

## **ENDOSCOPICAL MONITORING OF THE MARE'S REPRODUCTIVE TRACT FOR ESTRUS AND OVULATION DETECTION**

**Ruxandra COȘTEA, Manuela PASCAL, Dorin ȚOGOE, Alexandru  
Bogdan VIȚĂLARU, Andrei Tănase, Alin Ion BÎRȚOIU**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd,  
District 1, 011464, Bucharest, Romania, Phone: +4021.318.25.64, Fax: + 4021.318.25.67,  
costea.ruxandra@yahoo.com, manuelastanescu@hotmail.com, dtogoe@yahoo.com,  
alexandrumv@yahoo.com, tanaseandrei@fmvb.ro, birtoiu\_vet@yahoo.com

Corresponding author email: costea.ruxandra@yahoo.com

### **Abstract**

*Detecting the right moment of estrus in which ovulation occurs is extremely important for mare's biotechnology reproductive management and especially for mare breeding soundness evaluation. Endoscopic examination of mare's reproductive tractus makes possible the visualization of the vagina, the external cervical ostium, the lumen of the uterine body and the horns up to the uterotubal junctions, in order to obtain a large amount of information related with mares reproductive status. The endoscopic reproductive examination was performed at the Faculty of Veterinary Medicine Bucharest, for 15 mares from different races, examined for a research study concerning the best ways to monitor the ovulation. The examination was performed with a Olympus GIF K2, a flexible endoscope.*

**Keywords:** mare, reproduction, endoscopy, estrus, ovulation.

### **INTRODUCTION**

The main objective of this paper is to present the changes occurring in the genital tract during the course of estrus and ovulation, in terms of direct observations obtained using endoscopic examination of mares. Various endoscopic aspects from cervical level and uterine cavity were compared with the reproductive phase of the mares from this study in order to establish a possible protocol for detection of the best moment for insemination, respectively of ovulation and for mare breeding soundness evaluation.

### **MATERIALS AND METHODS**

The endoscopic reproductive examination was performed at the Faculty of Veterinary Medicine Bucharest, for 15 mares from different races. The examination was performed with a Olympus GIF K2, flexible endoscope, 130 cm length, 13 mm diameter

and a 150 W light source. After contention and local preparation, air was infused in the uterine cavity for a good distention of the uterine walls. Every mare was examined during one estrus cycle.

### **RESULTS AND DISCUSSIONS**

A number of 15 Romanian Sport Horse mares and mix breed were examined. The cervix of oestrus mares appeared by endoscopy relaxed, soft with cervical ostium opened, associated with the time preceding ovulation during estrus (Figure 1.) In the luteal phase by endoscopy the appearance was of a closed cervical ostium associated with post ovulation period, subsequent to the formation of the corpus luteum and the secretion of progesterone (Figure 2.)

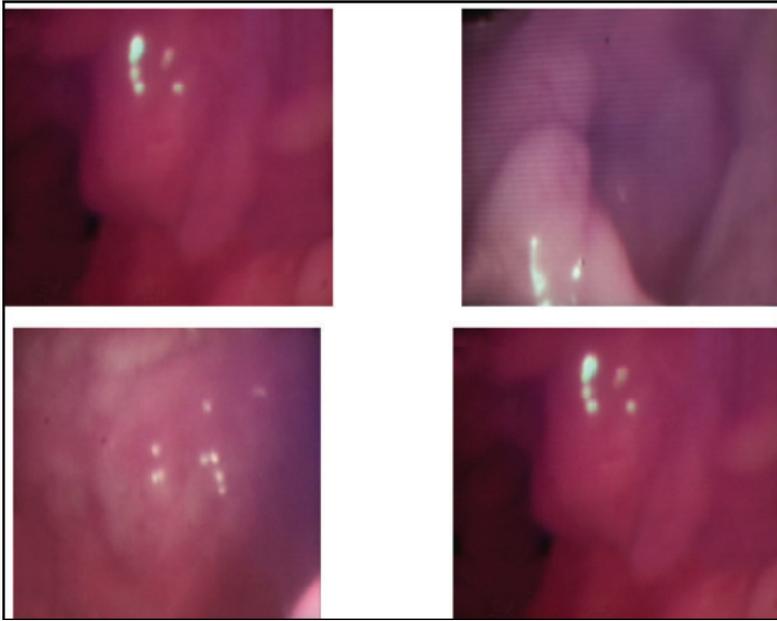


Figure 1. Endoscopic view-relaxed cervix, mare during estrus

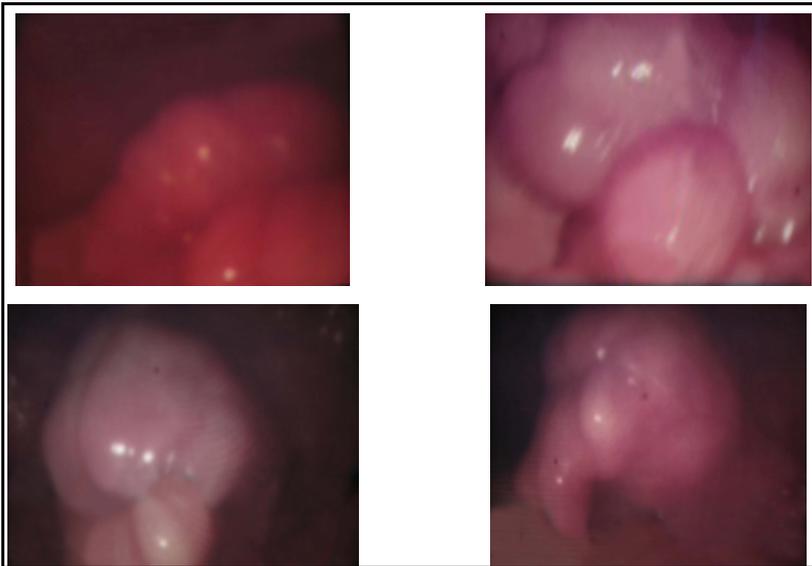


Figure 2. Endoscopic view-firm cervix, mare during diestrus

Uterine folds of the mares in oestrus phase showed a endoscopic edematous appearance, associated with the time preceding ovulation

(Figure 3.) and an erased appearance associated with the luteal phase (Figure 4).

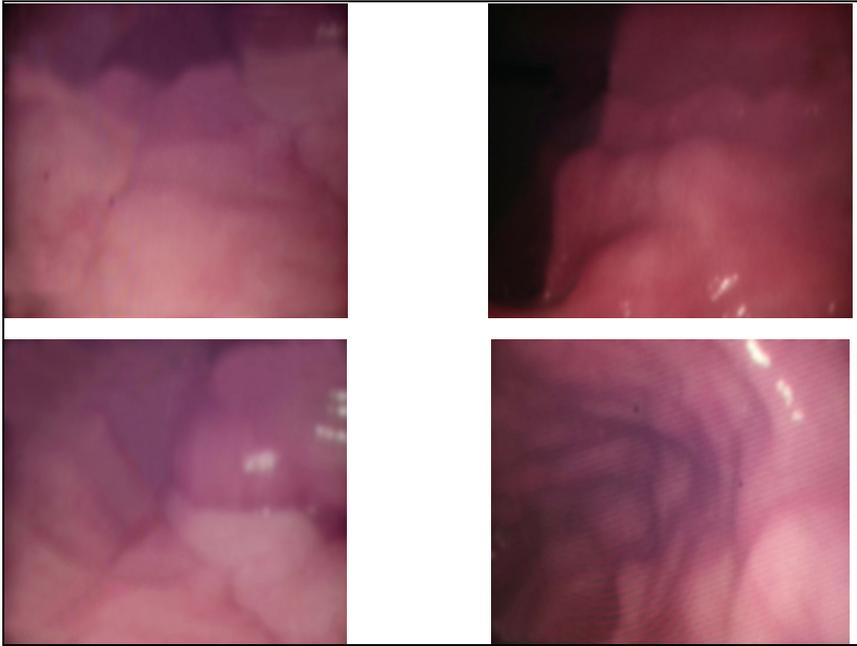


Figure 3. Uterine view-edema of the uterine folds, mare during estrus

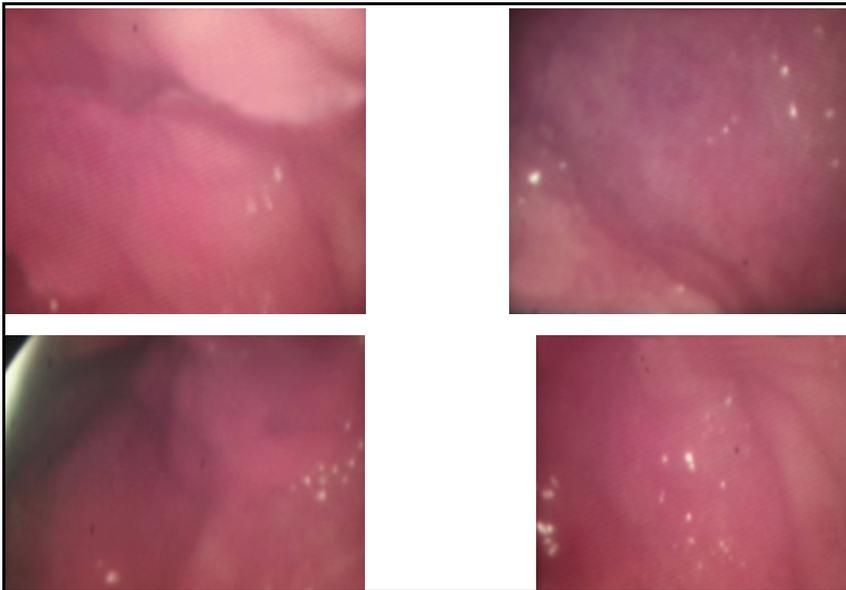


Figure 4. Uterine endoscopic view-erased uterine folds, mare during diestrus

We established a direct correlation between endoscopic appearance of the cervix and endometrial folds and different times of the estrous cycle so that it can be considered that endoscopy, as a screening method is particularly useful in the management of

equine reproductive biotechnologies. At the uterine bifurcation level and the oviductal papilla site we could not establish a clear correlation of the endoscopical aspects obtained and the status of the mares examined.

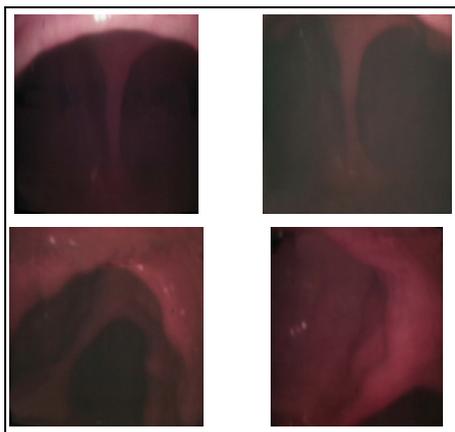


Figure 5. Endoscopic view of the uterine bifurcation

## CONCLUSIONS

Detecting the right moment of mare's estrus in witch ovulation occurs it is extremely important

A direct correlation between endoscopic appearance of the cervix and endometrial folds and different times of the estrous cycle was established.

It can be considered that endoscopy can be a screening method useful in the management of equine reproductive biotechnologies and this observations can have a applicability to other species in order to maintain biodiversity.

## AKNOWLEDGEMENTS:

This research work was carried out with the support of Postdoctoral Studies School for Biodiversity and Food Biotechnologies, POSDRU ID 63258,

## REFERENCES

- Ball, B.A., 2006. Hysteroscopic and low-dose insemination techniques in the mare. *Ippologia*, **17**(3): p. 25-30.
- Bîrțoiu Ion Alin, Badea Ruxandra- Particularități ale reproducției la iapă, Ed.Printech, București, 2008, ISBN 978-973-718-965-3 p. 38-58.
- Card, C.E., Eaton, S.E.,Ghasemi, F. 2010. How to perform a hysteroscopically assisted endometrial biopsy and foreign body retrieval in mares. *Proceedings AAEP* 2010. 66:328-330.Baltimore, MD.
- Ferrer, M.S., Lyle, S. K., Eilts, B. E., Godke, R. A., Paccamonti, D. L.Post, 2005. Mating endometritis after low dose hysteroscopic insemination in the mare. *Theriogenology*, **64**(3): p. 784-784.
- Janicek, J.C., D.H. Rodgerston, and B.L. Boone, 2004. Use of a hand-assisted laparoscopic technique for removal of a uterine leiomyoma in a standing mare. *Journal of the American Veterinary Medical Association*, **225**(6): p. 911-914.
- Menzies-Gow N., 2007. Diagnostic endoscopy of the urinary tract of the horse. In *Practice*, **29**(4): p. 208-213.