

Laryngoplasty and Ventriculectomy or Ventriculocordectomy for the Treatment of Laryngeal Hemiplegia in 104 Draft Horses

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Laryngoplasty with ventriculectomy or ventriculocordectomy is a viable treatment option for draft horses diagnosed with left laryngeal hemiplegia. Authors' address: Department of Clinical Studies, New Bolton Center, University of Pennsylvania, 382 West Street Road, Kennett Square, PA 19348-1692. © 2002 AAEP.

1. Introduction

Laryngoplasty has been shown to return upper airway mechanics to normal in horses with experimentally induced laryngeal hemiplegia¹⁻³ and has been accepted as the current gold standard of treatment. Because the draft horse is at an increased risk for the development of anesthetic complications,^{4,5} little information is available on the use of the laryngoplasty procedure in these large breeds. The purpose of this study was to evaluate the efficacy of the laryngoplasty procedure in the draft horse.

2. Materials and Methods

Medical records and postoperative endoscopy were reviewed of draft horses that presented to New Bolton Center between 1992 and 2000. Horses were all competitive hitch horses endoscopically diagnosed with left laryngeal hemiplegia. All horses were treated by laryngoplasty and ventriculectomy (VE) or laryngoplasty and ventriculocordectomy (VCE). Postoperative endoscopic examination videos were reviewed, and the amount of postoperative

abduction was subjectively assessed and determined to be less than or greater than 70%. Follow-up information and assignment of performance scores of 1-3 were obtained from telephone survey of owners and trainers. A performance score of 3 meant that the horse was performing at its expected level and at its intended use. A score of 2 was defined as the horse was able to perform but not at its intended level, and a score of 1 meant that the horse was unable to perform.

3. Results

One hundred four horses met the selection criteria, including seven horses that had 2 admissions because of laryngoplasty failure, resulting in 111 admissions. There were 41 Clydesdales, 32 Percherons, 24 Belgians, 6 Shires, and 1 Friesian. The average age at the time of surgery was 5.8 yr (range, 3-14 yr). There were 2 mares, 11 stallions, and 91 geldings.

Preoperative endoscopic examination findings revealed 93 cases (84%) were diagnosed with grade IV left laryngeal hemiplegia, 17 cases (15%) were grade

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III, and one case was grade II. Eighty-eight horses (79%) received a laryngoplasty with VCE, 15 horses (14%) received a laryngoplasty with VE, and 8 horses (7%) received just a laryngoplasty, because they had previously had VE or VCE.

Follow-up information was available for 86 cases (78%). All horses received a preoperative performance score of 1. Fifty-seven horses (57 of 86, 66%) received a postoperative performance score of 3, 16 horses (16 of 86, 19%) received a performance score of 2, and 13 horses (13 of 86, 15%) received a performance score of 1.

Comparisons of performance outcome were made among several variables, including degree of hemiplegia, surgical procedure, and percent of postoperative abduction. A larger percentage of horses received a performance score of 3, which were diagnosed preoperatively with grade IV hemiplegia (49 of 75, 68%), than horses with grade III (7 of 13, 54%). In addition, 13 (13 of 72, 18%) of grade IV horses were given scores of 2, and 10 horses were given a score of 1 (10 of 72, 14%). Three (3 of 13, 23%) of grade III horses were given a score of 2, and three horses (3 of 13, 23%) were given a score of 1.

Eight of the 12 (73%) horses that received laryngoplasty and VE received postoperative performance scores of 3, and 4 horses were given a score of 2 (36%). Fifty-one of 74 (69%) horses that received laryngoplasty and VCE were given a score of 3, 10 horses were given a score of 2 (14%), and 13 horses were given a score of 1 (18%).

Ten of 20 (50%) cases showed less than 70% of maximal abduction postoperatively and were given performance scores of 3, 7 cases were given a score of 2 (35%), and 3 cases were given a score of 1 (15%). Forty-seven of 66 (71%) cases that had greater than 70% abduction were given scores of 3, 9 cases were given a score of 2 (14%), and 10 cases were given a score of 1 (15%).

Long-term complications included coughing that did not affect performance (7 of 88, 8%), coughing in horses that had decreased performance (3 of 88, 3%), prosthetic infection (2 of 88, 2%), confirmed laryngoplasty failure (9 of 88, 10%), continued upper respi-

ratory noise (27 of 88, 31%), and continued exercise intolerance (5 of 88, 6%).

4. Discussion

In conclusion, laryngoplasty with VE or VCE is an effective treatment for laryngeal hemiplegia in the draft horse. Improvement was seen in 82% of the draft horses in this study compared with a 69% subjective improvement seen in racehorses.⁶ The higher success rate in draft horses may be because of the less strenuous demands on the show horse relative to the racehorse. In addition, as show horses, many draft horses were presented for upper respiratory noise rather than exercise intolerance and may have responded more favorably to surgery because their clinical signs were less severe. Horses with a preoperative diagnosis of grade IV hemiplegia received better performance scores than horses diagnosed with grade III hemiplegia, but the reason for this is unknown. Horses with greater than 70% postoperative abduction performed better than horses with less than 70% abduction, but the ideal degree of abduction remains to be defined. Finally, the benefit of VE in comparison with VCE needs to be further evaluated.

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