

# COMPARATIVE STUDY OF CANINE EXFOLIATIVE VAGINAL CYTOLOGY WITH DIFFERENT STAINS

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[Received: 02.8.2018; Accepted: 16.4.2019]

Vaginal smears were collected from 10 different breeds of bitches during different phases of estrous cycles. Out of 10 vaginal smears 4 smears showed erythrocytes, intermediate cells. 6 bitches showed high number of cornified epithelial cells. The cytoplasm of intermediate cells stained as light pink colour, light red and violate colour as with Field, Leishman, Giemsa stain respectively. While nucleus stained pink to reddish in Field and Leishman, blue to purple in Giemsa stain. The cornified epithelial cells stained pink to red colour, dark pinkish colour and violate colour without nucleus with Field, Leishman, Giemsa stains. The different cell types were compared for their morphological features and clarity of cellular detail under all three stains. So, the study concluded the Giemsa staining method is superior over the Field and Leishman stains.

**Keywords:** Bitches, Field stain, Giemsa stain, Leishman stain, Vaginal cytology.

The most economical, simple diagnostic method for determining stages of canine estrous cycle and to predict the ovulation time is the vaginal cytology. Various stains and staining methods are available for determining the canine exfoliative vaginal cytology (Schutte, 1967). But, there are few techniques which gives good cellular differentiation and nuclear details (Srinivasan *et al.*, 2017). These techniques are more useful in clinical conditions (Antonov, 2017). The present study conducted to compare the three different widely used staining methods such as Giemsa, Leishman and Field stains to differentiate the different cells in various stages of canine estrus cycle. The main purpose of conducting this study is to determine the better staining method for better diagnosis and to obtain accurate results.

Vaginal smears were collected from

10 different breeds of bitches with the history of reddish brown discharges by inserting a moistened cotton swab with saline was passed into vagina and rotated the swab along with the cranial vaginal wall to collect the cells. The swab was removed and rotated on a glass slide for making smear. All the slides collected from 10 bitches i.e. three slides from each dog and stained these slides with three different stains of Giemsa, Field stain and Leishman stain after methanol fixation as per the standard staining procedure and observed under microscope for particular cells identification.

In proestrous, intermediate cells stained light pink colour cytoplasm in Field stain and light red in Leishman stain. However the nucleus was stained with dark pink to red colour in both stains. Whereas Giemsa stain showed lightly stained violate coloured cytoplasm with dark blue to purple nucleus.

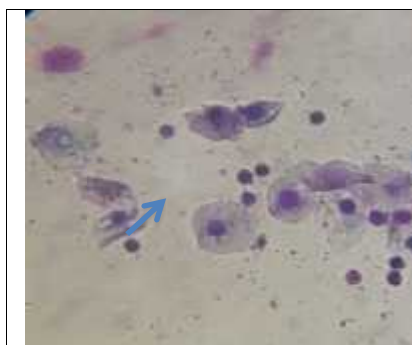


Fig.1.Para basal cells -Field stain (40X)



Fig.2.cornified cells -Field stain (100X)



Fig.3.LargeIntermediateCells-Giemsa stain(100x)

In estrous cornified epithelial cells stained light pink to red colour cytoplasm in Field stain and dark pinkish cytoplasm in Leishman stain. Whereas Giemsa showed violate colour cytoplasm without nucleus. The time required for Field stain is 2-3min, for Leishman 12-15min and for Giemsa about 30 min.

The study showed that Giemsa staining method is superior over the Field & Leishman staining method. In Field and Leishman stains, cells takes pale colours, it confuse to differentiate the cells sometimes in different stages of estrus cycle. In Giemsa stain, the cells stains dark colour with visible clear nucleus and cytoplasm. The main advantage of Giemsa is clear differentiation of nucleus and cytoplasm in different stages of estrous cycle. Hence it is concluded that Giemsa staining method enhances the accuracy in

determining various stages of canine estrous cycle.

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