Ultrasonographic and Histopathological Studies on Some Testicular Affections in Dogs

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Introduction

- Recently testicular ultrasound is considered as a routine and mandatory investigation of animals presented with scrotal and testicular problems.

- Many testicular and scrotal affections were diagnosed ultrasonographically including testicular torsion; epididymo-orchitis, scrotal hernia, and testicular neoplasms.
Ultrasound can distinguish between the testicular and the non-testicular causes of scrotal swelling and suggests if it is benign or malignant and if the conservative approach or the surgical intervention is advised.

Also, sonography is reported to have an accuracy approaching 100% in differentiating many intratesticular and extratesticular pathologic entities.
The aim of the work

The present work is aimed to describe the sonographic and histopathologic pictures of the normal and diseased dogs suffering from the various forms of scrotal and testicular affections.
The present study was carried out on twenty dogs before normal routine castration and seven dogs with various testicular affections at veterinary surgery clinic at Cairo Univ. All cases were subjected to keen clinical examination for the testicles concerning the size, the texture and the presence of abnormal lesions. Normal testicles acted as control.
Material and Methods

All animals were subjected to ultrasonographic examination using 7 to 10 MHz transducer (Toshiba). Both sagittal and transverse views were made for each testis. The sonograms were reviewed as usual for the echogenicity and location of the lesions.
Specimens for histopathological examination were taken from the excised testicles after castration and fixed in 10 % neutral buffered formalin solution for at least 24 hours and then routinely processed. Specimens were sectioned at 4-6 Um thickness and stained by haematoxylin and eosin stain (Bancroft et al; 1994)
Results

Out of 20 apparently healthy animals, 15 cases had apparently normal testicles and 5 cases came with testicular affections. Twelve cases showed actual testicular lesions in the form of acute orchitis, chronic orchitis, testicular degeneration and hydrocele.
Normal testicles

Ultrasonographic scan of a normal testicle showing homogenous echotexture of low to medium echogenicity and a hyperechoic central line representing the rete testis and covered by an outer hyperechoic scrotum. (b) Histopatholgy of the normal testis showing normal intact semineferous tubules.
Acute Orchitis:

(a) Ultrasonography of acute orchitis. The affected testicle showing multiple intraparenchymal anechoic areas of inflammatory fluids.

(b) The affected testis shows edema in the interstitial tissue (intertubular edema) and in the semineferous tubules (intratubular edema)
Chronic orchitis:

(a) Chronic orchitis in an adult dog, notice the presence of scrotal ulceration.

(b) Ultrasonographically, the testicles show hyperechogenicity of the scrotal wall and presence of multiple areas of hyperechoic intraparenchyma fibrosis.
Chronic Orchitis

(a) The testis showing proliferation of fibrous connective tissue between the semineferous tubules with mononuclear cell infiltration

(b) High power.

(c) The affected testis showing testicular fibrosis and atrophy of some tubules accompanied with cystic dilatation of others.
Hydrocele:

(a,b) Cases of lymphoma show hydrocele.

(c) Ultrasonographic view shows the presence of a large anechoic area of fluids with no alteration in the echogenicity of the testis (arrows)
Testicular Degeneration:
Ultrasonogram of testicular degeneration (l)
Notice the small-sized testicle with parenchymal changes of the testis in the form of areas of hypoechogenicity and enlarged rete testis compared with the right sound testicle (r).
(a) Histopathology of the degenerated testis showing degeneration of the spermatogonic cells and absence of both spermatogenesis and spermiogenesis

(b) Testis showing necrosis and absence of some spermatogonial cells with the formation of spermatid giant cells in the semineferous tubules (H&E, 400)
Conclusions

- The use of ultrasonography is considered one of the most important tools used for tentative diagnosis specially in apparently healthy testicles.

- The ultrasonography and histopathology are motivated hand to hand in description of scrotal and testicular diseases in order to reach a final correct idea about the status of the canine testicles.
It was found that apparently healthy animals may suffer from subclinical testicular affections which can be diagnosed early and treated before complications. Also, the affected animal can be followed up clinically and ultrasonographically rather than undergoing surgical exploration.