

# Update on Diseases and Treatment of the Pharynx

Berkley Chesen, DVM<sup>a,\*</sup>, Canaan Whitfield-Cargile, DVM<sup>b</sup>

## KEYWORDS

- Pharynx • Palatal instability • Dorsal displacement of the soft palate
- Exercise intolerance • Laryngeal tie-forward • Nasopharyngeal cicatrix
- Permanent tracheostomy

## KEY POINTS

- Palatal instability can progress to dorsal displacement of the soft palate (DDSP).
- Laryngohyoid apparatus position seems to be a factor associated with DDSP.
- The laryngeal tie-forward is the most widely accepted treatment option for this condition, either alone or in combination with other procedures.
- Nasopharyngeal cicatrix most commonly affects older horses living primarily on pasture in the areas around the Gulf in the Southern United States.
- Standing permanent tracheostomy is the best long-term treatment of affected horses.

## UPDATE ON DORSAL DISPLACEMENT OF THE SOFT PALATE IN HORSES

### *Background*

Palatal instability (PI) is the most common dynamic obstruction of the upper respiratory tract (URT) of horses.<sup>1</sup> PI is typically defined as instability of the caudal portion of the soft palate resulting in its billowing into the nasopharynx and obstruction of the normal flow of air.<sup>2</sup> This can further progress to dorsal displacement of the soft palate (DDSP) as occurs when the caudal margin of the soft palate displaces dorsally, over the epiglottis, resulting in more severe URT obstruction (**Fig. 1**).<sup>3</sup> DDSP is reported to occur in 1.3% of horses in general but is estimated to occur in a much higher prevalence in race horses.<sup>4,5</sup> This condition is typically described as intermittent, occurring only during exercise, or persistent, where the condition is present at rest.<sup>6</sup> The exact cause of DDSP is unclear and the subject of much debate and recent publications.<sup>7</sup> Factors implicated in the etiopathogenesis of DDSP include neuromuscular dysfunction, URT inflammation or infection, anatomic abnormalities and variations, and complications

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<sup>a</sup> Equine Comprehensive Wellness, 118 Camino Los Abuelos, Santa Fe, NM 87508, USA;

<sup>b</sup> Department of Large Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, 4475 TAMU, College Station, TX 77843, USA

\* Corresponding author.

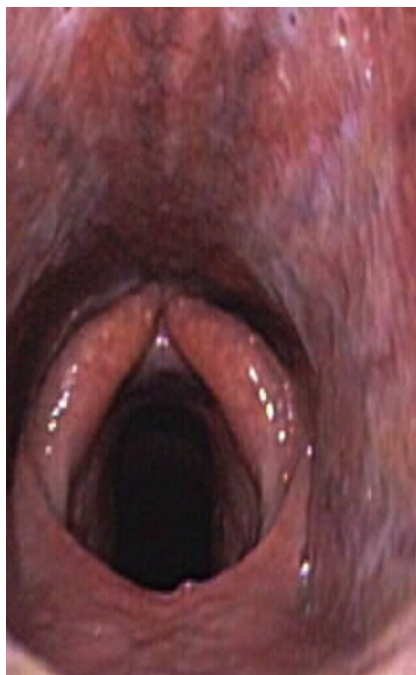
E-mail address: [berkleychesen@gmail.com](mailto:berkleychesen@gmail.com)

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**Fig. 1.** Characteristic image of the nasopharynx of a horse with DDSP at rest.

of URT surgery for other conditions.<sup>8–13</sup> The unclear etiopathogenesis of this common condition has resulted in a large number of treatment options directed at each of the proposed causes. Recent improvements and changes in technology have resulted in new information related to the etiopathogenesis of DDSP and more diagnostic options.

### ***Updates on Etiopathogenesis***

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#### ***Epiglottis***

The epiglottis has long been discussed as a factor involved in the etiopathogenesis of DDSP. This has been demonstrated in several publications where either intermittent DDSP or poor performance was associated with an abnormal appearance of the epiglottis.<sup>14–16</sup> However, other authors suggest that the abnormal-appearing epiglottis is a result and not a cause of DDSP.<sup>5</sup> This is further highlighted by the fact that horses with experimentally induced epiglottic retroversion fail to develop DDSP.<sup>17</sup> Therefore epiglottic augmentation is no longer recommended as a routine treatment option for DDSP.

#### ***Tongue position***

Similarly, tongue position has been discussed as a potential cause of DDSP and is the basis for use of the tongue-tie to prevent DDSP. Tongue retraction is thought to simultaneously result in caudal retraction of the larynx and dorsal pressure on the soft palate “pushing” it dorsal to the epiglottis. Although an occasional horse can benefit from the use of a tongue-tie in regards to DDSP, this is not the expected response and there remains no sound scientific evidence to its use.<sup>18,19</sup>

#### ***Neuromuscular dysfunction***

Neuromuscular dysfunction as a cause for DDSP is supported by recreation of the disorder with specific nerve blocks (pharyngeal branch of the vagus nerve or the

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