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SHORT COMMUNICATION

Vaginal biopsy, pregnancy detection and induction of farrowing in crossbred sows

T.R. NEAUPANE, R.K. PANDIT[1†], S. JOGI[2], O.P. SHRIVASTAVA[3] AND R.G. AGRAWAL[4]

Department of Obstetrics and Gynaecology,
College of Veterinary Science and Animal Husbandry
Jabalpur , Madhya Pradesh 482001.

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ABSTRACT

Thirty six 3/4 Large White Yorkshire X ¼ Indigenous sows were used to delineate (1) vaginal cellular picture during different phases of reproduction and (2) effect of induction of farrowing. In first part, 18 sows according to reproductive status were placed equal number in 1. Pregnant, 2. Nonpregnant and 3. Estrus groups. There was thin vaginal epithelial layer during 28 - 31 days of pregnancy. During diestrum i.e. 14 days after end of estrum the vaginal epithelial lining was also thin but comparatively more than during pregnancy. The vaginal epithelial cells during estrum depicted greatly thickened epithelium with clear interpapillary pegs. The pregnancy diagnosis through vaginal biopsy between 28 to 31 days of service was 100% accurate. In second part, 18 pregnant animals were randomly placed in equal number to Group 4 (2 ml 0.392 mg tiaprost trometamol, 20 - 30 hours before farrowing intramuscularly), 5 (half dose of the drug than in former group intravulvosubmucosally) and 6 (control). The duration of onset of farrowing was significantly earlier ($P < 0.01$) in Group 4 (23.41 ± 1.11 h) than Group 5 (43.14 ± 1.62 h). Time taken for completion of farrowing/ occurrence of stillbirths (3.58 ± 0.67 h vs 3.5 ± 0.32 h/0.33 ± 0.21 vs 0.50 ± 0.22) did not differ significantly between both the groups. However, the number of stillbirths were significantly more ($P < 0.01$) in the control group (2.17±0.30).

Key words: Pregnancy diagnosis, Farrowing induction, Vaginal biopsy, Sows

Vaginal biopsy has been tried for pregnancy diagnosis in sows after 31 days of gestation with 94% accuracy (Roberts, 1986). Control of farrowing time offers better supervision and helps in reducing piglet mortality as odd hours farrowings are avoided. Several workers have tried to prepone the farrowing by injecting PGF2α few hours before farrowing. Farrowing may be induced by injecting synthetic prostaglandin intramuscularly (Kurariya, 1997). However, the drug is expensive when used intramuscularly. In sows induction of farrowing by injecting PGF2α through intravulvosubmucosal route has been found to be safe and effective (Too and Vel, 1994). Present paper reports (1) vaginal cellular picture during pregnancy, estrus and nonpregnancy, and (2) PGF2α administration through intramuscular and intravulvosubmucosal routes to induce farrowing in ¾ Large White Yorkshire X ¼ Indigenous pigs.

Thirty six ¾ Large White Yorkshire X ¼ Indigenous sows at the All India Co-ordinated Research Project on Pigs, Jabalpur, were used for the study. In first part 18 sows according to their reproductive status were placed in equal number to 1. Pregnant, 2. Nonpregnant and 3. Estrus groups. Vaginal mucosa was collected from sows of all the three groups from anterior region using a vaginal biopsy punch. The tissue was preserved, processed and stained with haemotoxylin and eosin for histological studies (Herman, 1966). The number of rows of the cells and their thickness were studied microscopically under 100 X magnification (Roberts, 1986). Another set of trial also included 18 pregnant sows of same breed in three groups. Group 4 animals were injected 2 ml, 0.392 mg tiaprost trometamol (Iliren, Hoechst, Mumbai), intramuscularly, 20 to 30 hours before the expected farrowing. The expected date of farrowing was assessed by adding 110 days to the last date of service. Group 5 animals were injected with half the dose of the drug than the former group through

[1]Prof. and Head, [2,3]Associate Professor, [4]Professor

[†]Corresponding author

intravulvosubmucosal route at the same stage of gestation. Group 6 animals were maintained as control. Results were statistically analysed (Snedecor and Cochran, 1968).

The vaginal epithelial layers were thin with hardly 4 rows of cells at 28 to 31 days of pregnancy. The epithelium during estrus was greatly thickened with interpapillary pegs. The epithelial cell layers at diestrus were more as compared to estrus. The vaginal biopsy from 31 to 90 days of gestation have proved accurate in pregnancy diagnosis (Walker, 1967). The results of present study are in agreement to Vilalobos and Doporto (1974), Takahashi and Hirao (1977) and Hayashi and Niwa (1981). Vaginal biopsy technique may be utilised for detecting estrus and diagnosing pregnancy in sows.

The duration of onset of farrowings was significantly earlier ($P<0.01$) in sows where PGF2α was administered intramuscularly (23.41± 1.11 h) as compared to intravulvosubmucosal route (43.14±1.62 h). Results are in agreement with Too and Vel (1994), Holyoake *et al.* (1995) and Kurariya (1997). In both the groups time taken for completion of farrowing/occurrence of stillbirths (3.58±0.67 h vs 3.5 ± 0.32 h / 0.33±0.21 vs 0.50±0.22) did not differ significantly. However, the stillbirths were significantly higher ($P< 0.01$) in the control (2.17 ± 0.30) group of sows. Induction of farrowing with PGF2α reduced incidence of stillbirths and increased the weaning weight (Seiciu *et al.*, 1983, Sofronov and Stankevich, 1985 and Kalashnik and Grutseva, 1988).

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