

Prevalence of various reproductive disorders in buffaloes in seleniferous areas of Punjab

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ABSTRACT

Prevalence of various reproductive disorders in buffaloes in seleniferous area of Punjab revealed anestrus to be a major gynaecological problem followed by repeat breeding and abortion.

Key words : Reproductive disorders, selenium, abortion, uterine prolapse

Toxic levels of selenium have been found to have deleterious effects on general and reproductive health of affected animals (Verma, 1995). In Punjab, some areas in districts of Nawanshahr and Hoshiarpur, have toxic levels of selenium in soil (Dhillon and Dhillon, 1991), which reflect upon the selenium content of animal tissues and may lead to multiple disorders like overgrown hooves, loss of hair, abortions and infertility in animals. Hence, the study was undertaken to find the impact of selenium toxicity on the incidence of different reproductive disorders in animals of these areas. The study was carried out in different villages of Nawanshahr and Hoshiarpur districts of Punjab, known to have toxic levels of selenium in soil and underground water (Dhillon and Dhillon, 1991). Data was collected on 289 buffaloes to record the type of prevalent reproductive disorder based on clinico- gynaecological examination.

Total incidence of different reproductive disorders viz. Anestrus, repeat breeding, abortion, prolapse of genitalia, pyometra and retention of placenta in seleniferous areas was 64.01 percent, which was higher than the earlier reports of Sharma *et al.* (1984) in buffaloes of other non-seleniferous areas. Direct or indirect interaction of selenium with other minerals can induce imbalances, thus causing severe derangements in body metabolism (Hidioglou *et al.* 1990). Relationship between reproductive disorders and trace minerals has been well recognized. Any deficiency or toxicity of one

or more minerals may affect cellular metabolism thereby affecting the reproduction.

Anestrus was the major reproductive problem in the present investigation with an incidence of 30.10 percent, which was higher than the values reported from the non-seleniferous areas of Punjab. Out of total anestrus cases, smooth ovaries, persistent corpus luteum and ovarian cysts accounted for 75.86, 20.68 and 03.46 percent, respectively.

The other major reproductive disorder encountered was repeat breeding in 12.11 percent buffaloes. Minerals have been found to have an important ovulation regulatory activity, hence, selenium toxicity leading to mineral imbalance may be a cause of conception failure in these areas.

The incidence of abortion in the present study was higher (9.34 %) than that reported by Dhami *et al.* (1993). Out of total abortion cases, 74.07 percent were found in early gestation (3-5 months) which may be due to sub-acute to chronic selenosis in affected animals.

Among cases with prolapse of genitalia (5.53%), 68.75 and 31.25 percent were at pre-partum and post-partum stage, respectively. Mineral imbalances have been supposed to play an important role in the occurrence of genital prolapse. Selenium deficiency has been reported to cause prolapse of genitalia (Dimanov and Dimitrov, 1988). Higher levels of selenium in the affected areas might be responsible for low incidence of prolapse, which needs further evaluation. Heredity,

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varying systems of management, urinary tract infections, increased intra-abdominal pressure, heavy fetus and breed differences could be other influencing factors (Arthur *et al.* 1989; Prabhakar *et al.* 1999).

Incidence of pyometra recorded (4.11 %) was higher than that reported by Singh (1991). The differences may be due to variations in immune status depending on availability of immuno-potentiating minerals like Cu, Zn, Fe and Se as evident from the low plasma values of Cu and Fe from the selenium toxic areas (Verma, 1995).

Incidence of retention of placenta (2.76%) in selenotic regions was lower than the non-selenotic areas (Agarwal *et al.*, 1984). Animals deficient in selenium have decreased glutathione peroxidase activity with increased oxidative degradation that may precipitate into placenta retention (Julien *et al.*, 1976) which was reduced by exogenous supplementation of selenium. Thus, proper therapeutic measures should be evaluated to restore the optimum reproductive functions in the selenotic buffaloes.

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