



What Is Your Diagnosis?

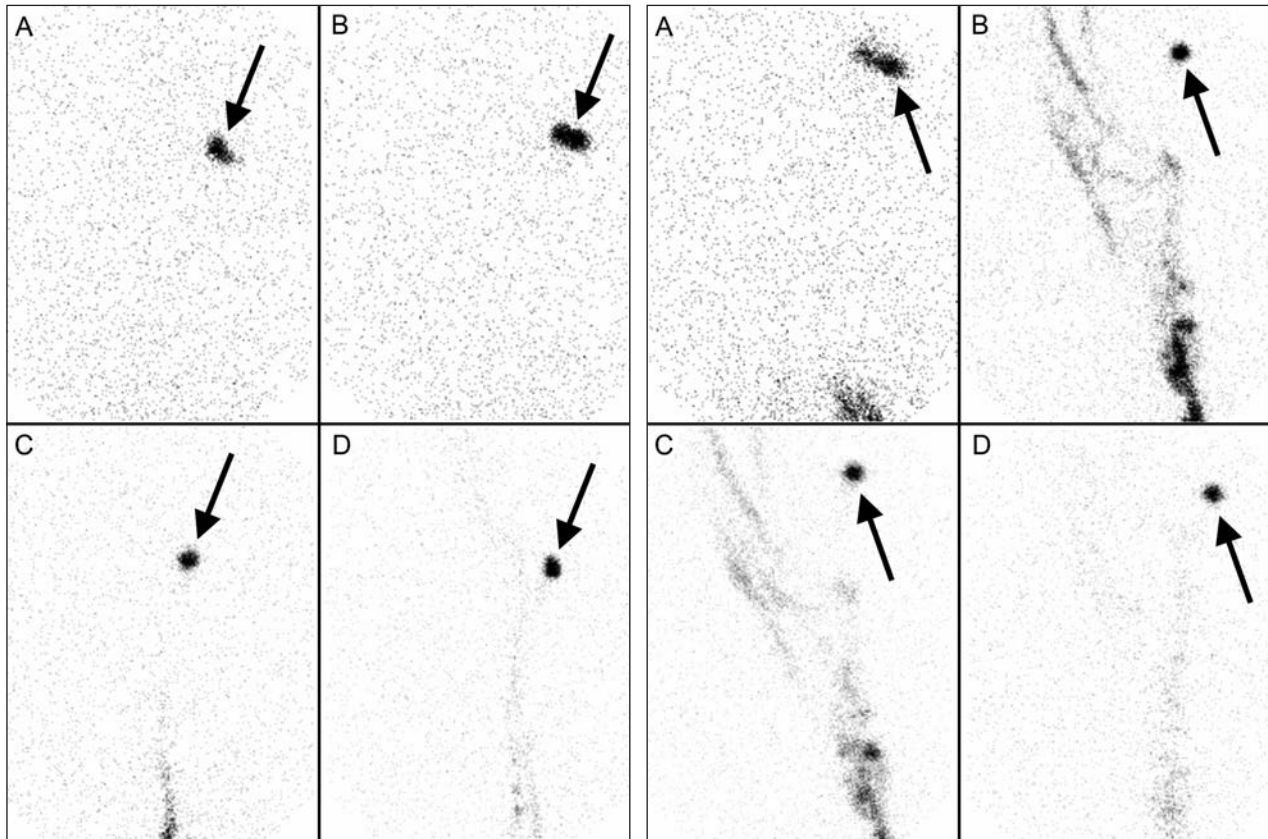


Figure 1—Lateral, static, nuclear lymphoscintigraphic images of the distal aspects of the right thoracic (left panel) and right pelvic limb (right panel) of a 12-year-old Clydesdale gelding evaluated because of chronic swelling and dermatitis of the distal portion of all the limbs. A radiopharmaceutical was injected SC proximal to the coronary band at 4 equidistant sites on the lateral aspect of each limb. Images were obtained 0 (A), 30 (B), 60 (C), and 120 (D) minutes after injection. The orienting radioactive marker (arrows) was placed on the accessory carpal bone (left panel) and point of the hock (right panel).

History

A 12-year-old Clydesdale gelding was evaluated because of worsening skin lesions of 9 years' duration. Lesions were located distally on all limbs and previously diagnosed as pastern dermatitis. Lesions had not improved with treatments that included bathing, homeopathic remedies, and soaking the distal portion of the limbs in various solutions.

Lesions extended proximally from the coronary band to the level of the carpus and tarsus. Areas were affected by severe regional lichenification with scaling, hyperkeratosis, and multifocal to coalescing firm nodules (1.0 to 3.0 cm in diameter), which were occasionally ulcerated. Where thickened skin folded, a purulent exudate and crusting were often present and cutaneous myiasis was a complicating feature. The remainder of findings on clinical examination were unremarkable.

To evaluate lymphatic flow, nuclear lymphoscintigraphy of the right thoracic and right pelvic limbs was performed with technetium Tc 99m sulfur colloid. Following a described protocol,¹ the radiopharmaceutical was injected SC proximal to the coronary band at 4 equidistant sites on the lateral aspect of the limb. After injection, lateral, 1-minute static images of the right thoracic and right pelvic limbs were acquired at 0, 5, 15, 30, 60, and 120 minutes (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page →

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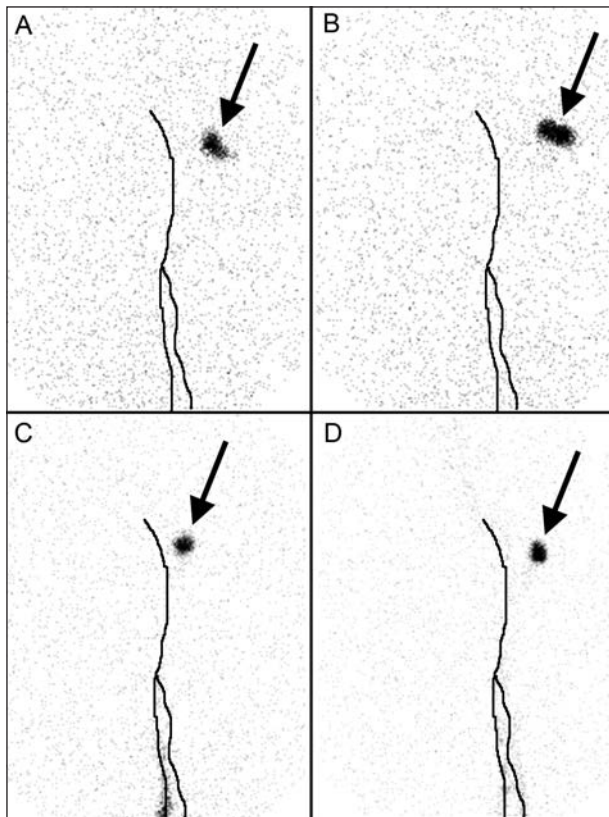


Figure 2—Same nuclear lymphoscintigraphic images of the thoracic limb as in Figure 1. Lack of movement of radiopharmaceutical via the lymphatic vessels (lines) was evident at 0 (A) and 30 (B) minutes. Only minimal distribution of the radiopharmaceutical proximally is evident at 60 (C) and 120 (D) minutes, indicating severe dysfunction of lymphatic drainage.

Diagnostic Imaging Findings and Interpretation

Severe dysfunction of lymphatic drainage is evident in the thoracic limb (Figure 2) with mild dysfunction of lymphatic drainage in the pelvic limb (Figure 3). The lymphoscintigraphic findings are indicative of moderate to severe chronic progressive lymphedema (CPL). Lymphoscintigraphic examination of a horse with normal lymphatic flow would reveal minimal uptake of radiopharmaceutical in the first few minutes after injection, peak uptake into vessels within the first 30 minutes, and rapid decrease by 60 minutes.¹

Treatment and Outcome

The horse was treated by surgically removing the largest and most ulcerated nodules, clipping excessive hair off the distal portion of the limbs, use of a topical antimicrobial scrub, and systemic treatment with antimicrobials. At 11 months of follow-up, the gelding continued to be maintained at home with once weekly hair clipping, cleaning the limbs 3 times/wk, and regular exercise to help maintain remaining lymphatic drainage. One recurrence of a secondary bacterial infection was resolved by systemic treatment with antimicrobials.

Comments

Chronic progressive lymphedema has been reported for several related draft breeds and results from sclerosis of

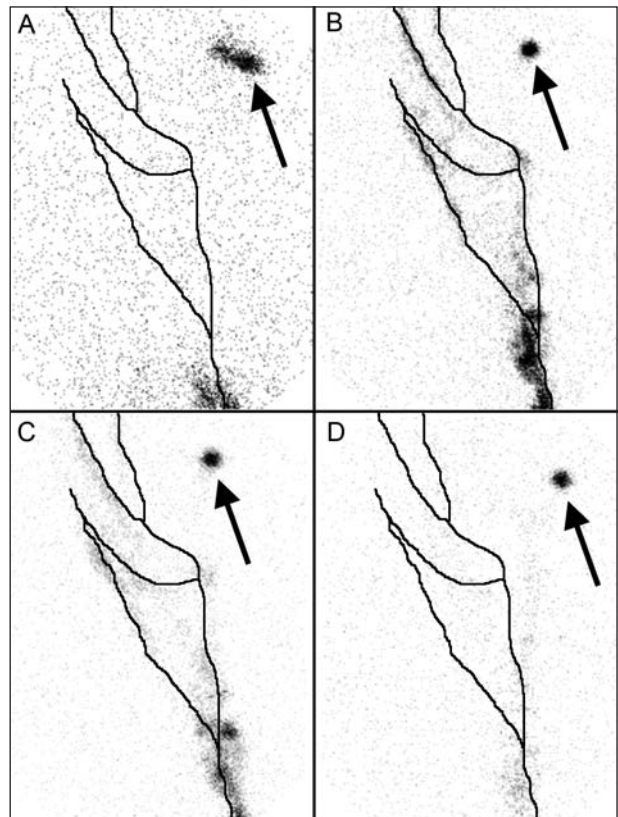


Figure 3—Same nuclear lymphoscintigraphic images of the pelvic limb as in Figure 1. Notice movement of radiopharmaceutical via the lymphatic vessels (lines) by 30 minutes (A) and complete return to background levels of radioactivity by 120 minutes (D). Movement of radiopharmaceutical via the lymphatic vessels is limited, indicating mild dysfunction of lymphatic drainage.

lymphatic vessels, which impedes lymphatic drainage from the distal portion of the limbs.² Lack of lymphatic drainage is considered to be the underlying cause of chronic nonpitting edema of the distal portion of the limb and progression of secondary lesions. Typically, limbs are affected bilaterally, with pelvic limbs more severely affected²; in the horse of the present report, lesions were more severe in the thoracic limbs. As was true for the case described here, lesion severity is positively correlated with lack of lymphatic drainage.¹

Although it has been known for many years that draft breeds have increased susceptibility to chronic pastern dermatitis, the pathophysiology of CPL was not well described until recently.³ Chronic progressive lymphedema evolves from skin thickening to nodules with secondary bacterial, fungal, or parasitic infections.² Early identification of disease, control of secondary infections, and aids to lymphatic drainage can maintain horses affected with CPL for many years.

Chronic progressive lymphedema is difficult to differentiate from other types of dermatitis of the distal portion of the limb, particularly in draft horses with extensive feathering. Imaging modalities used to support a diagnosis of CPL include nuclear lymphoscintigraphy, contrast-enhanced lymphangiography, or CT. Many equine veterinary practices have nuclear scintigraphic capabilities and can perform the imaging to support a diagnosis of CPL and confirm the severity of disease.¹ Nuclear lymphoscintigraphy has the advantage of being a procedure that is done while the horse

stands. Histopathologic findings consistent with CPL may include dermal edema, inflammation, fibrosis, and neovascularization; however, these features are not definitive for CPL and may be present in other disease processes. Breakdown of lymphatic vessels results in increased circulating concentrations of elastin peptides.⁴ Concentrations of antibodies to these peptides are increased in affected individuals,³ although a test to measure the serum antibodies is not commercially available. Lack of lymphatic drainage documented by nuclear lymphoscintigraphy yields a definitive diagnosis of CPL and evidence of disease severity.

1. De Cock HEV, Affolter VK, Wisner ER, et al. Lymphoscintigraphy of draught horses with chronic progressive lymphoedema. *Equine Vet J* 2006;38:148–151.
2. De Cock HEV, Affolter VK, Wisner ER, et al. Progressive swelling, hyperkeratosis, and fibrosis of distal limbs in Clydesdales, Shires, and Belgian Draft horses, suggestive of primary lymphoedema. *Lymphat Res Biol* 2003;1:191–199.
3. Ferraro G. Chronic progressive lymphoedema in draft horses. *J Equine Vet Sci* 2003;23:189–190.
4. Van Brantegem L, De Cock HEV, Affolter VK, et al. Antibodies to elastin peptides in sera of Belgian Draught horses with chronic progressive lymphoedema. *Equine Vet J* 2007;39:418–421.