

Gross Chromosomal Rearrangements Resulting in Infertility

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Many birth defects have been described in camelids. Birth defects involving the reproductive tract in camelids are not uncommon. In females, these birth defects can include genital hypoplasia, vaginal strictures, persistent hymen, segmental uterine aplasia, enlarged clitoris, double cervix, pseudohermaphroditism and hermaphroditism. Ambiguities in the external genitalia have been reported in many different mammals. At the time of conception, the gender of the animal is determined on the basis of its sex chromosomes (XX for a female or XY for a male). The normal number of chromosomes for alpacas is 74. However, abnormalities can occur with the chromosome number. Abnormal chromosome profiles reported in camelids include 73, XO (Turner's syndrome); 74, XX/XY (freemartin); and 74, XX minute (minute chromosome syndrome). Each of these chromosomal abnormalities results in birth defects and/or abnormal development of the female reproductive tract. In addition to the previously mentioned abnormal chromosome profiles, our laboratory has identified a presumptive Robertsonian translocation (73, XY) in an infertile male llama. Research is underway to develop good standards for describing normal chromosome profiles in camelids as well as developing genetic markers for future infertility studies as well as gene mapping projects.