

IS METOESTRUAL BLEEDING IN BOVINES NORMAL ?

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Metoestral bleeding – the term is self-explanatory, it is the bleeding during metoestrus, and is seen in a small proportion of bovines. The condition is believed to be the result of oestrogen withdrawal and the underlying mechanism for bleeding is the rupture and leakage of capillaries on the endometrial caruncles. In some areas farmers and even veterinarians used to describe metoestrual bleeding as an indicator of ensuing conception and thus a grace. Even though this is an exaggeration, surely metoestrual bleeding is an indicator of hormonal shift from the oestrogen dominance of follicular phase to that of progesterone.

Any one working in the field of bovine reproduction might be aware of the fact that there is increased incidence of blood discharge within few days of heat in AI bred animals. If we review the past, the incidence of the condition has increased drastically over the last few years and the proportion of animals showing the phenomena is still on the rise. More over this post oestral blood discharge has become a great menace, contrary to the earlier belief of being a grace, since many of those of animals repeat breeding. In this context there are few important questions often asked such as

1. *Is metoestrual bleeding normal?*

Yes, if text book information alone forms the basis of our knowledge. As mentioned earlier, metoestrual bleeding is the result of oestrogen withdrawal, and often an event following ovulation which do not interfere conception. As long as conception is not affected, it can very well be considered normal, whatever may be the incidence, nature, quantity, time and duration of bleeding.

2. *Is the conception rate of animals showing metoestrual bloody discharge normal?*

Here I would like to put a counter question, what is your experience? Most people working in the field have reported considerably high prevalence of repeat

breeding in cattle showing post oestral blood discharge compared to those without it.

3. *In spite of considerably low conception rate in animals with metoestrual bleeding, can we continue to consider it as a normal phenomena?*

Absolutely No. If the conception rate is found drastically reduced in animals with bleeding than those without it, such a condition has to be considered abnormal so as to take up necessary investigation and intervention. Even after experiencing it as a problem, sticking on to text book definition as being normal is ridiculous.

4. *Other than conception rate is there any other reason to believe it abnormal?*

Yes, there are other reasons and evidences as well to consider it as an abnormal phenomena necessitating interventions, major one being the nature of discharge. Unlike normal metoestrual bleeding, it is not blood that is being voided during the metoestrus, instead it is muco sanguineous discharge with predominantly mucous mixed with blood. Discharge appears thick and often hangs from the vulva even reaching the floor in many animals. Quantity and duration of the discharge is also more, making the muco sanguineous discharge different from normal metoestrual bleeding.

5. *Why mucous predominates the discharge during metoestrual period.*

Metoestrus is the period of increasing progesterone secretion, while mucous is secreted under the influence of oestrogen. In animals with normal endocrine pattern, oestrogen withdrawal starts from the middle of heat period so that possibility of mucous secretion also declines as metoestrus advances. Whereas continued secretion of mucous is an indicator of prolonged

action of oestrogen.

6. Any other evidences for endocrine imbalance?

Very high degree of uterine tonicity and relaxation of the cervix are other evidences for prolonged oestrogen action. Being changes produced by oestrogen in the reproductive tract, these changes are unlikely to occur during normal metoestrus and even in animals showing normal metoestrous bleeding. However, in bovines highest degree of uterine tonicity can be palpated during the phase of metoestrous muco sanguineous discharge. In addition, persistence of behavioural signs of heat and palpation of follicle during metoestrous phase in some of these animals forms other indicators for prolonged oestrogen action.

7. What can be the underlying mechanism for the "bleeding"

Contrary to the mechanism of normal metoestrous bleeding, prolonged action of oestrogen and the resultant extreme tonicity of uterus makes endometrial capillaries fragile leading to their breakage and bleeding. The blood thus voided gets mixed with mucous secreted from cervical glands under the continued influence of oestrogen and expelled out intermittently in the form of muco sanguineous discharge. Volume and/or duration of the discharge depends on the extend of increase in estrogen action and size of the reproductive tract.

8. What makes the oestrogen action prolonged?

Following oestrus, the increasing level of progesterone brings about ovulation and disappearance of uterine tonicity since progesterone suppresses and slowly reverses the effects of oestrogen on the tubular tract. Thus it can be inferred that deficiency of progesterone is the exciting factor for prolonged action of oestrogen. Studies have already proved the existence of progesterone deficiency in animals with metoestrous bleeding supporting the above claim. Besides bleeding other manifestations of progesterone deficiency include delayed or failed ovulation and prolonged heat, which is highly prevalent in our animals. Thus metoestrous muco sanguineous discharge can be considered as a phenomena associated with prolonged heat. Parallel increase in the incidence of both these conditions in AI bred animals very well proves this argument.

9. Why conception rate is low in animals with the syndrome

Besides direct effect of progesterone deficiency on conception in these animals, other reasons attributable for fertility reduction are; (1) persistence of uterine tonicity and blood in the uterine lumen during metoestrus and even during early dioestrus making the uterine environment hostile for implantation. (2) blood in the tubular tract favours microorganisms to flare up leading to sub clinical endometritis. Many of these animals conceive only after treatment for infection. (3) Delayed ovulation or anovulation accompanying the syndrome makes the gametes unavailable or unfit for fertilization / survival. (4) other unknown reasons

10. What about the line of treatment ?

Once we recognise the condition problematic, treatments can be attempted to tackle the reasons for conception failure mentioned above. However more studies are needed to confirm underlying reasons and mechanisms so as to develop suitable line of treatments. Commonly adopted treatment include 1. Treatment for infection (preferably with luglol's iodine, because of its irritant property) 2. Progesterone supplementation – to initiate the reversal of oestrogenic changes 3. Attempts to provide mating stimulus by artificial means so as to initiate timely luteinisation of follicular cells 4. Timed insemination so as to ensure synchrony between ovulation and insemination.

11. Whether AI during metoestrous bleeding effective?

Even though some veterinarians have reported AI during the bleeding phase as a useful strategy. This may be due to delayed ovulation and/or split heat with intermittent bleeding phase as evidenced in some animals. However, attempts of AI during the phase of muco sanguineous discharge in 6 animals found to have persistence of follicles, did not give any conception.

To conclude post oestrous muco sanguineous discharge prevalent among AI bred animals is different from normal metoestrous bleeding as evidenced by increasing incidence, altered manifestations and associated low conception rate of such animals. It has to be considered as an emerging reproductive problem necessitating suitable interventions so as to achieve adequate conception rate. □