LOCOMOTION PROBLEMS ASSOCIATED WITH CANINE LEISHMANIASIS

Montse Carrasco Agulló

29/06/17

UAB
Universitat Autònoma de Barcelona

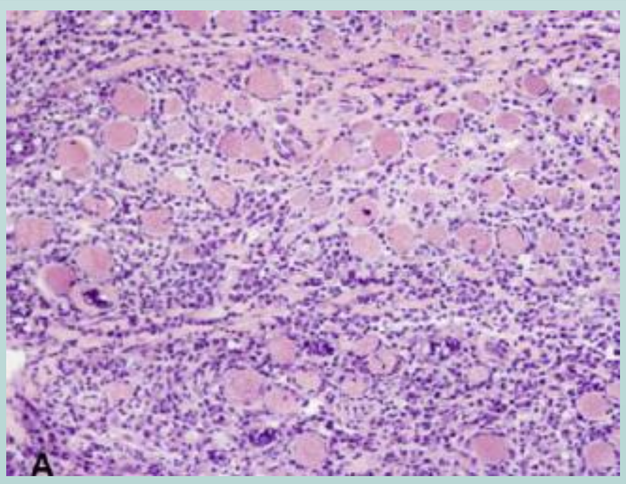
Introduction

- Canine leishmaniasis is a chronic disease caused by protozoan *Leishmania* spp. Orthopaedic problems have been described as uncommon, but it seems to a considerable prevalence in some studies.
- Clinical findings included reluctant to move, stiffness, problems to get up after a rest or chronic/intermittent lameness.
- Hyperkeratosis, pododermatitis, nail disorders, arthritis, polymyositis or osteomyelitis could be a possible cause of these locomotive disorders.

Objectives

- To know that *Leishmania* is an etiologic agent that should be included in the differential diagnosis of locomotive problems.
- To determine if *Leishmania* could produce osteomyelitis, polyarthritis or polymyositis and if the clinical signs are due to the presence of these three lesions.
- Pathogenesis of polyarthritis (PA), polymyositis (PM) or osteomyelitis (OM) and anatomic localizations that are most commonly affected.

POLYARTHRITIS	POLYMYOSITIS	OSTEOMYELITIS
Many reported cases confirm *Leishmania* as a cause of PA, which is manifested with orthopaedic problems. It is the main cause of locomotive problems and injuries tend to be shown in the distal joints	Many reported cases confirm *Leishmania* as a cause of PM. Progressive muscular atrophy seems to be the only sign of damaged muscle	Many reported cases confirm *Leishmania* as a cause of OM, which is manifested with orthopaedic problems. Injuries tend to be shown in the appendicular and long bones
Pain at the palpation, flexion and extension of the limbs, crackling joints, inflamed soft tissue…	Weight-loss, muscle weakness, myalgia or muscle atrophy	Pain at the palpation of bones
Uncertain pathological mechanism: local inflammation against parasite or/and arthritis secondary to ICC deposition	Uncertain pathological mechanism: direct damage of the parasite associated to cellular response or/and humoral response	Bone granulomatous inflammatory reaction as a consequence of the parasite presence it is the most accepted pathogenesis
❖ Radiographic patterns: non-erosive or erosive PA ❖ Histology: synovitis with neutrophilic or limphoplasmocite infiltration ❖ Synovial fluid analysis: inconstant cellular picture, leishmanial organisms in the macrophages and increase in total protein or antibodies	❖ Histology: inflammatory infiltrate of mononuclear cells with endomysial/perymisial distribution and neutrophilic vasculitis +/- thrombus. ❖ Immunohistochemistry: ICC deposition ❖ Electromyograph abnormalities	❖ Radiographic patterns: increase or decrease of intramedullary radiopacity, periosteal production or bone destruction. ❖ Histology: local/diffuse infiltration of cells (most commonly mononuclear cells) +/- leishmanial organisms.



Canine inflammatory myopathy associated with Leishmania Infantum infection, Paciello 2008.

Bones lesions in four dogs with visceral leishmaniosis, Turrel i Pool 1982.

Bones lesions in four dogs with visceral leishmaniosis, Turrel i Pool 1982.

Conclusions

- *Leishmania* is an important etiologic agent to be considered in the differential diagnosis of lameness. It could produce PA, OM and PM but only the first two are often manifested with locomotion problems.
- There is a tendency for the bones and joints to be involved bilaterally and symmetrically, commonly in the distal joints and long appendicular bones. Polyarthritis is more prevalent than osteomyelitis.
- The real prevalence of lameness associated with leishmaniasis is unclear. Future studies: detailed orthopaedic examination, representative number of individuals and perform radiographs or synovial fluid analysis.
- A further investigation is still needed about the pathological mechanisms of PA, PM or OM. However, it seems to have a multifactorial pathogenesis in muscles or joints while bone's injuries seems to be a consequence of local inflammation associated with parasite.