Characteristics of the urethral and epididymal semen collected from cats – a 2-year study on over 160 cases

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Introduction and aim. A routine andrological examination including semen assessment is not commonly performed in a domestic cat. Difficulties with semen collection in this species may be the reason of this situation. Until several years ago, three methods of semen collection were possible to use in cats: artificial vagina, electroejaculation and slicing of epididymis, all of them impractical to use in every-day practice. The newest method of semen collection - urethral catheterization after medetomidine administration - is repeatable, non-traumatic and no special equipment or training is required. Therefore it can be useful for the assessment of male fertility/infertility in clinical conditions. However, characteristics of urethral semen are still poorly described (1, 2) and based on small number of animals.
Therefore, the aim of this study was to compare different parameters of semen collected from the urethra and the epididymis, on the basis of a large clinical material. Additionally, as studies about the influence of season on cat semen quality have been contradictory, we wanted to investigate this subject.
Material and methods. Urethral semen (CT, n=109) was collected from cats as previously described by Zambelli et al. (1) and epididymal sperm (EP, n=139) was obtained by epidydymis slicing (3). Both CT and EP samples was collected from 88 cats. All cats (a total number of 162) were privately owned mix breed tomcats presented for a routine orchiectomy at the owners request and/or for a semen evaluation. Semen samples were evaluated for volume (only CT), concentration (using Thoma chamber), total number of sperm, viability and morphology (after eosine-nigrosine staining). Subjective motility was assessed using contrast-phase microscope. Statistical analysis was performed using ANOVA and Duncan test. The level of significance was set at $p<0.05$.
Results. Collection of CT was unsuccessful in 8% of cases (no semen or apparent urine contamination). The mean volume of CT was 15.5±9.0 µL and the mean concentration of CT was 3257.8±2433.9x10^6/mL. CP and EP were characterized by similar total sperm count (47.7±42.1x10^6 and 52.9±45.0x10^6, respectively), viability (74.9±13,4% and 76.7±10.6%, respectively) and morphology (52.6±19.0% and 47.2±17.4%, respectively). CT and EP differed significantly in the percentage of distal droplet (5.5±6.3% and 13±13.5%, respectively) and Dag-like defect (4.5±6.2% and 2.1±2.5%, respectively). High percentage of cats showed teratospermy – 59% and 78.4% for CT and EP, respectively. Subjective motility was lower in EP than CT (62.3 ±13.9% and 71.1±17.0% respectively), but the difference was not significant. There was no significant difference between breeding season (March to May) and non-breeding season (November to January) in the assessed parameters, except a coiled tail.
Conclusions. The study confirmed the usefulness of CT collection in routine semen assessment and provided the reference values for this type of semen. Additionally, the study of large cat population revealed a high incidence of teratospermy in cats, described also by Axner (4). We also confirmed little seasonal effect on semen quality.

References.
1) Zambelli et al, Theriogenology 2008;69:485–90. 2) Filliers et al, Theriogenology 2010;74:31-9. 3) Niżański et al, Med. Weter. 2005;61:173-8. 4) Axner and Forsberg, Reprod Dom Anim 2007;42:282–91.