

Epididymal carcinoma in a dog

Epididymaal carcinoma bij een hond

¹H. De Bosschere, ²N. Desplenter, ²K. De Naegel

¹ Medisch Labo Bruyland – Veterinary Department, Meiweg 1, B-8500 Kortrijk, Belgium

² Veterinary Practice Causus, Verhelststraat 1, B-8460 Oudenburg, Belgium

Hendrik.de.bosschere@bruyland.be

ABSTRACT

Tumors of the epididymis are extremely rare in domestic animals. Most of the tumors in the epididymis are invading testicular tumors. The present case is a description of an epididymal papillary carcinoma in a dog.

SAMENVATTING

Tumoren van de epididymis zijn zeer zeldzaam bij huisdieren. De meeste tumoren van de epididymis zijn invasief groeiende testiculaire tumoren. Deze casuïstiek is een beschrijving van een epididymaal papillair carcinoma bij een hond.

INTRODUCTION

Tumors of the epididymis are extremely uncommon in domestic animals (Ladd, 1993; McEntee, 1990) and humans (Jones *et al.*, 1997). Adenocarcinoma of the epididymis is an uncommon, malignant variable sized glandular proliferation arising in the epididymis. It shows a tubular, a tubulopapillary or a cystic growth pattern, and is made up of cuboidal or columnar cells, often containing cytoplasmic glycogen. Usually, there is no associated desmoplastic stromal response. The main differential diagnoses include adenocarcinoma of the rete testis, ovarian-type carcinomas, malignant mesothelioma and metastatic adenocarcinoma (Amin, 2005).

CASE REPORT

The present case describes and illustrates a papillary epididymal carcinoma in a dog.

Case history

An 11-year-old male dog with a history of anal gland problems since the age of 3 months was presented for evaluation. On clinical examination, the dog showed asymmetrical testes. The left testicle had a diameter of 2.5 cm and felt hard, while the right testicle had a diameter of 8 cm and felt soft. The fur was thinner in some places, mainly caudodorsal. There was also a heart murmur present.

A basic blood analysis was carried out to check the glucose levels and the liver and renal functions. The results were within reference intervals. Plain radiographs showed no abnormalities in the chest. In the abdomen, a large prostate was visible. Coagulation

time, prothrombin time and activated partial thromboplastin time were all normal.

Castration was recommended. As premedication, intravenous medetomidine (Sedator, Eurovet) and buprenorphine (Temgesic, Schering-Plough) were used. Additionally, the dog received anti-inflammatory drugs (Rimadyl, Pfizer) and antibiotics pre-operative (Duphamox LA, Fort Dodge). Induction of anesthesia occurred with Propofol (PropoVet, Ecuphar) intravenously, while gas anesthesia (Isoflurane, N₂O and oxygen) (Isoba, Schering-Plough) was used for maintenance of anesthesia. A closed castration was performed.

The right testicle had the same size as the testicle of the other side; however, a soft mass was present alongside the testicle. The epididymo-testicular groove was not included in the mass. The differential diagnosis was inguinal hernia or neoplasia. The tunica vaginalis was dissected and the funiculus spermaticus was exposed just up to the inguinal canal. The funiculus was ligated as close as possible to the inguinal canal. Alongside the funiculus, spermaticus nodules or clusters of tissue were present up to the canalis inguinalis. In addition, the epididymis was enlarged and nodules were visible. Samples of the epididymis and testis were taken for histological examination. The surgical wound was closed with intradermal stitches. After the operation, the dog got an infuse therapy for 12 hours. Antibiotics (Clavaseptin, Vétoquinol) and anti-inflammatory drugs (Rimifin, Eurovet) were given for 10 and 5 days, respectively. Control of the surgical wound occurred twice in the following 2 weeks. No abnormalities were detected at the time of these controls.

Once the results of histopathology were known, radiographs were repeated and an ultrasound and CT

scan were performed to verify whether metastases were present, which was not the case. Only a clearly enlarged liver was found. Considering the age of the dog and the findings of the ultrasound, the most acceptable cause of the enlarged liver is fattening.

Five months after castration, the dog was still doing well. The heart murmur was still present, but no other abnormalities could be detected with a standard clinical examination.

Histopathology

Fragments of the testis and the neoplasm were histopathologically analyzed. The testis showed no neoplastic transformation and appeared normal. The epididymis showed a nodular, cell rich, well circumscribed, non-encapsulated, expansive growing mass. There was a dense proliferation of epithelial cells with a papillary orientation (Figure 1) in some areas, and in other areas the proliferation was more solid (Figure 2). The cells were cuboidal to columnar, had a round to oval pale staining nucleus with one or more nucleoli and a mild to moderate amount of slightly basophilic cytoplasm. A moderately mixed inflammatory infiltrate was also present. Locally, the cells were growing in multiple layers and they were exfoliating very easily. A low amount of mitotic figures and mild to moderate nuclear atypicity were noted. In the center, there was a large amount of fibrous tissue. The histopathology of the nodules alongside the funiculus spermaticus was characterized by papillary projections (Figure 3). A diagnosis of papillary epididymal carcinoma was made.

DISCUSSION

Tumors of the epididymis are extremely uncommon in domestic animals (Ladd, 1993 ; McEntee, 1990). The literature on these tumors is therefore very sparse. The most common tumors in the male genitalia are lymphoma or testicular tumors that have invaded these adjacent structures. Papillary carcinoma of the epididymis has been described in the dog and bull (McEntee, 1990). Other tumors of the epididymis include mesenchymal tumors such as fibroma/fibrosarcoma and leiomyoma/leiomyosarcoma (McEntee, 1990). Adenomyosis is a non-neoplastic proliferation of the epithelial lining of the epididymis into the muscle of the duct. This is usually caused by excessive exposure to estrogen or endogenous production of estrogen by hormonally productive testicular tumors such as Sertoli cell tumors (MacLachlan and Kennedy, 2002).

In humans, the main differential diagnoses of epididymal carcinoma are: adenocarcinoma of the rete testis, ovarian-type carcinomas, malignant mesothelioma and metastatic adenocarcinoma (Amin, 2005). For diagnosis of primary adenocarcinoma of the rete testis, the following criteria must be met: 1/ absence of a histologically similar extra-scrotal tumor that plausibly could be the primary site; 2/ tumor centered

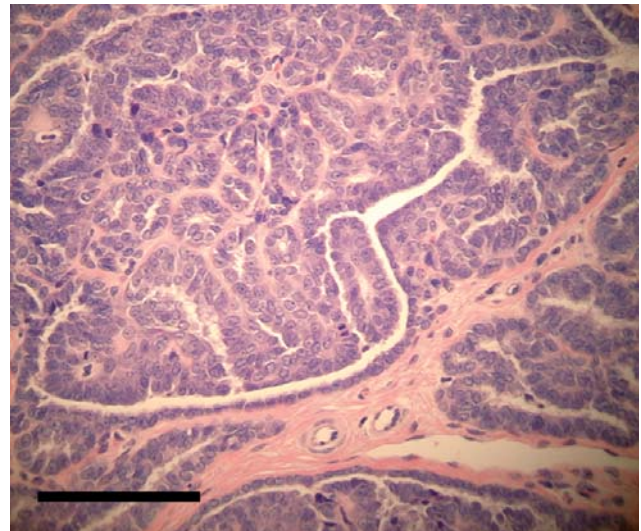


Figure 1. Epididymal carcinoma: papillary proliferations. H&E stain, Bar = 100µm.

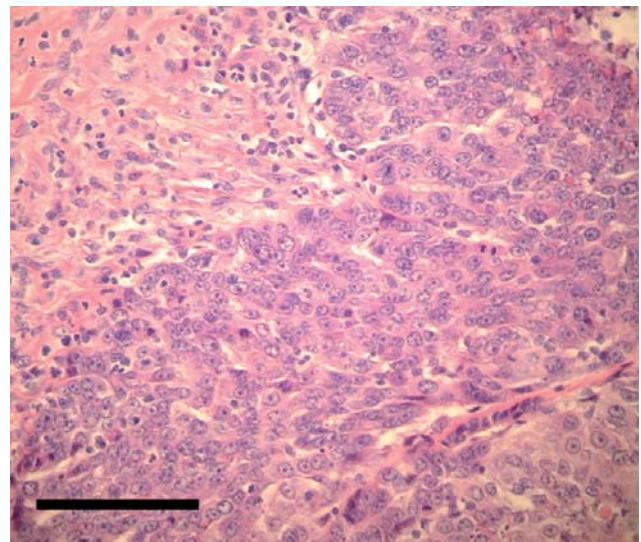


Figure 2. Epididymal carcinoma: a more solid pattern of proliferation, with a moderately mixed inflammatory reaction. H&E stain, Bar = 100µm.

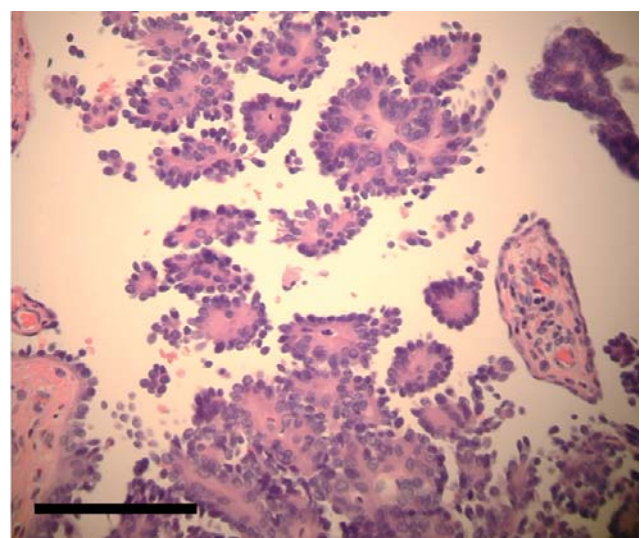


Figure 3. Epididymal carcinoma of a nodule alongside the funiculus spermaticus, characterized by papillary projections. H&E stain, Bar = 100µm.

on the hilum; 3/ morphology incompatible with any other type of testicular or paratesticular tumor, and 4/ immunohistochemical exclusion of other possibilities (Amin, 2005). None of these criteria were met in this case. Ovarian-type carcinomas are testicular or paratesticular homologues of their ovarian counterparts. Many of these tumors are centered on the epididymo-testicular groove, which was not the location in the present case. The gross and microscopic findings of the present case were not in accordance with those described for malignant mesothelioma (Amin, 2005). Metastatic adenocarcinoma of the paratesticular soft tissue is very commonly bilateral and/or multifocal, it demonstrates frequent vascular-lymphatic invasion, and it usually occurs in patients with a history of a primary carcinoma (Amin, 2005). In the present case, no primary carcinoma was detected elsewhere, and only one epididymis was affected.

However, when the tumors are large, the topography may be difficult to assess. In addition to anatomical location, the distinction between epididymal carcinoma and other paratesticular tumors will mainly rely upon subtle histological features. There is little information on prognosis due to the small number of published cases, but around 50% of the patients with epididymal carcinoma in these published cases were reported to have died with disseminated tumors, in spite of several different methods of treatment (Henley *et al.*, 2000; Davis *et al.*, 2004).

CONCLUSION

Immunohistochemistry was not performed in the present case and has not been reported in veterinary medicine up till now. The other criteria, as described in the literature, were present in this case to support the most likely diagnosis of epididymal carcinoma (MacLachlan and Kennedy, 2002; Amin, 2005). In the present case, the neoplasm of the epididymis appeared

to be locally aggressive, as multiple neoplastic foci were present along the funiculus spermaticus. This also poses an increased risk for contact metastasis in the abdominal cavity. However, no signs of metastases were detected in this case. The treatment of choice is castration.

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REFERENCES

- Amin M. B. (2005). Selected other problematic testicular and paratesticular lesions: rete testis neoplasms and pseudotumors, mesothelial lesions and secondary tumors. *Modern Pathology* 18, s131- s145.
- Jones M. A., Young R. H., Scully (1997). Adenocarcinoma of the epididymis: A report of four cases and review of the literature. *The American Journal of Surgical Pathology* 21, 1474 – 1480.
- Ladd P. W. (1993). The male genital system. In: Jubb K. V. F., Kennedy P. C., Palmer N. (eds). *Pathology of Domestic Animals*. 4th Ed., Academic Press Inc., San Diego, pp. 504 - 511.
- McEntee K. (1990). Scrotum, spermatic cord, and testis: proliferative lesions. In: *Reproductive Pathology of Domestic Animals*. Academic Press Inc., San Diego, pp. 279 – 306.
- MacLachlan N. J. and Kennedy P. C. (2002). Tumors of the spermatic cord, epididymis and accessory glands. In: Meuten D. J. (ed.) *Tumors in Domestic Animals*. 4th Edition, Iowa State Press, Iowa, pp. 570.