

for group A, B, C and D animals ($p = 0.038$ between groups). There was a correlation between clinical and X-ray findings ($p \leq 0.049$ throughout the study). Bone defect length, as assessed ultrasonographically on D70, was 6.4 ± 0.2 , 4.5 ± 0.4 , 2.8 ± 0.6 and 4.0 ± 0.5 mm for group A, B, C and D animals ($p = 0.0006$ between groups). There was also correlation between bone defect length assessed ultrasonographically and X-ray findings ($p \leq 0.037$ throughout the study). Vascularization in bone defect region, also assessed ultrasonographically on D70, was 1.0 ± 0.0 , 0.3 ± 0.2 , 0.2 ± 0.2 and 0.2 ± 0.2 for A, B, C and D animals ($p = 0.020$ between groups).

Conclusion and implications

SVF isolation was an easy and effective technique for long bone healing augmentation and might be used as an alternative to bone grafting. Animals with SVF application showed faster post-operative rehabilitation.

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Imaging examination in Small Ruminant Lentivirus Infection

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Introduction

Small ruminant lentivirus (SRLV) is a group of viruses that infect and transmit among ovine and caprine species. This disease is debilitating, progressive and longstanding disease, associated to high economic losses in livestock farms. Diagnosis is largely made with laboratory methods however and not being a common daily practice. Imaging examination can be a useful tool for the diagnosis of SRLV lesions. Imaging modalities can be used in an on-farm setting and can be easily implemented for further best-practices in identifying sheep with signs of clinical disease as early as possible.

The main aim of this work was characterizing lesions of SRLV infection using imaging diagnostic techniques.

Material and methods

This study was carried out at the Pedagogical Animal Husbandry Unit of the Escola Superior Agrária de Bragança (Universities of Applied Sciences). The sheep flock was submitted to indirect ELISA test (ID Screen[®] MVV/CAEV Indiret) to determine positivity of the animals. Positive animals and with characteristic symptomatology were submitted to complementary imaging exams.

Results and discussion

In ultrasound examination (US), different regions of the lung were explored to understand the distribution of lesions. Chronic interstitial pneumonia was found to show an evident increase and homogeneous in echogenicity due to consolidated parenchyma. Chronic indurative mastitis is characterized by a high and homogeneous echogenicity in mammary parenchyma.

Radiography (X-ray) and computed tomography (CT) were also used in this study, despite the limitations associated with health, safety regulations, associated costs and the use of ionising radiation. These examinations were useful to understand the pathological processes of SRLV infection, mainly at respiratory level. In advanced stages, X-ray showed a widely distributed unstructured diffused interstitial pattern, with airspace opacification in lungs. Increased opacity in lungs can be due to infiltration of lymphocytes in the interstitial tissue. Thoracic-CT provides a better detail of the lesion scan which enable visualising a uniform increment of radiopacity in several planes minutely.

Conclusion and implications

With this work we describe imaging SRLV lesions in sheep to support the clinician in the identification of these disease features. These tools can be used in addition to clinical and laboratory examination to avoid underdiagnosis and allow the implementation of suitable measures to control its spread. Some of these techniques (radiography and CT) will not be applicable in field conditions but are useful for academic purposes. Ultrasound is a non-invasive modality already used on farms for reproductive diagnosis. So, ultrasound, with the increased availability of portable digital probe allows professionals to immediately evaluate images on the farm, making this diagnostic tool potentially more accessible and thus play a more important role in daily clinical practice.

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