

## Second step for non-surgical embryo transfer in sheep: Cervical transposing in diestrus nulliparous and pluriparous ewes

*Segundo passo para a transferência não cirúrgica de embriões em ovelhas: Transposição cervical em ovelhas nulíparas e plúriparas em diestro*

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Transcervical transposition in sheep cannot be achieved without any cervical relaxation drug (Gusmão et al., 2007, *RevBrasSaúdeProdAn*, 8:1-10). The first step testing the viability of cervical relaxation protocol for transcervical embryo transfer in sheep is to check the effect of these drugs on pregnancy. Although combination of estradiol benzoate and oxytocin did not compromise pregnancy establishment, no attempts of cervical transposition was reported in sheep (Lewis, 2010. *SheepGoatResJ*, 25:21-25). In Brazilian conditions, preliminary study showed that association of hCG with E2-OT association given at expected times for embryo transfer appeared not disturbing pregnancy (Arrais et al., 2018. *AnimRep*, 15:338), but cervical transposition was not tested. Thus, we tested if E2-OT combination can allow efficient relax cervix, the second step before testing transcervical embryo transfer both in pluriparous and for the first time in nulliparous sheep. For this, nulliparous (n = 13) and pluriparous (n = 16) Morada Nova females (mean age = 23.8±1.8 and 48.3± 3.3 months; mean weight = 38.3±1.8 and 40.7± 1.0 and mean body condition score = 3.3±0.1 and 3.3± 0.1, respectively) were subjected to synchronous estrus induction with insertion of intravaginal sponges containing 60 mg of MAP (Progespon<sup>®</sup>, Zoetis, Campinas, São Paulo, Brazil) for 6 days. Sponges were inserted and removed at 7:00 p.m. Twenty-four hours before sponge removal, all sheep received 37.5 µg of d-cloprostenol (Prolise<sup>®</sup>, ARSA SRL, Buenos Aires, Argentina) and 200 IU of eCG (Novormon<sup>®</sup>, Zoetis, São Paulo, Brazil) i.m. Estrus was checked twice a day (every 12 hours) for three days. The ewes received 1 mg of estradiol benzoate (Sincrodio<sup>®</sup>, Ouro Fino, Cravinhos, Brazil) i.m. 16 h and 50 IU oxytocin (Ocitocina Forte<sup>®</sup>, UBCVet, São Paulo, Brazil) i.v. 20 min before the procedure (7 days after estrus onset). The attempt of cervical transposition was performed with the aid of a metal rod for the maximum time of 10 minutes. Qualitative data were analyzed by Fisher's exact test while quantitative data evaluated by one-way ANOVA at 5% significance. The cervical transposition was performed successfully in 82.75% of the females (24/29), being nulliparous 69.23% (9/13) and pluriparous 93.75% (15/16) (P>0.05). The transposition time was 5.9±0.7 and 4.5±0.6 min, and the number of rings of 6.8±0.2 and 7.7±0.4 in lambs and sheep, respectively (P>0.05). These preliminary results show that it is possible to perform cervical relaxation and transposition in nulliparous and pluriparous sheep using estradiol benzoate and oxytocin. Considering the great success observed in the present study, we are ready to do next step – try to test another experimental design including no drug as in goat and finally apply an attempt to transfer embryos to sheep by non-surgical method.

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**Keywords:** recipients; small ruminants, non-surgical inoovulation.

**Palavra-chave:** receptoras, pequenos ruminantes, inoovulação não-cirúrgica.