

CASE REPORT

OLGU SUNUMU

A Skin Form Case of Sporadic Bovine Leukosis in a Simmental Breed Cow

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Kocatepe Vet J (2010) 3 (2): 47-50

S U M M A R Y

A four year-old Simmental bred cow was referred to faculty hospital complaint with skin lesions, anorexia, rapid weight loss, sharply decreased milk yield in last 25 days and skin lesions were become more widespread in 10 days including mouth and mamma. Clinical examination findings were fever, increase in pulse and respiratory rate, constipation, enlargement of whole superficial lymph nodes, firm mass tumoral formations in the pre-scapular, mandibular and inguinal lymph nodes. Grey-black necrotic lesions with ulcerative center were observed in upper gingiva, junction of corpus and papilla mamma and in whole skin, mostly in the head and neck region. Blood serum sample was found to be positive on the controlling using indirect ELISA test for Bovine Leukosis Virus. The animal was sent to slaughterhouse due to poor diagnosis. In the post-mortem macroscopic examination, tumoral formation were determined in spleen, intestines, prescapular area and various lymph nodules in submandibula, inguinal and supramammary areas. Enzootic leucosis was detected in many regions in different proportions, but sporadic skin form was determined for the first time with this study in Turkey.

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Simmental Irkı Bir Sığırdaki Deri Formu Sporadik Bovine Leukosis Vakası

Ö Z E T

Dört yaşında Simmental ırkı bir inek son 25 günde gelişen deri lezyonları, iştahsızlık, hızlı zayıflama, süt veriminde ani düşüş şikayetleriyle fakülte hastanesine getirildi ve deri lezyonlarının son 10 günde arttığı, ağız ve deride de olduğu bildirildi. Klinik muayene bulguları olarak ateş, nabız ve solunum frekansında artma, tüm yüzeysel lenf yumrularında şişme ile preskapular, mandibular ve inguinal lenf yumrularında sert sıkı tümöral oluşumlar tespit edildi. Üst dişetlerinde, memenin korpus ve papilla kısmının birleşim yeri ile daha çok baş ve boyun olmak üzere tüm deride ülseratif merkezli gri-siyah nekrotik lezyonlar gözlemlendi. Bovine Leukosis Virus için indirect ELISA test kullanılarak yapılan kontrole kan serum örneğinin pozitif olduğu belirlendi. Prognozun kötü olması nedeniyle hayvan kesime gönderildi. Post-mortem makroskopik muayenede tümöral oluşumlar dalak, bağırsaklar, preskapular alan ile submandibular, inguinal ve supramammary alandaki birçok lenf yumrusunda tespit edildi. Enzootik bovine leukosis bir çok bölgede farklı oranlarda saptanmıştır ancak sporadik olan deri formu Türkiye’de ilk kez bu çalışmayla bildirilmiştir.

Anahtar Kelimeler
Sığır Löykozu
Sporadik Deri Formu

Key Words
Bovine Leukosis
Sporadic Cutaneous Form

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INTRODUCTION

Bovine Leukemia virus (BLV) infection is a worldwide distributed systemic malignant disease of cattle. The virus was classified as a type-C oncovirus in the Retroviridae family and shares similar antigenic structure with the human T-cell lymphotropic viruses type I and II (HTLV I-II).¹

BLV infection was separated as enzootic and sporadic form according to its clinical and pathological features. Sporadic form (SBL) has been divided into calf, typtic and cutaneous form according to age and tumour features.²⁻⁴ Comparing EBL, sporadic form has smaller prevalence, only affecting 0.5-1.2 out of 100.000 cattle.⁵

The virus primarily infects mononuclear B cells.⁶ Infected animals are generally remain healthy as clinically but nearly 30% of the them have persistent lymphocytosis,⁷ lymphosarcoma and clinic symptoms develop at 0.5-5.5% of the infected animals.⁸ Symptom could be various, mainly related to internal organ involvement and localisation and the size of masses.

The transmission is occurs via exposing blood lymphocytes of infected animal. Main route on contamination are surgical manipulations, infected needles,⁹ and blood-sucking insects.¹⁰ The BLV infected animals carry the viral genome permanently, persistent production of antigen results with consistent antibody existence during whole life. Due to viraemia is rare or absent after spesific BLV antibodies formation in blood, diagnosis of BLV is based on antibody detection. Antigenic response for several viral proteins was detected in tumor developed cattle but gp51 (one of the glycosylated envelope protein) and p24 (major structural protein of virus core) have special importance and can be detected at all infected animal even though they were asymptomatic. Antibody titer to glycoprotein gp51 tenfold higher than p24 and stays detectable at 15th day of post infection,^{11,12} but p24 titer are generally increase in tumour existed animals, so gp51 is to be used for diagnostic purposes. AGID test were widely used but ELISA is preferable due to more simple, rapid and sensitive.¹³⁻¹⁴

CASE HISTORY

In this publication, skin form Sporadic Bovine Leukosis (SBL) was described in a cow. A four year old Simmental race cow has brought to the Afyon Kocatepe University Faculty of Veterinary Medicine, Department of Internal Medicine complaint with widespread skin lesions, anorexia, weight loss in a short time and sharply decreased milk yield. According to anamnesis, symptoms have been started at 25 days ago, skin lesions were increased in the last 10 days. The owner was also noted the lesions were appeared in mouth and mamma tissue in last five day.

The clinical examination findings are; rectal temperature 39.7°C, pulse (95/min), respiratory rate 29, loss of appetite, constipation, enlargement of whole superficial lymph nodes, firm mass formations in the pre-scapular (Figure 2), mandibular and inguinal lymph nodes. Various hair-loss grey-black necrotic lesions with ulcerative center (0.5-6.5cm in diameter) were observed in whole body skin especially in the head and neck region (Figure 1). There were also ulcerative lesions in upper gingiva (Figure 3), necrotic lesions at the junction of corpus and papilla mamma (Figure 4).



Figure 1. Necrotic lesions in whole skin.
Şekil 1. Derideki nekrotik lezyonlar



Figure 2. Tumoral masses at prescapular area.
Şekil 2. Preskapular alanda tümoral kitle



Figure 3. Proliferative lesions in gingiva.
Şekil 3. Üst Gingiva'da proliferatif lezyon



Figure 4. Necrotic lesions at Corpus Mamma.
Şekil 4. Corpus Mamma'da nekrotik lezyonlar

Blood sample was taken from *Vena jugularis* into two sterile tubes with silicone and EDTA. To separate the serum, tube centrifuged at 3000 g for 10 min., and transferred to a stock tube and kept in -20°C until to the test. In the blood examination, total lymphocytosis (16.000/mm³) was determined. For the detection of SBL specific antibodies, sera sample was controlled using a Bovine Leukosis indirect ELISA test kit (Institute Pouquier-Belgium). The principle of the test is based on the competition between the BLV antibodies in the Bovine serum and a peroxidase conjugate monoclonal anti-gp51 BLV antibody. The test was performed as producers describe, wells were evaluated at 450 nm and calculated, the sample was found be strong positive.

Due to poor prognosis, the cow was sent to slaughterhouse. Macroscopic autopsy findings were enlargement of the whole superficial lymph nodes, especially in head and neck region (prescapular, mandibular, inguinal, supramammar). In the cut section of the lymph nodes, cortex and medulla was hardly distinctive, resembled greyish-white and fleshy. Small firm tumoral nodules were observed in the fundus of the abomasum and proximal parts of the small intestines. The cut section of the abomasum wall was pale. Small ulcerative lesions (0.3-0.7mm) were observed in small intestines. Mesenteric lymph nodes were slightly enlarged. There was no pathological change in uterus, heart, lung, liver, kidneys and eyes. Spleen was enlarged nearly 50% and two mass nodules (6.1 and 6.9cm) were observed in spleen. The biggest tumoral formation was also detected in prescapular area (7.5 cm) beneath the ulcerative skin lesion. Similar masses were detected in submandibular, inguinal and submammar regions.

RESULTS and DISCUSSION

The infection was detected for the first time in 1962 state farm in Turkey.¹⁵ Later on many studies were performed using AGID and ELISA in different regions. High seropositivity ratios was generally determined in state farms, Burgu et al.¹⁶ and Akca et al.¹⁷ were found to be 33.08-29.63% and 10-49.1% values, respectively. As a result of eradication programme, the all positive animals were eradicated from these state farms. Serosurvey studies indicated that, rate of the infection was varied between 0 and 9.5% in private farms.^{18,19} The incidence of the infection was generally higher in organised big herds. Cattle breeding having mostly at the family type small farms and medium scale enterprises in Turkey, this organisation could be reduced the probability of contamination.

The skin type was rarest form of the disease, described as only form which clinical recovery can be expected by Bendixen.³ However, fatal termination is generally inevitable notably in the case of the involvement of the vital organs, in this case and eventually returns to lymphosarcoma and goes to fatal prognosis. Cutaneous form generally affects the cattle aged 1 to 2 years old^{20,21} but the stated cow was older. Generalised lymphadenopathy is uncommon in SBL cases^{20,22} adversely on the cow described here.

The clinical picture of the SBL was determined by various factors like age, genetic resistance susceptibility.³ There was no definite information about race sensitivity in literature but interestingly, atypical or sporadic leucosis cases mostly focused of Holstein^{5,20,24} and Simmental races.^{25,26} In this case, origin of the cow was unfortunately unknown, two years ago bought from animal dealer, thus we could not reached to the source of the infection, only calf of the cow was slaughtered.

Type of the infection are enzootic leucosis in all reports before, this is the first report of a skin form of sporadic bovine leucosis case in Turkey. Considering persistent features of the infection, bovine leucosis is among prominent viral infections necessary to fight for eradication ■

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