1. Introduction
Laryngeal hemiplegia limits the performance of horses by decreasing the cross-sectional area of the rima glottidis, resulting in decreased inspiratory airflow, increased inspiratory resistance, and hypoxemia.1,2 The incidence of idiopathic laryngeal hemiplegia (ILH) in Thoroughbreds ranges from 1.8% to 10.7%.3,4 Idiopathic laryngeal hemiplegia is more common in large-breed horses and has been associated with the height of the horse.5 In fact, it has been suggested that anywhere from 40% to 95% of large-breed horses have some degree of arytenoid asymmetry.6,7 There is little published information on the prevalence of ILH in draft horses. In an endoscopic survey of 400 draft horses, 24% were found to have grade 3 or 4 laryngeal hemiplegia,8 and of 48 Clydesdales in New Zealand, 46% had either grade 3 or 4 laryngeal hemiplegia.9

The objectives of this study were to establish the prevalence of ILH in competitive draft horses used for hitch and pulling classes and to determine if there was an association between height, weight, age, breed, or use of the horse and laryngeal disease.

2. Materials and Methods
Participation of owners and trainers and their horses was solicited at the 2005 Michigan Great Lakes Draft Horse Show. Entry into the study was voluntary, and potential participants were encouraged to enroll all of their horses into the study to limit possible bias of examining only abnormal horses. All horses used in the study were housed at the show grounds and were under the care of their owners and trainers. Information about each horse was provided by the owner or trainer and included horse’s age, weight (approximated by the owner based on horse body weights obtained within 60 days of competition or from exact figures obtained for the pulling competition on the show grounds), height (based on previous measurements taken by the owner or trainer), sex, breed (Belgian, Clydes-
Endoscopic examinations of the nasopharynx, larynx, and trachea were performed on each horse at rest without sedation using a 2-m colonoscope. The endoscopic examinations were performed with the horse in its stall or cross-tied in the aisle and restrained with a rope twitch by the owner, trainer, or one of the participating veterinarians. Pulling horses were examined in the arena where the competition took place. The endoscope was passed through the right nostril and advanced along the ventral meatus to the nasopharynx. The nasopharynx and larynx were examined, and structural or functional laryngeal abnormalities were noted. Horses were induced to swallow by spraying water on the larynx. Arytenoid function was graded based on the horse’s ability to maximally abduct and maintain abduction of both arytenoids. If the horse had evidence or history of previous laryngeal surgery, such as laryngoplasty, ventriculocordecotomy, and/or sacculectomy, this was recorded.

Laryngeal disease was grouped into “yes” (grade 3 or 4 ILH or previous laryngeal surgery) or “no” (normal laryngeal function, grade 1 or 2, able to maintain maximal abduction of the arytenoids). The association between nominal factors (breed, sex, and class) and continuous factors (age, height, and weight) compared with laryngeal disease were analyzed by use of χ² and t-tests, respectively (p = 0.05). Factors that were significantly associated with laryngeal disease were further analyzed using multiple logistic regression to quantify the associations (p = 0.05).

3. Results

Endoscopic examinations were performed on 97 Belgians, 58 Percherons, and 28 Clydesdales. The overall prevalence of ILH was 35%. Breed was a risk factor for ILH, as was height. In particular, for Belgians and Percherons, height was significantly associated with ILH. There was no association between age, weight, sex, or specific use (pulling vs. hitch) and the prevalence of ILH.

4. Discussion

The results of this study indicate a 35% prevalence of ILH in this population of competitive draft horses. This is higher than reported for racing Thoroughbreds and might be caused by selection for characteristics associated with ILH or specifically with horse height in Percherons and Belgians. Height was a risk factor for ILH for Belgian and Percheron horses but not for Clydesdales in this study. Others have documented the association between horse height and risk of ILH, although Goulden et al. reported that no significant correlation could be found between height and ILH in a population of 48 Clydesdales, which is similar to our results. The reasons for differences in the prevalence of ILH among the breeds and the lack of association of ILH with height for Clydesdales is unknown. Potential reasons for this discrepancy include modest sample size and genetic differences among or within each breed.

References