Sex hormone related dermatoses and testicular tumors in a Pomeranian dog.

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Introduction
Truncal alopecia is a symmetrical alopecia that involves flank and tail. This condition can be related to many causes such as hypothyroidism, hyperadrenocorticism functional, gonadal neoplasm, alopecia-x, sebaceous adenitis and telogen effluvium (3). The methods to diagnosed this condition based on clinical history, physical examination, blood test (complete blood count, biochemistry profiles, hormonal evaluation), skin biopsy, radiograph and ultrasonography (3).

Testicular neoplasms are common in older male dogs. The most common primary testicular neoplasms are seminoma, sertoli cell tumor and interstitial cell tumor. They occur singly or in combination (5). These primary neoplasms are almost benign and no metastasis. In this case, the dog had mixed germ cells sex cord stromal tumors (MGSCTs) which are rare case report. (2)

Dermatoses associated with sex hormone are common. Cause of diseases may be gonadal or adrenal (1). The clinical sign is truncal alopecia which may be generalized or regionalized. Normally, systemic signs are absence (1). Bilateral flank alopecia was reported in dog with testicular sertoli cell tumor and hyperprogesteronemia.

Materials and Methods
Clinical examination and blood sampling
Clinical history taking and physical examination was done at small animal teaching hospital, Faculty of Veterinary Science, Chulalongkorn University A 12-year-old Pomeranian intact male dog had truncal alopecia and generalized hyperpigmentation. The right inguinal mass, 10 cm in diameter with firm consistency was found. The blood samples was collected for complete blood count, blood chemistry and hormonal analysis including of testosterone, estrogen, growth hormone and progesterone. Abdominal radiography and ultrasonography were used for checking the inguinal mass.

Tissue sampling and Histopathology
The castration and skin biopsy at alopecia and black skin area at right shoulder and right lateral tight were surgically performed. The right testicular mass, left abdominal cryptorchidtestis and skin samples were fixed in 10% buffered formalin. The tissue samples were histologically processed into paraffin blocks. The blocks were cut and stained with hematoxylin and eosin (H&E).

Results and Discussion
The dog had truncal alopecia and generalized hyperpigmentation. The dog still had hair on head, distal of all limbs and some on his back. Right testicular mass with soft consistency and firm inside was found (Fig 1). Onset of growth was about 1 year. Left abdominal cryptorchid was detected. The hematological test was revealed mild anemia, leukocytosis and high normal of cholesterol level and microfilariaisis. Hormonal analysis were in normal range including of estrogen (<10 pg/mL, normal value 29.0-69.6 pg/mL), growth hormone (<0.5 ng/mL, normal value 0.156-10 ng/mL) and testosterone (0.274 ng/mL, normal value 0.15-0.32 ng/mL) while progesterone (0.23 ng/mL, normal value 0.03-0.17 ng/mL) showed elevated. Total thyroxine (T4) was in lower limit of normal range (1.3µg/dL, normal value1.0-4.0 µg/dL). The ultrasonography was revealed right inguinal cryptorchid with heterogeneous parenchyma size 5.5x4.7 cm. After surgical removal of right inguinal mass revealed testicular mass, sized 6x8 cm and scrotal sac contained clear yellowish fluid (Fig 2).

Histopathologically right testiswas diagnosed mixed germ cell sex cord-stromal tumors (MGSCTs). The tumor was consisted of predominantly seminoma and sertoli cell tumor. The seminoma cells which large round cells with anisokaryosis prominent nucleoli and abundant cytoplasm, and giant cells were found intra-seminiferous tubules. (Fig 3). Sertoli cell tumor was also found in seminiferous tubules. The sertoli tumor cells had pale cytoplasm and elongated cells, arranging in palisade pattern along the fibrous stromal structure.

Left tabdominal cryptorchid testis was showed atrophy of seminiferous tubule and degenerated spermatogenic cells. Histopathology of skin biopsy showed orthokeratotic hyperkeratosis. The epidermis was moderately hyperplastic and hyperpigmented. The melanocytes were found in epidermis layer and some melanocyte were migrated to dermal layer. The inflammation cells including of lymphocyte, plasma cells were mildly revealed. Sebaceous glands atrophy were presented. Moreover, most hair follicles had...
degeneration, atrophy and calcification. The hair follicles that still remain were in telogen phase. Most of sweat glands were hyperplasia. Multiple small fragmented collagen bundles present in dermis.

Figure 1: The dog shows truncal alopecia and generalized hyperpigmentation. Right inguinal mass (10x10 cm) was found.

Figure 2: The right testicular mass is 6x8 cm, firm consistency and multifocal yellowish on cut surface.

The histological lesions will confirm that an endocrine disease is present, but the biopsy cannot differentiate the various sex hormone related atrophic dermatoses (4). The sex hormone related dermatoses are usually defined by response to therapy, rather than by the demonstration of abnormal levels of the appropriate hormone (5). For conclusion, cause of truncal alopecia in this case might be sex hormone related dermatoses induced by MGSCTs.

Figure 3: Histopathology of right testis shows the large round tumor cells of seminoma.

Figure 4: Histopathology of skin biopsy shows orthokeratotic hyperkeratosis, sebaceous glands atrophy and hair follicles degeneration, atrophy and calcification. Sweat glands are dilatation and hyperplasia.

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References