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USG guided FNAC of testicular seminoma of a unilateral cryptorchid dog: A case study

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Abstract

Cryptorchidism is the most common birth defect in the reproductive system of mammalian species. In this case report a 7.6-year-old male Labrador breed dog was presented with complaints of vomiting, indigestion, distended abdomen, and progressive weight loss. The dog was monorchid from the birth. The clinical report revealed that Babesia (small form) and Anaplasma positive, leukocytosis and with high Serum Glutamate-Oxaloacetic Transaminase (SGOT). Physical examination revealed that a large palpable mass is present in the abdomen and unilateral cryptorchidism. A right lateral radiograph of whole abdomen suggests presence of three distinct soft tissue masses inside. Ultrasonography confirms three space-occupying lesions (SOL) measuring SOL-1(62.5 cm²), SOL-2(6.93×6.42), and SOL (41.62 cm²). USG-guided FNAC has been revealed suggesting it may be seminoma.

Keywords: Canine, seminoma, cryptorchidism, FNAC, USG guided

Introduction

Seminoma, a testicular tumour arises from the germinal epithelium (the cells of the testicle that produce sperm). The incidence is 33 percent among all testicular tumours of dogs (Cotchin, 1960) [1] in some cases, feminization changes (alopecia, prostatic disease etc.) have been reported with seminoma, but these are probably due to apparent Sertoli cell tumours in the same or opposite testicle (Tumors in Domestic Animals, 2nd Edition, Edited by Jack E. Moulton, 1978, 313-315) [1].

Cryptorchid dogs are at higher risk of developing testicular neoplasms (Foster, 2013) [3]. The undescended testicle is 9-13 times more prone to tumour development than the descended testicle (Romagnoli and Schlafer, 2006) [7]. Testicular neoplasms are common in elderly dogs, less common in horses, and rare in other species (Foster, 2013) [3]. Seminoma is rarity in domestic species other than the dogs (Knudsen and Schantz, 1963) reported cases in other animals often lack detailed histology (Tumors in Domestic Animals, 2nd Edition, Edited by Jack E. Moulton, 1978, 313-315) [1].

The most common testicular neoplasms in dogs are Leydig cell tumours, seminomas, and Sertoli cell tumours (Liao *et al.*, 2009) [6]. Seminomas are the second most common testicular neoplasms in this species (Foster, 2013) [3].

The gross and histopathological features of this tumour have been described (Dow, 1962; Huggins and Pazos, 1945; Schlotthauer *et al.*, 2009; Scully and Coffin, 1952) [2, 4, 8, 9] Most of these tumours are 2 to 3 cm in diameter, though the size varies. The involved testicle often appears normal. A large size is reported in a series of surgical cases, where clinical enlargement caused by the tumour is reason for removal, then in autopsy series, where testicles are examined routinely regardless of size. (Tumors in Domestic Animals, 2nd Edition, Edited by Jack E. Moulton, 1978, 313-315) [1].

The development of this neoplasm in dogs can be traced from the seminiferous tubules, where it arises from spermatogenic epithelium is followed by replacement with seminoma cells arising from remaining spermatogenic cells.

These proliferate within the tubule and invade the interstitial stroma. By the time the tumour is noticed clinically, it presents islands or diffuse sheets of cells, though areas of purely intratubular growth are also found in most cases some early tumours have all of the cells restricted to the tubules. The tumour cells are fairly uniform in size and shape and are large, polyhedral or rounded. They are discrete or the cell outlines are indistinct. The nucleus is large and of variable size round and hyperchromatic. The nucleoli are large and prominent. Some cells have giant nuclei and others are multinucleated. Mitotic figures are common. The cell cytoplasm is scanty and acidophilic. The surrounding seminiferous tubules have atrophy of spermatogenic cells. Necrosis and haemorrhage are common. Clear differentiation between the benign and malignant forms of this tumour is almost impossible. It is best to consider all of these tumours as potentially malignant (Tumors in Domestic Animals, 2nd Edition, Edited by Jack E. Moulton, 1978, 313-315) [1].

Multiple tumours are common, such as seminoma with interstitial cell tumours or with Sertoli cell tumours. Seminoma infrequently metastasizes, despite its malignant histological appearance. Metastasis is found in 6 to 11 per cent of the tumours. The rare secondaries are usually in the inguinal, iliac, sublumbar and periaortic lymph nodes, and in the and in the lungs or visceral organs (Tumors in Domestic Animals, 2nd Edition, Edited by Jack E. Moulton, 1978, 313-315) [1].

Case History and Observations

It is a relatively common testicular tumour in dogs, particularly in older dogs (mean age of 10 years). Its development is predisposed by cryptorchidism. Seminoma can be uni-or bilateral, single or multiple. It is a relatively common testicular tumour in dogs, particularly in older dogs (mean age of 10 years). Its development is predisposed by cryptorchidism. Seminoma can be uni-or bilateral, single or multiple. It is a relatively common testicular tumour in dogs, particularly in older dogs (mean age of 10 years). Its development is predisposed by cryptorchidism. Seminoma can be uni- or bilateral, single or multiple.

A 7.6-year-old male Labrador breed dog named Coco was presented at our OPD Belgachia Clinics, WBUAFS with complaints of vomiting, indigestion, distended abdomen, and progressive weight loss. The dog was monorchid from the birth. The biochemical report of Coco revealed that Babesia (small form) and Anaplasma positive, leukocytosis and with high Serum Glutamate-Oxaloacetic Transaminase (SGOT) 62 u/L tested on 6th Nov 2019. Physical examination revealed that a large palpable mass is present in the abdomen and unilateral cryptorchidism. A right lateral radiograph of whole abdomen suggests the presence of three distinct soft tissue masses inside (Fig 1). Ultrasonography confirms three space-occupying lesions (SOL) measuring SOL-1(62.5 cm²), SOL-2(6.93x6.42), and SOL (41.62 cm²), (Fig 2).



Fig 1: Radiograph of coco right lateral view



Fig 2: Sonograph showing three SOL

To rule out the nature of the masses Fine Needle Aspiration Cytology (FNAC) was performed with ultrasound guidance and a 22 G gauge needle was used. The cytological study shows the presence of round cells with bluish cytoplasm, an atypical cluster of cells with open chromatin, presence of mitotic figures in some cells. Some cells contain one or two nucleoli along with anisokariosis and the presence of blue

fibrin along with angular cells suggesting it may be of seminoma with squamous metaplasia (Fig 3).

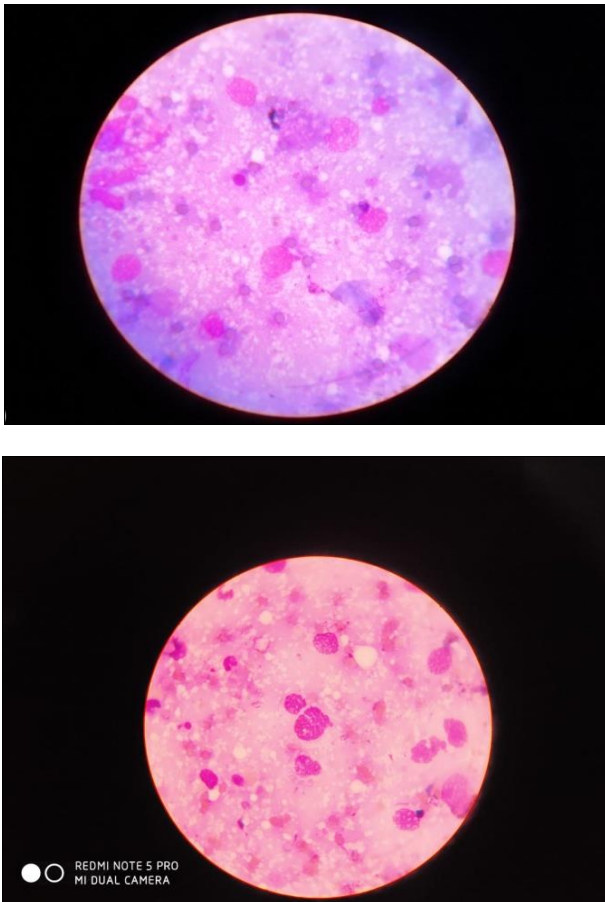


Fig 3: Cytology revealed the presence of round cells with bluish cytoplasm, an atypical cluster of cells with open chromatin, presence of mitotic figures in some cells. Some cells contain one or two nucleoli along with anisokariosis and the presence of blue fibrin along with angular cells

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Conflict of interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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