



Ultrasound diagnosis and macroscopic *post-mortem* evaluation of hydrosalpinx in dairy goats: a case report

A.L.R.S. Maia¹, F.Z. Brandão¹, G.C. Bonato³, L.R. Côrtes¹, M.F.A. Balaro¹, J.M.G. Souza-Fabjan³, O. Facó²,
J. F. Fonseca²

¹Fluminense Federal University, Faculty of Veterinary Medicine, Niterói, RJ, Brazil; ²Embrapa Goats and Sheep, Animal Reproduction, Coronel Pacheco, MG, Brazil; ³Unigranrio, Faculty of Veterinary Medicine, Duque de Caxias, RJ, Brazil

The oviduct plays a key role in the reproduction providing an ideal environment for the oocyte maturation, sperm capacitation, fertilization, and gamete and embryo transport. Hydrosalpinx is a pathology that can occur uni or bilaterally in the oviduct, affecting the reproductive function. In goats, it is considered of low frequency. The present study aims to describe ultrasound (US) images of two cases of hydrosalpinx associated with hydrometra in dairy goats. During the months of March and April of 2015, 20 Saanen goats aging 1 to 7 years, previously diagnosed with hydrometra by transrectal US (Mindray® M5Vet) scanning were monitored during their treatment. To reduce uterine contents, goats received three doses of 37.5 µg d-cloprostenol laterovulvar at 10 days apart (D0, D10 and D20). After the end of treatment, new US assessments were performed and it was noted that two goats of 2 and 3 years, weighting respectively 68.8 and 61.9 kg and body condition score of 4.5 (range 1-5), presented US images containing a large anechoic circumference (> 3 cm) laterally of the uterine horns. The initial image suggested the presence of ovarian cyst. However, due to the size of the observed structure, we opted for laparoscopy in the two females to assess the reproductive system. For the laparoscopic examination, the goats received 0.05 mg/Kg xylazine hydrochloride 2% and 5 mg/kg of ketamine hydrochloride 10% i.v. after water fasting and feeding of 24 hours. In both, there was an evidence of bilateral hydrosalpinx. Due to the reproductive history of infertility and the unfavorable prognosis in relation to reproductive activity, one of the goats was subjected to euthanasia according to ethical principles in animal testing of the Brazilian College of Animal Experimentation (COBEA). On both sides, the oviducts were dilated (about 6 mm at ampulla region) and filled with clear odorless liquid. The macroscopic analysis showed a cystic dilatation of each oviduct in the infundibulum region, with 10 cm (left) and 8 cm (right) in diameter. No malformation or segmental aplasia of the organ was detected. Adhesions were verified in both ovaries. It was concluded that the transrectal US exam associated with reproductive history represents an efficient tool in diagnosing hydrosalpinx in dairy goats.

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E-mail: jeferson.fonseca@embrapa.br



Comparison of different selection techniques on sperm capacitation and plasma membrane integrity of ram frozen-thawed sperm

C.C.S. Olivares¹, J.M.G. Souza-Fabjan¹, V.A.P. Alfradique¹, M.F. Balaro¹, V.J.F. Freitas², J.F. Fonseca³,
F.Z. Brandão¹

¹Department of Animal Reproduction, UFF, Niterói, RJ, Brazil; ²Laboratory of Physiology and Control of Reproduction, UECE/FAVET, Fortaleza, CE, Brazil; ³Embrapa Goats and Sheep, Sobral, CE, Brazil.

The success of *in vitro* fertilization and the development of embryos are directly related to sperm selection and quality. This study aimed to compare the effect of different sperm selection techniques on capacitation status and plasma membrane (PM) integrity of ram frozen-thawed sperm. A pool of frozen-thawed sperm from 10 Santa Inês rams was used. The samples were submitted to one of the following techniques: sperm washing, Percoll gradient, mini-Percoll gradient, Swim-up and a control group. At the end of each selection technique, the PM integrity and capacitation status were assessed. The PM integrity was evaluated using acridine orange-propidium iodide combination by computer-assisted sperm analysis with the SCA[®] system (Sperm Class Analyzer – Microptic Automatic Diagnostic Systems, Barcelona, Spain). Capacitation status was evaluated using chlortetracycline staining and observed under epifluorescence microscopy. Data were analyzed by ANOVA, followed by Tukey test ($P < 0.05$). When analyzing the PM integrity, Swim-up presented greater values ($P < 0.05$) for intact cells ($32.1 \pm 20.3\%$) than all treatments, that were not different ($P > 0.05$) among each other (control group: 16.2 ± 17.4 ; sperm washing: 9.4 ± 10.2 ; Percoll: 18.1 ± 18.0 ; mini-Percoll: $10.5 \pm 10.1\%$). Regarding to capacitation status, there was no difference ($P > 0.05$) for noncapacitated cells among all treatments. The capacitated rate was higher ($P < 0.05$) after control group ($48.3 \pm 10.2\%$) and sperm washing ($47.1 \pm 8.4\%$) than Percoll ($34.3 \pm 12.9\%$), mini-Percoll ($32.1 \pm 10.8\%$) and Swim-up ($30.2 \pm 12.2\%$). On the other hand, Swim-up obtained higher ($P < 0.05$) acrosome reacted cell rates ($60.8 \pm 14.8\%$) than the other treatments. Percoll and mini-Percoll were similar ($P > 0.05$; 55.3 ± 14.8 vs. $53.9 \pm 13.8\%$) and higher ($P < 0.05$) than sperm washing ($40.0 \pm 8.9\%$) and control group ($39.2 \pm 13.5\%$). Swim-up allowed better sperm viability after selection, whilst, Percoll protocols were not different than control group. These data suggest these protocols do not infer damages to sperm cells. Although Swim-up obtained better viability, it recovered more acrosome reacted cells. In conclusion, Percoll protocols seems to be an optimal sperm selection method and can be used at sperm preparation for *in vitro* embryo production in ovine frozen-thawed sperm.

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E-mail: ccs.olivares@gmail.com