Unilateral Interstitial (Leydig) Cell Tumor in a Neonatal Cryptorchid Calf

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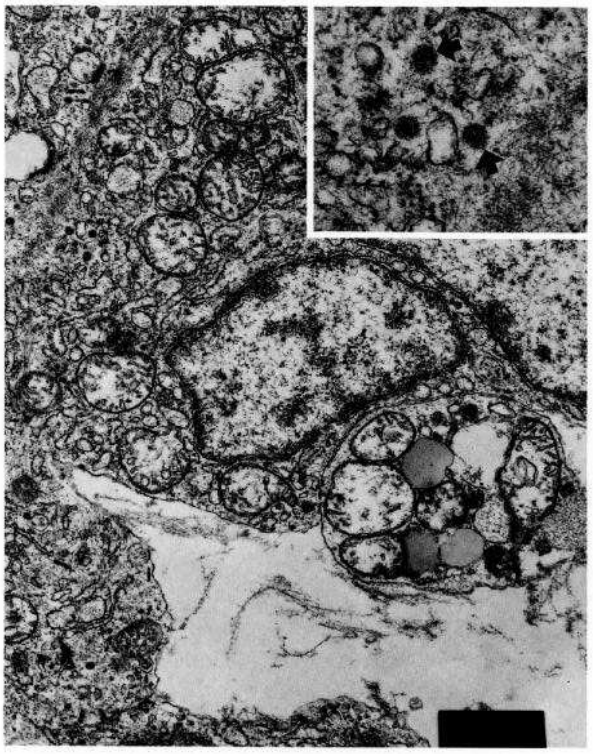

Figure 7. Electron micrograph of tumor cell from a dog, showing abundant mitochondria, rough endoplasmic reticulum, and membrane-bound dense granule (insert arrows) Bar = 1 μm.

examinations. There are no other reports of dental follicular mononuclear cell neoplasia in any species.

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The 4 main testicular tumors in domestic animals are interstitial (Leydig) cell tumors, seminomas, Sertoli cell tumors, and teratomas. The first 3 types are common in dogs, whereas teratomas are seen mainly in horses. In all other species, testsicular tumors are rare.[2,4] Interstitial cell tumors develop generally during adult life and rarely occur in young calves.[3,5] Herein, we report a case of an interstitial cell tumor in a cryptorchid bull calf.

A l-month-old male Shorthorn calf was referred to the veterinary teaching hospital with a history of diarrhea and inappetence of 2 days duration. On admission, the calf was depressed, weak, and approximately 5% dehydrated, as estimated by skin turgor. The calf also exhibited increased lung sounds on auscultation. Diarrhea and pneumonia were diagnosed as primary problems in this case. Pneumonia was confirmed by pulmonary radiographs. No significant hematologic abnormalities were found; however, the calf was persistently hyponatremic and hypochloremic. Abdominal palpation revealed a 10-cm-diameter mass in the caudal abdomen. Fine-needle aspiration of this mass was not diagnostic and revealed the presence of blood compatible with venous puncture. Abdominal radiographs were nondiagnostic. Bacteriologic culture on fluid aspirated from the abdominal mass did not yield any growth. Feces did not reveal any pathogenic bacteria, virus, or parasites. The calf did not respond to treatment for pneumonia, and the owner elected euthanasia, which was performed with intravenous injection of barbiturates.

On postmortem examination, the calf was in poor body condition. There was cranioventral consolidation of lungs involving 20% of the pulmonary parenchyma. The abdominal cavity had a single large blood clot (approximately 20 cm in diameter) attached to the caudal peritoneum. This clot was considered to be the result of hemorrhage caused by the fine-needle aspiration. Both testicles were undescended. The

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Figure 1. Large interstitial (Leydig) cell tumor involving the left testicle of a cryptorchid calf.

left testicle was notably enlarged (16 x 12 cm) (Fig. 1) and weighed 750 g, whereas the right was small (4 x 2.5 cm) and weighed only 16 g. On cut surface, the left testicle was uniformly composed of dark red soft tissue with randomly scattered areas of necrosis. The tentative diagnosis of unilateral testicular neoplasm and bronchopneumonia was made based on gross findings.

Microscopically, the enlarged testicle was composed of well-vascularized bands of stromal tissue supporting a monomorphic population of polyhedral cells (Fig. 2). These cells had well-defined cytoplasmic borders, abundant eosinophilic cytoplasm with a ground glass appearance, and round to oval nuclei containing small and inconspicuous nucleoli. Mitotic figures were rare. The entire neoplastic mass was surrounded by a thick band of connective tissue. Immature seminiferous tubules were present at the periphery of the mass, the epididymis was unaffected, but the spermatic cord was hemorrhagic. The right testis was not affected. Changes in the

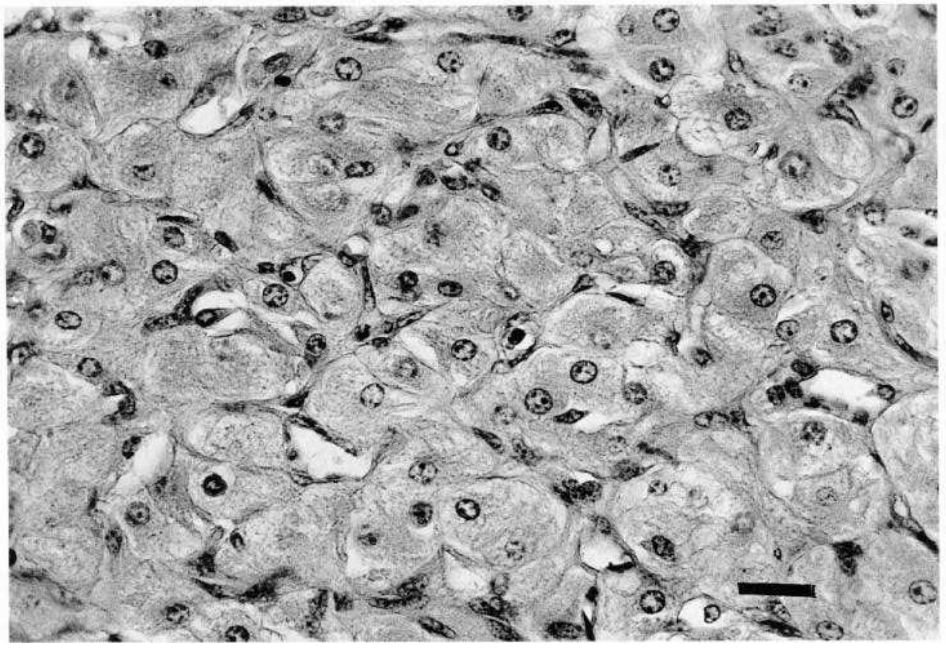

Figure 2. Section of testicular tumor of a calf, showing polyhedral cells with round nuclei and abundant cytoplasm with a ground glass appearance. Hematoxylin and eosin. Bar = 25 μm.

lung were characterized by atelectasis and exudation of leukocytes into the bronchoalveolar space. In addition, alveoli and bronchioles contained pieces of yellow pigment compatible with meconium. No histologic lesions were observed in other organs. Based on gross and histologic findings, the abdominal mass was diagnosed as an interstitial cell tumor.

Interstitial cell tumors must be differentiated from Sertoli cell tumors, which are also reported occasionally in neonatal and young calves.[1,4,6] The results of this case are in agreement with those of previous reports in suggesting that testicular tumors in cattle appear to involve the left testicle with much higher frequency than the right.[16] The Shorthorn may be particularly susceptible to testicular tumors;[6] however, no data were available from this farm that may have indicated previous occurrence in other calves. The large size of the tumor and the young age of the calf strongly suggest that this testicular neoplasm developed during fetal life. Cryptorchidism is known to be a contributing factor to the development of testicular neoplasms.[3]

This abdominal neoplasm probably did not have any deleterious effect on the functional activity of the gastrointestinal system. Constipation, rather than diarrhea, would have been expected as the most likely result of a space-occupying mass in the abdomen. Lack of bacteriologic, virologic, and parasitologic findings precluded the etiologic diagnosis of diarrhea and pneumonia. However, negative isolation of bacterial pathogens from affected lung and intestine may have been the result of antibiotic therapy.

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