ABSTRACT

Optimum cattle reproduction is a pre-requisite for a successful dairy enterprise. Urovagina is the pooling of urine in the cranial portion of vagina, which leads to infertility in the affected cattle and therefore economic loss. Studies on urovagina in Indian cattle were completely lacking and therefore undertaken in the Jersey upgraded cows.

In the first part, 31 cows were examined at monthly interval from third month of gestation till second month postpartum for presence of urovagina and change in angles of pelvic girdle, vagina and vulva. There was no evidence of urovagina and no significant difference in the angles of pelvic girdle and vagina at different pregnant and postpartum stages. However, the vulvar angles of 21.6 ± 1.2 and 20.2 ± 0.8 at fourth and seventh month of pregnancy, respectively, were higher (P<0.05) than 17.3 ± 0.7 at first month after calving. This difference of approximately three degrees was inferred to be too small for any practical significance. The correlation matrix revealed a significant and individual association among pelvic girdle, vagina and vulva.

In the second part, 30 normal and 15 urovagina cows were examined for vaginoscopy (to detect the presence and severity of urovagina), nature of vaginal contents, function of constrictor vestibuli muscle, past and current reproductive status, age, parity, body condition score, angles (pelvic girdle, vagina and vulva), vaginal and uterine biopsies and blood serum calcium. Except for the angles that were determined both at Day 0 (estrus) and Day 14 (two weeks after end of estrus), all other investigations were carried out at Day 0. Vaginoscopy confirmed the presence of urovagina in the affected cows and moderate urovagina (n = 8) was most common followed by severe (n = 6) and mild urovagina (n = 1). The contents in vaginal fornix of the affected cows confirmed the presence of urine mixed genital secretions characterised by yellow colour, watery spinbarkeit, 107.6 ± 10.5 ml volume, uremic odour and an average pH of 8.8 ± 0.01 compared to normal cows having a clear, copious and stringy
genital discharge with 17.2 ± 0.3 ml volume and an average pH of 7.01 ± 0.01. The later two were significantly different from the normal cows. The other significant differences (P<0.05 atleast) between the urovagina and the normal cows included (i) longer estrous duration (2.8 ± 0.3d versus 1.1 ± 0.05 d) (ii) higher parity (3.8 ± 0.5 versus 2.4 ± 0.3) (iii) more cranioventral angles of pelvis at Day 0 (0.3 ± 5.4 versus 15.7 ± 0.5) and Day 14 (-15.8 ± 2.8 versus 14.0 ± 1.3), respectively. The other revelations in the urovagina cows were histopathological confirmation of vaginal smooth muscle degeneration around external urethral orifice and endometritis. Surgical correction by creating vestibulovaginal cerclage was attempted 12d after estrus in five urovagina cows. There was complete absence of urine pooling in three of the treated cows indicating a 60% efficacy of the surgical treatment.

In conclusion, prolonged estrous duration in multiparous cows having a cranioventral pelvic girdle and degenerating vaginal smooth muscles around external urethral orifice increase the likelihood of urovagina. Vestibulovaginal cerclage will be efficient to resolve urovagina in cows.