Effect of artificial insemination site on post-mating endometritis in the mare

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Introduction

Insemination in the mare induces a physiological inflammation in the uterus that normally resolves within 24 to 36 h. In susceptible mares, post-insemination endometritis (PIE) persists and can cause embryonic loss. Low volume and tip of the horn insemination are thought to increase[1] or not[2] gestational prognosis.

The aims of this study were to:

- **compare cotton swabs and brush swabs in terms of ease of use and diagnosis accuracy;**
- **determine effect of volume and localization of insemination on PIE.**

Material and methods

Animals: 6 Welsh poney mares from 12 to 23 years of age

Experimental design:

Cycle stage was assessed by rectal palpation and ultrasonography.

Endometrial intraluminal liquid thickness visualized at US was recorded

Sets of wab samples were obtained in three consecutive cycles:

- 7 days after an observed ovulation;
- Oestrus (follicle > 35mm of diameter);
- 24h after insemination with frozen semen;
- 6 days after ovulation;

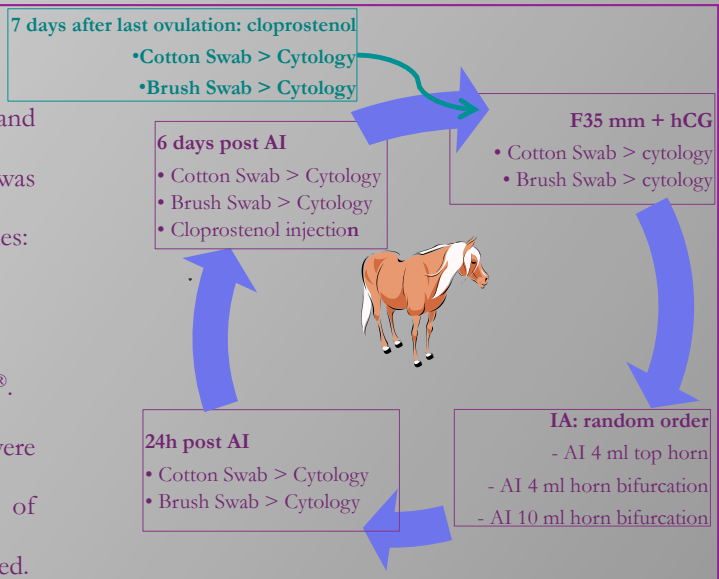
Swabs were smeared on a slide and stained with Diff-Quick®.

Statistical methods:

•Recovery of samples and quality of slides lecture were compared with Fischer's exact test.

•Proportion of granulocytes was calculated as No of granulocytes / Total No of cells.

•Kruskal-Wallis test was used to compare parameters obtained.



Results

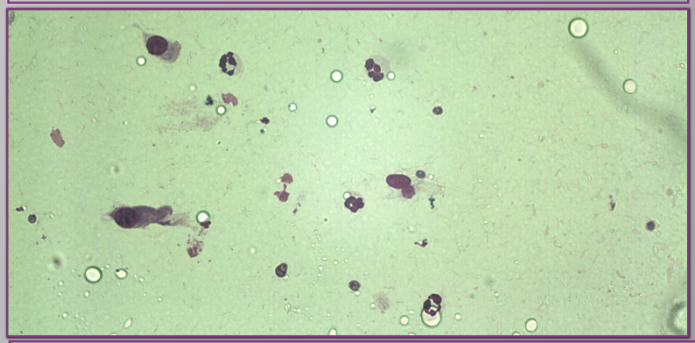
•**Quality of slides** is better (p=0.0006) with CytoBrush Swabs:

Cytobrush Swabs > Cotton Swabs (97% vs 65% of slides readable)

•Higher proportion of endometrial cells (p=0.0323) & round leukocytes (p=0.0059) with Cyrobrush Swabs (vs Cotton Swabs)

•**No effect of AI localization and volume** on:

- •Endometrial **intraluminal liquid** thickness visualized at US at day 1 & 6 post AI;
- •**Percent of granulocytes** observed on slides obtained by Cytobrush and Cotton Swabs performed at day 1 & 6



Discussion

•Cytobrush Swabs provides better slides quality than Cotton Swabs. This technique is a more reliable diagnostic tool, as previously proposed[3].

•Cytobrush Swabs slides have higher proportions of endometrial & round cells. This type of sampling is more adequate to collect mucosal cells and clinical information maybe more relevant, as previously described[3].

•Volume and localization of AI had no effect on endometritis signs (intraluminal liquid and granulocytes proportion on swabs). These data show that AI technique and volume don't seem to interfere with PIE risks, as previously suggested[4].

Conclusions

Cyto Brush Swabs seem to be a more reliable and accurate tool than Cotton Swabs for PIE diagnosis.

In controlled and repeated conditions, volume and localization of AI doesn't interfere with PIE onset in mares.

•References:

[1]Sieme et al: Effects of different artificial insemination techniques and sperm doses on fertility of normal mares and mares with abnormal reproductive history. Theriogenology 2004.

[2]Squires et al: Effect of time of insemination and site of insemination on pregnancy rate with frozen semen. Theriogenology, 2002.

[3]Daspet et al: Cytological diagnosis of endometritis in the mare: a comparative study. Reproduction in Domestic animals, 2010

[4]Güvence et al: Effect of insemination dose and site on uterine inflammatory response of mare. Theriogenology, 2005