



Fig. 1. Normal cervix.



Fig. 2. Stenotic cervix.



Fig. 3. Spiral cervix.

firmed cervical abnormalities in three alpacas in which cervical catheterization or videoendoscopic examination were impossible.

This imaging technique is a quick and reliable for evaluation of cervical and uterine abnormalities (uterus unicornis, transluminal adhesions) which would otherwise be very difficult to visualize. The technique does not require complete catheterization of the cervix, as long as the female is at the peak of follicular development. Studies are in progress to determine the variation in cervical morphology in normal alpaca females Figs. 1–3. **Keywords:** Alpaca; Hysterosalpingography; Fluoroscopy; Cervical abnormalities

Reference

- [1] Baramki TA. Hysterosalpingography. *Fertil Steril* 2005;83:1595–606.

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RETROSPECTIVE CLINICAL AND CYTOGENETIC STUDY ON OVARIAN HYPOPLASIA IN ALPACAS

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Practicing veterinarians are often required to perform maiden female pre-purchase examinations for fertility. We conducted a retrospective study on 37 cases of ovarian hypoplasia diagnosed in alpacas over the last 8 years in our hospital. Health and breeding history was recorded for all females. After physical examination, a complete reproductive tract evaluation was conducted that included: evaluation of external genitalia, transrectal ultrasonographic evaluation of the uterus and ovaries, vaginal examination and endometrial culture and cytology. A presumptive diagnosis of ovarian hypoplasia was reached when ovaries or normal follicular dynamics were not detected after three consecutive examinations conducted 3 days apart. Confirmation of the diagnosis was made by laparoscopy. Cytogenetic evaluation was performed on 18 females.

The main presenting complaint in the cases studied was repeat breeding (91.9%). Only three females presented with a complaint of refusal to accept the male. The mean age at presentation was 1001 ± 356 days for females with a known birth date. Four females were imported and their ages were not available but were estimated to be between 4 and 4.5 years of age. The mean number of matings per female was 6.4 ± 6.3 (range, 0–28). All females were examined by a veterinarian for infertility prior to presentation and received various treatments. Twenty-one (56.8%) of the females had been treated at least once for uterine infection before presentation. Suspicion of ovarian hypoplasia was a differential posed by the practitioner in only two of the cases. One female had abnormal external genitalia (vulvar aplasia and enlarged clitoris) and one female was taller than normal. Absence of follicular development or inability to visualize the ovaries after three examinations in a 10-day period proved accurate in diagnosing the condition. All females had a flaccid uterus and an easily catheterized cervix.

Cytogenetic evaluation was available for 18 of the females. Ten females had a normal (74, XX) karyotype whereas six others had the following abnormalities: XO, $n = 2$; XXX, $n = 2$; XX/XY, $n = 1$; XO/XX, $n = 1$. An additional two females were described as normal XX with a minute chromosome. Typical gonadal dysgenesis (absence of all follicular stages) was found after

histological examination of the ovaries (2 mm × 3 mm in size) from three females.

This study demonstrated that ovarian hypoplasia due to gonadal dysgenesis and cytogenetic abnormalities should be ruled out in maiden females with repeat breeding. Practitioners should develop transrectal ultrasonography skills necessary for the diagnosis of this condition. Failure to diagnose these anomalies may result in secondary uterine infection and compromise of the welfare of the females due to repeat breeding. Aspects of familial inheritance of gonadal dysgenesis in alpacas merit more studies.

Keywords: Alpaca; Sterility; Gonadal dysgenesis; Behavior; Laparoscopy

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COMPARISON OF THE PERFORMANCE OF SOWS RETAINED WITH AND WITHOUT HEALTH PROBLEMS DURING PERIPARTURIENT PERIOD IN THE SUBSEQUENT PARITY

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Sows are usually removed from breeding herds due to poor productivity or compromised welfare. Although, it may be relatively easy to make removal decisions based on performance and to validate the decisions made by evaluating the improvement in herd performance, it may be difficult to evaluate removal decisions associated with welfare reasons due to the lack of well-defined criteria. The periparturient period is a high-risk event for removal for both production and welfare reasons. The objective of the present study was to compare the performance of sows retained with and without health problems (lameness, other disease symptoms, e.g. vulvar discharge, fever, off-feed, diarrhea, respiratory problems) during the periparturient period (while the sows were in the farrowing crate for 3–4 days prior to farrowing and during lactation) in the subsequent parity in order to validate the decisions to remove/retain a sow. Data from a commercial swine breeding herd was used in this study ($N = 1407$). Information on health problems during the periparturient period was collected from sow records and data on the performance of the sows in the subsequent parity (wean-to-service interval, sows farrowed, farrow-to-farrow interval, piglets born alive, mummies, stillborn, preweaning mortality of piglets and sow longevity)

were collected from the PigCHAMP database of the herd. The production performances of the sows that were retained with and without health problems ($n = 555$ and 663 , respectively) during the periparturient period in their subsequent parity were compared using *t*-test and two-sample proportion test (SAS v 9.1, SAS Institute Inc, Cary, NC, USA). The sows retained despite health problems were not included for comparison of performance if they developed any condition other than the one reported during the periparturient period. Those sows retained without any reported health problems were excluded from the comparison if they developed health problems before the subsequent parity. Thus, out of 1407 sows retained, 189 sows were excluded from the comparison. The results indicated that the number of piglets born alive was higher ($P < 0.05$) among the sows without any reported health problems during previous periparturient period. The groups did not differ in terms of wean-to-service interval, farrow-farrow interval, pre-weaning mortality, mummies and stillborn. The number of sows farrowed was also higher ($P < 0.05$) in the group without any health problems. A higher ($P < 0.05$) number of sows were culled from the group with health problems during periparturient period than those without health problems. However, there was no difference between the groups in terms of number of sow deaths. The results were suggestive that a decision to retain sows despite health problems during the periparturient period may adversely affect the herd performance in the long-term.

Keywords: Sow performance; Periparturient risk factors; Sow longevity

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