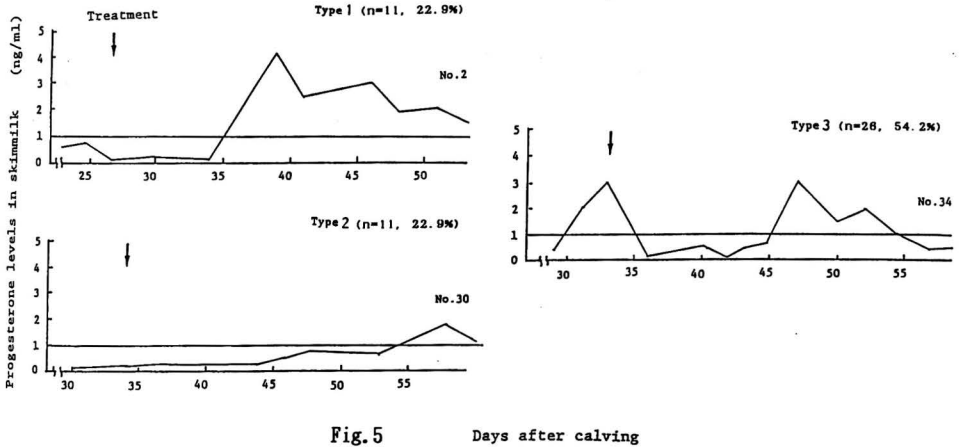


Fig. 5 Days after calving

Table 1, Reproductive performance of cows with delayed involution after treatment.

Treatments	No. of cows			Days from calving to		First AI coception rate (%)
	treated	inseminated	culled	AI	conception	
Moxibustion	16	15	1	85±39	113±51	60.0
PGF2 α	17	17	2	79±28	116±77	47.1
Ampicillin	15	15	0	72±19	129±54	13.3
Total	48	47	3	79±30	120±62	40.4
* Normal	137	137	0	83±23	115±44	46.7

* Normal is the normal uterine involution at the first Examination. mean±SD

Discussion

For the treatment of delayed uterine involution either associated with endometritis or not, an intramuscular injection of PGF_{2α} may stimulate the uterine contraction and may also facilitate the uterine defense mechanism. PGF_{2α} may not show a direct effect on ovarian dysfunction unless the cows had the functional corpus luteum. The moxibustion therapy on the 12 points is considered to stimulate both uterine contraction and ovarian function⁸. If this is the case also in cattle, the moxibustion will be more practical for the treatment of delayed uterine involution than the treatments with PGF_{2α} or antibiotics. The treatment is easy to accomplish, economical and free from the drug residue in the milk. Results of the present field experiments confirmed that the earlier statement by some authors that an intrauterine administration of antibiotics was not so effective as generally expected and PGF_{2α} could be an alternative to the antibiotics treatment¹. It was indicated in this study that the moxibustion was more effective for the treatment of delayed uterine involution than the PGF_{2α} administration. The authors therefore, recommend the moxibustion therapy as a safe, economical and effective treatment for the delayed postpartum uterine involution.

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