

Chronic Progressive Lymphedema

A. Young, Dr. V. Affolter, Dr. H De Cock, Dr. G. Ferraro and Dr. D. Bannasch

Funding provided by the UC Davis Center for Equine Health

Chronic progressive lymphedema (CPL) is a disease that affects draft horses, particularly Belgians, Shires, and Clydesdales. The disease causes thickening and folding of the skin on the lower limbs and lymphatic system degeneration. The resulting symptoms are painful lower leg swelling, large nodule formation that interferes with normal pastern movement, and permanent skin ulceration. Severely affected horses must be euthanized. Since severe symptoms do not present until later in life, affected horses are often bred prior to being diagnosed and consequently can produce affected offspring. Diagnosis of CPL can be complicated, especially in its early stages, by its similarity to pastern dermatitis, also referred to as “scratches” or “greasy heel”. Pastern dermatitis is fairly common in horses but it does not result in the same degree of disability as CPL. The late age of onset and heavy feathering on the lower legs can further complicate diagnosis.



Above: A Belgian stallion

CPL signs are similar to those of the human genetic disease lymphedema-distichiasis syndrome, characterized by below-knee lymphedema and congenital formation of accessory eyelashes. The human disease has been found to be linked to mutations in FOXC2, a forkhead transcription factor gene. We evaluated FOXC2 as a candidate gene for causing CPL in draft horses by sequencing it in affected and unaffected horses. No causative mutations were identified in the horse FOXC2 gene and these results indicate that it is not the gene that causes CPL (please refer to publications list). The next approach to determining the molecular cause of CPL is a genomic association study that will be underway in the near future. Ultimately, discovering the gene that causes CPL will help draft horse breeders to eliminate the disease from their breeding programs.



Left & Right:
Examples of nodule
formation and
swelling in affected
horses.



* We are currently collecting samples from draft horses with this disease and older draft horses that do not have the disease. If you would like more information or would like to contribute a sample, please contact Amy Young at ayoung@ucdavis.edu.