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Case Report

Seminoma and Cholangiocarcinoma in an 18-Year-Old Male Camel

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Abstract: Herein, diffuse-type seminoma and intrahepatic cholangiocarcinoma in an 18-year-old male camel are described. The seminoma was located on the right testis (11 × 8.5 × 4.5 cm) and the cut surface of the tumor had a lobulated appearance. The tumor cells disseminated diffusely in the tumoral stroma with hemorrhages, and multiple necrotic foci were seen with microscopic examination. Additionally, the liver was enlarged, firm, and grayish-white; multiple lesions were observed both on the serosal surface and in the cut surface of the liver. Microscopically, the intrahepatic cholangiocarcinoma was composed of gland-like structures and/or solitary islands of neoplastic cells in the tumoral stroma. This is the first reported case of these 2 tumors simultaneously presenting in a camel.

Key Words: Seminoma, cholangiocarcinoma, camel

Onsekiz Yaşlı Erkek Bir Devede Seminom ve Kolangiokarsinom Olgusu

Özet: Bu raporda, 18 yaşlı erkek bir devede, diffuz tip seminom ve intrahepatik kolangiokarsinom olgusu tanımlandı. Tümörün şekillendiği sağ testis, 11 × 8,5 × 4,5 cm boyutlarında ve lobuler kesit yüzüne sahipti. Mikroskopik incelemede tümör hücrelerinin diffuz dağılımı ile birlikte, değişen derecelerde kanamalar ve fokal nekrozlar görüldü. Karaciğer ise büyümüş ve sert kıvamlıydı, serozal ve kesit yüzünde boz beyaz renkte multiple lezyonlar görüldü. Mikroskobik olarak, tümör, yaygın bağdoku içinde kapsüllenmiş bez benzeri yapılardan ve/veya soliter adacıklardan oluşmuştu. Bu rapor, aynı devede seminom ve intrahepatik kolangiokarsinomun tanımlandığı ilk olgudur.

Anahtar Sözcükler: Seminom, kolangiokarsinom, deve

Introduction

Seminomas arise from the germ cells that constitute the spermatogenic epithelium within the seminiferous tubules, and are subdivided on the basis of their histological appearance into intratubular and diffuse forms (1). Seminomas are common testicular tumors, and most often occur in adult or older animals (2-4).

Cholangiocarcinoma, a malignant tumor arising from bile duct epithelium, has been described in domestic animals, especially dogs and cats (5-7), and rarely in other species (6,7). It more often originates in intrahepatic bile duct epithelium than in extrahepatic bile ducts or the gall bladder (6,8). The incidence of cholangiocarcinoma increases with age and most cases occur in animals over 10 years of age; neither a breed nor sex prevalence has been reported in animals (5,7,8).

To the best of our knowledge there have been no reports of seminoma and cholangiocarcinoma in camels. This is the first reported case of these 2 tumors simultaneously presenting in a camel.

Case History

An 18-year-old male camel was slaughtered at the Incirliova Abattoir in Aydın, Turkey. After slaughter, all tissues were examined macroscopically. Then, both testes and the liver were brought to Adnan Menderes University, Faculty of Veterinary Medicine, Department of Pathology for histopathological examination. The tissue samples were fixed in 10% neutral buffered formalin, processed routinely, 5-µm sectioned, and stained with hematoxylin and eosin (HE). Selected sections were stained by van Gieson's and Hall's staining methods (9).

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Results and Discussion

Seminoma

The testis with the tumor (right testicle) measured 11 × 8.5 × 4.5 cm, and the cut surface had a lobulated appearance, including grayish-white, yellowish, and reddish areas (Figure 1a). Histologically, the tumor cells disseminated diffusely in the tumoral stroma (Figure 1b). The cells were chiefly round to oval and varied in size (Figure 1c). They had vesicular or hyperchromatic nuclei, and a single prominent nucleolus. Mitotic figures were generally rare, and a few uni- or multinucleated tumor cells were observed. In some areas of the tumoral stroma, multiple necrotic foci, hemorrhages, and mononuclear cell infiltrations were also observed. In addition, the other testis was normal in size (6 × 4.5 × 3 cm) with no lesions noted.

Cholangiocarcinoma

The liver was enlarged, firm, and yellow-greenish. Grayish-white and centrally depressed multiple lesions were observed on the serosal surface of the liver. Similar lesions were also observed in the cut surface of the liver (Figure 2a). They ranged from 0.5 to 3.0 cm in diameter and were generally distinct from the hepatic parenchyma. Microscopically, the tumor consisted of gland-like structures and/or solitary islands of neoplastic cells (Figure 2b) irregular in size and shape (Figure 2c), and often surrounded by prominent septa of fibrous connective tissue. Most of the tumor cells exhibited marked anisocytosis, anisokaryosis, and pleomorphism (Figure 2d), and they had eosinophilic or basophilic cytoplasm. The nuclei were roughly round or ovoid and had 1-3 prominent nucleoli. In some areas, numerous

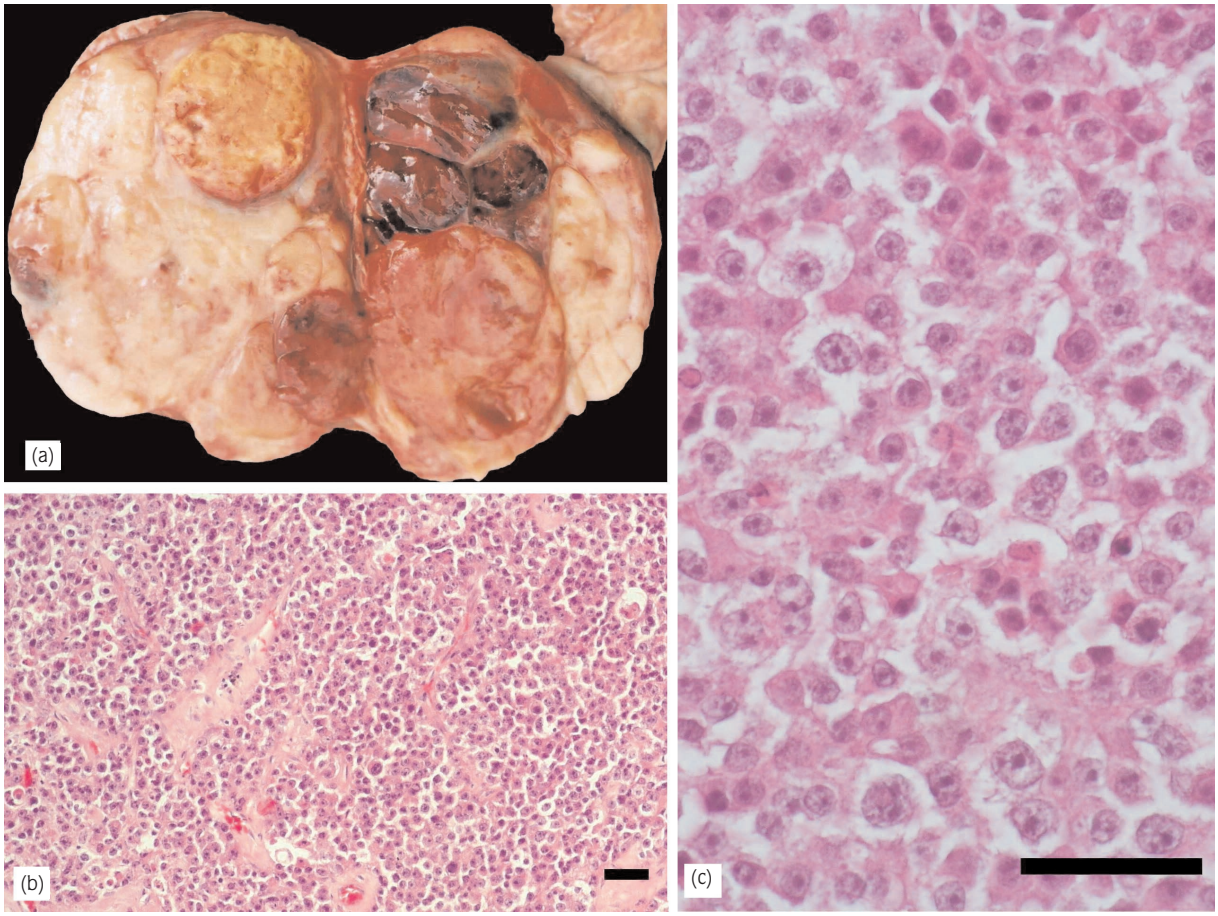

Figure 1. a) Seminoma showing grayish-white to reddish areas on the cut surface. b) Diffuse-type seminoma; the cells disseminated diffusely in the tumoral stroma (HE). c) Tumor cells were remarkably round to oval and had a single prominent nucleolus (HE). All bars = 50 µm.

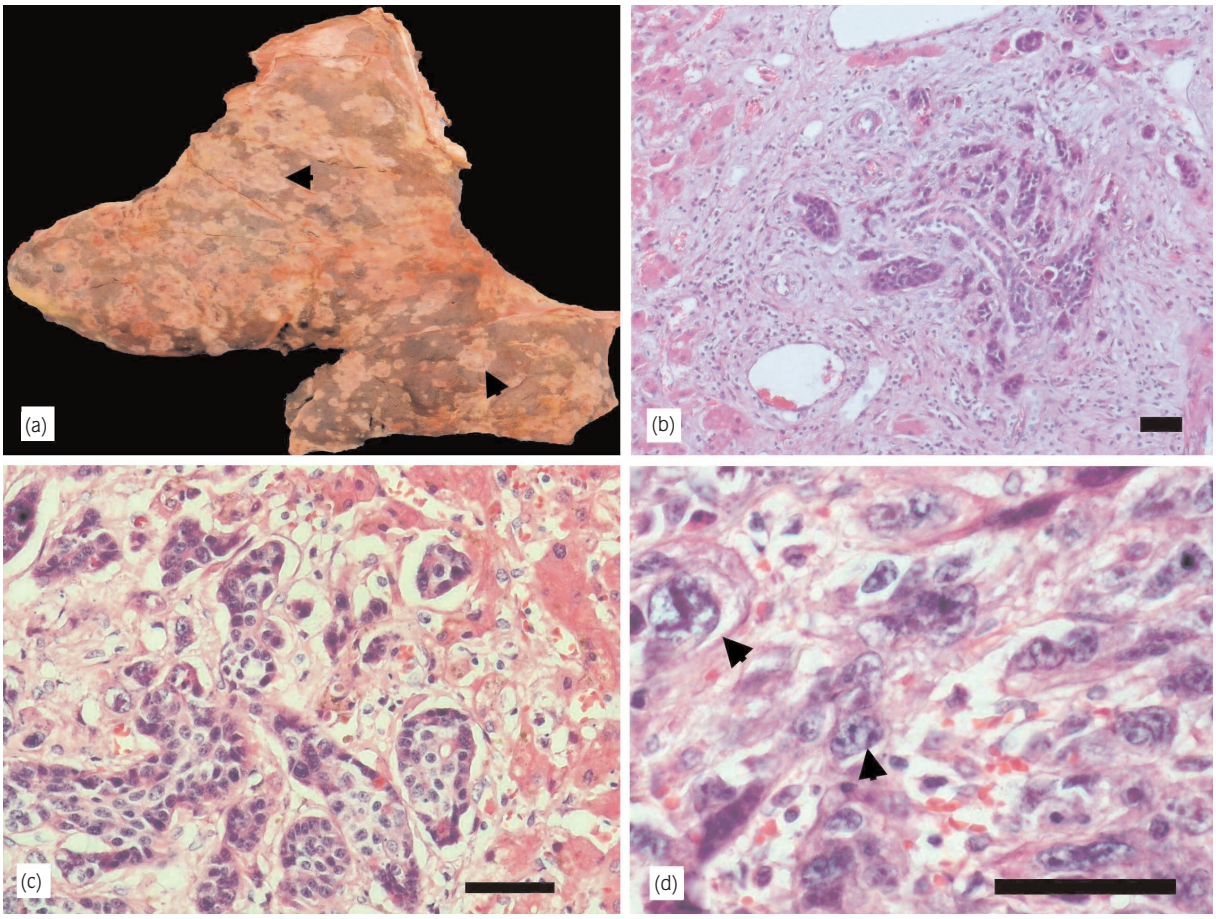

Figure 2. Cholangiocarcinoma. a) Centrally depressed multiple lesions in the liver (arrow heads). b) The tumor cells formed gland-like structures and/or solitary islands in the tumoral stroma (HE). c) The structures were irregular in size and shape (H&E). d) Tumor cells showing marked anisokaryosis, and pleomorphism (arrow heads, HE). All bars = 50 µm.

multinucleated giant cells were also observed. The mitotic figures were high, with approximately 3 or 4 mitotic figures per 40× field and frequent abnormal mitosis. Infiltration of the tumor cells into the capillary vessels and the hepatic parenchyma at the edge of the tumor were observed.

In the non-neoplastic liver tissue, hemorrhages, focal necrosis, and fibrosis, as well as a small number of mononuclear cells, were observed. The hepatocytes showed degenerative and atrophic changes, and contained moderate amounts of bile pigment.

Seminomas have been previously reported in dogs and cats, rarely in rams, horses, and other domestic animals (1,3,10), but have not been previously described in camels. In the present report, the seminoma was diagnosed as the diffuse-type based on histological examination. The macroscopic and microscopic findings of the seminoma were similar to the results of previous cases (2-4).

Intrahepatic cholangiocarcinoma has been reported in older domestic animals, particularly in dogs and cats, and in other domestic animals (6,7,11), but there have been no previous reports of an intrahepatic cholangiocarcinoma in a camel. In the presented case, both the gross and histopathological findings, and the age of the animal were consistent with the findings of intrahepatic cholangiocarcinoma obtained from other domestic species (8,12,13); however a relationship between sex or breed predilection, and intrahepatic cholangiocarcinoma has not been reported in other animal species, even though most of the reported cases have generally been described in female animals

(6,14,15). In the present study, the tumor was present in a male camel.

To the best of our knowledge, there have been no previous reports of seminoma and intrahepatic cholangiocarcinoma simultaneously presenting in a camel or other animal. In the presented case we found no evidence to suggest a connection between the development of the 2 tumors. This is the first reported case of these 2 tumors simultaneously presenting in a camel.

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