Treatment of clitoral hypertrophy by urethral transposition in an intersex dog
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The normal canine chromosomal make-up is 78, XX for females and 78, XY for males. Chromosomal disturbances can lead to various syndromes and associated complications such as clitoral hypertrophy in females and ambiguous clinical syndromes in males. A seven-month-old spayed female pit bull mix presented with a history of a reddish colored mass protruding from the ventral vulvar commissure. She had experienced vulvar irritation and polyuria for the past several weeks likely due to the vulvar mass. The female was also suffering from occasional urinary incontinence. Further investigation found the bitch was adopted two months prior from a local shelter and it was noted during a routine spay procedure that testicular tissue instead of ovaries was present along with an otherwise complete internal female genital tract.

Upon physical examination, a reddish pink mass was noted protruding from the ventral commissure of an infantile vulvar opening. On palpation, the mass was non-painful and a firm structure, suspected as an os clitoris, extended deep into the vaginal canal. The urethra was closely attached to the mass and the urethral opening was identified near the tip of the structure. Surgical removal of the mass and urethral transposition were elected. After an episiotomy incision, urethral catheterization allowed identification of the underlying clitoral mass that was dissected using electrocautery. Urethral transposition to the underlying vaginal mucosa was performed and its patency confirmed with catheterization. The dissected tissue was approximately six centimeters in length and bony tissue was identified on gross examination. A blood sample was collected in sodium heparin and the plasma was sent to the University of California Davis Veterinary Genetics Laboratory for karyotyping. Results of the karyotyping showed a SRY negative, typical female profile (78, XX). The bitch recovered uneventfully from surgery and did not experience any further vulvar irritation or polyuria-like episodes. For continued urinary incontinence, treatment with oral estriol (Incurin™, Merck Animal Health, Summit, NJ) at 2 mg per day was initiated shortly after surgery. Unfortunately, the long-term efficacy of surgical treatment is unknown. Sexual differentiation in females occurs earlier than males with the regression of the Wolffian (mesonephric) ducts and maintenance of the Mullerian (paramesonephric) ducts which eventually form the uterine tubes, uterus and cranial vagina. In males, the Sertoli cells release anti-Mullerian hormone (AMH) causing the regression of the Mullerian duct while the Wolffian ducts continue to differentiate into the epididymis and vas deferens. XX sex reversal is a condition associated with a normal female phenotype but in the presence of testicular tissue. Females are usually phenotypically true and discovery of the condition is through infertility or a secondary finding during a routine spay procedure. In veterinary medicine, current treatments vary from hormonal therapy to surgical intervention.

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