Urovagina in Chronic Repeat Breeder Cows

Pankaj Sood and Subramanyam Vatsayan

Department of Veterinary Gynaecology and Obstetrics, DGCN COVAS, Palampur. 176 062 (H.P), India

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Abstract
The study presents diagnostic indications and surgical correction of urovagina (n=6) in chronic repeat breeders Jersey crossbred cows. Surgical correction, aimed to constrict vestibulo-vaginal junction to prevent retrograde flow of urine into vagina, resolved urovagina in 4 out of the 6 cows with one cow recovering from severe urovagina and getting pregnant.

Key words: Diagnosis, Surgical Correction, Urovagina

Urovagina was a potential reason of repeat breeding in which external urethral orifice was abnormally raised in relation to the cranial vagina, causing the urine to gravitate and pool in vaginal fornix or even entering into uterus (Prado et al., 2007) after micturition in cows. There is paucity of a systematic study on urovagina in India. The intent of present document is to create awareness amongst veterinary reproduction fraternity on diagnosis and treatment of urovagina in cows.

Materials and Methods
Using illumination assisted vaginoscopy, 6 repeat breeder – urovagina and 7 normal cows, both being cyclic, were investigated. Urovagina was classified as mild (contents on the vaginal floor below the level of external-os), moderate (contents covering half of the external-os) or severe (at least half to entire external-os dipped). Thereafter, the vaginal contents collected in a clean, wide pan were characterized for (i) color (clear or yellowish), spinnbarkait (stringy or watery), (ii) odour (presence/absence of urine like odour), (iii) volume and (iv) pH (<7 or >7). A surgical correction, 12 days after estrus, using the method of Gonzalez-Martin et al. (2008) with slight modifications, was performed under posterior epidural anesthesia urovagina cows two’clock positions.

Results and Discussion
Urovagina had a prevalence of 1.5 to 11.3% in exotic cows (Farhoodi et al., 2000; Gautum and Nakao, 2009). In present study, urovagina severity was either moderate (n=5; 83.3%) or severe (n=1; 16.7%). The prevalence of mild, moderate and severe urovagina was 42.4% 41.3% and 16.3% cows, respectively (Gautum and Nakao, loc. cit.).

The vaginal contents in the urovagina versus normal cows were - yellow versus clear in appearance, uremic versus no odour, watery versus viscous and stringy spinnbarkait, higher volume of 110.6 ± 10.7 ml versus 17.2 ± 0.3 ml, and higher pH of 8.4 ± 0.0 versus 7.0 ± 0.0. The urovagina contents ranged from 30-247 ml. All the urovagina cows were repeat breeders for 3 to 14 months. Urovagina incites varying degree of ascending vaginitis, cervicitis and endometritis (Gilbert et al., 1989). The urine even enters uterus to cause endometritis in moderate and severe cases. Moreover, the genital pH >7.4 becomes hostile for sperm and embryonic survival leading to infertility (Wolfe and Baird, 1993; Youngquist, 1997). Hence, repeat breeding in cows associated with abnormally higher volume of yellowish, watery and breaking secretions dropping instantly from vagina during transrectal genital examination at estrus indicates urovagina.

Persistent and severe forms of urovagina need surgery for vestibulo-vaginal cerclage (Gonzalez-Martin et al., loc. cit.) to prevent a retrograde flow of urine. The cows treated in present study did not manifest signs of discomfort during...
Urovagina in Chronic Repeat Breeder Cows

surgery. There was no need for hemostatic procedures and only one cow exhibiting signs of vaginitis on the second day after surgery required broad spectrum antibiotic (Dicrysticin-DS; i.m; 5 gm; Procaine Penicillin G IP : 30,00,000 IU Penicillin G Sodium IP : 10,00,000 IU Streptomycin) and analgesic (Melonex; i.m; 15 ml; Meloxicam 0.5% w/v) for seven days. A normal defecation and urination, maintenance of one finger constriction and absence of urine in genital discharge at the subsequent estrus indicated the surgical success and was recorded in four out of six cows (success rate of 66.6%). An extensively dilated vestibulovaginal junction and its constriction after surgery are presented in Fig. 1. The results of surgical success in present study were lower than 89.5% (17/19) recorded by Gonzalez-Martin et al. (loc.cit).

In present study, the surgical process was labour intensive and required 30 to 35 min compared to much less time of 15 min taken by Gonzalez-Martin et al. (loc.cit). Longer time in our study is attributed to less accessible space for surgery in the Jersey crossbreds than the much larger exotic cows. However, a slight modification in the technique tremendously reduced the operative time. The modification comprised of dilation of the surgical site immediately before surgery by per-vaginally inserting a lubricated hand using sterile jelly and making few back and forth movements. This process enabled to complete the suturing in 7 and 9 min, respectively, which is considerable less even than the method of Gonzalez-Martin et al. (loc.cit).

The polydioxanone suture is a long acting suture and provides a wound support of 60-90 days before being absorbed. This gives enough time for recovery and conception from AI. However, care is to be taken to avoid natural service till complete suture resorption. One of the treated cow having three month old history of severe urovagina became pregnant to the first service after surgery, whereas the remaining cows with much longer persistence of urovagina did not conceive till the time of recording this document. Uterine periglandular fibrosis and sterility have been reported in long standing cases of urovagina (Gilbert et al., loc.cit.).

Summary
In conclusion, abnormally higher volume of genital discharge from vulva at estrus coupled with repeat breeding should be ruled out for presence of urovagina. Surgical intervention comprising of vestibulovagal cerclage is promising to resolve urovagina and achieving pregnancy in cattle. An early surgical intervention is desired to prevent sterility.

References
**Effect of Feed Supplementation of Mercury Nanoparticles on Immunostimulation of Live Lentogenic Newcastle Disease Vaccine in Layer Birds**

**S.K. Prakash**

Consultant Veterinarian, Ganesh Poultry Farm, Valavanthi, Namakkal – 630714.

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### Abstract

A feed supplementation of solid state nanoparticles of mercury prepared using sulphur and methionine at a dose level of 50 mg in 100 g of daily grower feed costing at the rate of Rs 0.10 per day per bird significantly enhances the HI titre for Lasota vaccination from 54.4 to 486.4 for the trial.

**Key words:** Nanoparticles, HI titre, Lasota, immunostimulant.

Solid state nanotechnology has more success stories than fluid nanotechnology. Mercury nanoparticles synthesised in the form of solid state powder and tried as feed supplement in grower feed for stimulation of immunity by humoral HI antibodies of Lasota vaccine was taken up as a study in commercial layer farm. Many traditional, Chinese, Ayurvedic and Siddha preparations are commonly available in market involving mercury like Rasagandhi Melugu, Gowri Chintamani, Rasa Chenduram, Vishnu Chakkaram Veerasana Boopathy etc are routinely used for cancer, haemorrhoids, high fever, diabetes, tuberculosis, viral infections, skin diseases etc (Ramachandran, 1992 and Sridharan, 1994). In commercial layer management, there is an uniform vaccination schedule up to 8 weeks but not after 8 weeks and the Lasota vaccination at 2-3 months frequency in most of the farms without monitoring the immune status leads to waste of money, susceptible for NDV infection as the live vaccine may neutralise the circulating antibodies. Immunostimulation through feed supplementation will be the safe and easy substitution for layer disease management especially after 8 weeks. Hence the present study.

### Materials and Methods

Solid state mercury nanoparticle preparation was made as per Yizhao Li _et al._, (2014) with the modification like the mercury was subjected for various physicochemical and phytochemical processes with various plants extracts to bring some changes in its valency and electronic configurations and engineered with amino acid DL-Methionine with the help of processed sulphur in order to bind mercury and DL-Methionine to form coordinated complexes by employ-