OVARIAN DYSGERMINOMA IN A SNOW LEOPARD (PANTHERA UNCIA)


Abstract: A female snow leopard (Panthera uncia) underwent surgical removal of a 1.025-kg ovarian mass determined histologically to be a dysgerminoma. This is the second report of a primordial germ cell tumor in a snow leopard.

Key words: Ovary, dysgerminoma, snow leopard, Panthera uncia.

INTRODUCTION

A 13-yr-old female snow leopard (Panthera uncia) at the Woodland Park Zoological Gardens developed an ovarian tumor that required surgical removal. The previous reproductive history of this snow leopard included having a litter of cubs at the age of 3 yr. No births followed breeding activity at ages 4, 6, and 10 yr. No breeding activity was observed in this cat after the age of 10 yr.

CASE HISTORY

In January 1987, the 13-yr-old snow leopard was showing signs of tachypnea and abdominal distension. The animal was anesthetized with ketamine hydrochloride (Vetalar, Parke-Davis, Morris Plains, New Jersey 07950) and maintained on isoflurane (Forane, Anaquest, Madison, Wisconsin 53713) for a physical examination. A large, firm, midabdominal mass was palpable and radiographically visible. A ventral midline laparotomy was performed and revealed a markedly enlarged right ovary. There were no other gross abnormalities. The anterior 2 cm of the right horn of the uterus, right oviduct, and the entire right ovary were surgically removed. The ovarian mass weighed 1.025 kg. One follicle (3 mm diameter) was present on the left ovary, and the uterus appeared normal.

The right ovary was mostly replaced by a large, multilobulated mass composed of solid yellow-white lobules 2–5 cm in diameter with scattered areas of hemorrhage and congestion (Fig. 1). Sections of this mass were composed of sheets of polyhedral tumor cells divided regularly by thin bands of connective tissue. The tumor cells had pleomorphic, vesicular nuclei with prominent nucleoli and distinct nuclear membranes. There were numerous mitotic figures. The cytoplasm was scanty and the cell boundaries were usually indistinct (Fig. 2). Vascular channels were congested and there were areas of necrosis and hemorrhage. The gross and histological appearance was consistent with a dysgerminoma.

Hematologic and serum chemical values from blood samples collected at the time of surgery were all within normal ranges. Serum cortisol (6.5 μg/dl), serum estradiol (<20 pg/ml), serum progesterone (0.9 ng/ml), and serum testosterone (<0.2 ng/ml) were similar to those of a healthy and reproductively normal adult female snow leopard at the same time of year. Postoperative healing was uneventful and reproductive behavior including copulation was observed approximately 10 days following surgery. No pregnancy resulted from the copulation.

DISCUSSION

Dysgerminomas are considered rare in animals but have been described in domestic cats, dogs, cattle, horses, and a variety
of other species.\(^1\,^2\,^5\,^6\,^8\) Dysgerminomas in domestic cats can resemble those in women by having lymphoid cell infiltration of the ovarian stroma and a shrunken appearance of the cells.\(^1\) The snow leopard tumor described in this case lacked both of these features, but is consistent with descriptions of other cases of feline dysgerminoma.\(^2\) Although human dysgerminomas are usually found during the first three decades of life, canine and feline dysgerminomas are typically found late in life.\(^1\,^2\,^5\) Based on reported snow leopard longevity records,\(^3\) this animal was probably in the last third of her life. Endocrinopathies such as elevated HCG levels, hyperestrogenism, and hyperprogesteronism have been suggested by clinical observations in cases of dysgerminomas.\(^2\,^7\) There was no such evidence to indicate that the tumor in the snow leopard was secreting hormones at the time of surgery.

Although all dysgerminomas are potentially malignant, metastasis is fairly rare,\(^2\,^5\,^7\,^9\) ranging between 10 and 20\% in reports. The tumor in humans is radioresponsive.\(^3\) Surgical removal is usually recommended for primary treatment of nonmetastatic cases in animals.\(^1\,^7\,^8\)

Dysgerminomas are the female homologs of seminomas in the male, and are histologically similar.\(^6\) They are derived from undifferentiated germinal epithelium, and resemble primordial germ cells of the embryo.\(^2\) The only other reported case of a genital tumor in a snow leopard has been bilateral testicular seminomas in one animal.\(^8\) In that case, independent development of the tumors was suggested due to the improbability of metastasis to a contralateral testicle. These cases may indicate a predilection for primordial germ cell tumors in the captive population of snow leopards.

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Figure 2. Histologic appearance of the neoplastic cells from an ovarian dysgerminoma removed from a snow leopard (Panthera uncia). The tumor consisted of sheets of pleomorphic, polyhedral cells with vesicular nuclei, prominent nucleoli, and distinct nuclear membranes. H&E, x 600.

LITERATURE CITED


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