Transendoscopic Laser Cauterization of the Soft Palate As an Adjunctive Treatment for Dorsal Displacement in the Racehorse

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Transendoscopic laser cautery of the caudal aspect of the soft palate appears to be a useful adjunctive treatment for dorsal displacement in the racehorse. The surgery was helpful in reducing or eliminating upper respiratory noise, required minimal aftercare, and allowed a swift return to exercise postoperatively. It appears to be a viable alternative to staphylectomy when used in conjunction with a sternothyroideus tenectomy. Authors’ address: New Jersey Equine Clinic, 279 Millstone Road, Clarksburg, NJ 08510. © 2002 AAEP.

1. Introduction

Intermittent dorsal displacement of the soft palate (DDSP) during exercise is an important performance-limiting problem in the racehorse. There have been many theories proposed concerning the pathophysiology of DDSP but a clear understanding of the predisposing factors and the exact relationship of form to function between the soft palate and the larynx still remains incomplete. The problem appears to be complex and at the very least, multifactorial.

Historically, conservative treatment of DDSP in the racehorse has consisted of rigging adjustments (i.e., tongue-tie, figure-8 noseband, etc.) and anti-inflammatory therapy (systemic corticosteroids, intranasal throat spray, phenylbutazone). The approach to surgical treatment has changed little through the years but has evolved to the standard of the currently popular technique of a sternothyroideus tenectomy (STT) with/without a staphylectomy. This procedure resulted in a success rate of 70% in a study of 41 Standardbred racehorses where success was defined as some degree of improvement in racing performance after surgery. When analyzed on its own merits, a staphylectomy carried a reported success rate of 59% in a large study of 59 Standardbred and Thoroughbred racehorses. There are several theories as to the effects of a staphylectomy including the idea that removing a portion of the free edge of the palate will result in fibrosis or scarring along the rim and thereby result in a tighter seal between the soft palate and the epiglottis. There is, however, the risk of inducing persistent DDSP if excessive tissue is removed, and also the possibility of a problem of exhuberant granulation tissue in some cases. Additionally, the postoperative care requires daily attention to a laryngotomy site and healing of this incision results in a lay-up period of 2–3 wk. Subscribing to the theory that flaccidity of the soft palate may contribute to intermittent DDSP, the ability to change the character of the tissue of the soft palate (i.e., create fibrosis) without removing any of its substance would be desirable.

The purpose of this prospective study was to determine the clinical value of transendoscopic laser cautery of the soft palate as a substitute for a...
staphylectomy in cases of intermittent DDSP. It was hypothesized that the cautery procedure would accomplish the desired effect of a staphylectomy yet be minimally invasive, require little postoperative care, and result in a markedly decreased lay-up time after surgery than is currently recommended.

2. Materials and Methods

Fifty-two racehorses presented for surgical treatment of suspected intermittent DDSP during exercise. All horses were either in advanced stages of training or actively racing. Horses were examined endoscopically by the attending clinician on presentation to the clinic. If applicable, a STT was performed under intravenous general anesthesia before the cautery procedure. Once recovered from anesthesia, horses were then placed in standing stocks, sedated with xylazine (0.4–0.6 mg/kg, i.v.) and acepromazine (0.02–0.04 mg/kg, i.v.), and restrained with a nose twitch. The endoscope was passed up the right nostril and the soft palate was locally anesthetized with the topical application of 10 cc of mepivacaine. A 600-μ bare fiber was passed through the biopsy channel and directed at the caudal free edge of the palate. By using 15 W of power and contact technique, the fiber was applied for 1–2 s at 2–4-mm intervals along the entire free edge of the palate and extending ~1.5-cm rostrally (Fig. 1). If an ulcer was present along the caudal free edge of the palate, dorsal displacement was temporarily induced and the ulcerative area was cauterized directly with the laser fiber.

Horses were treated intraoperatively with phenylbutazone (6 mg/kg, i.v.) and topical throat spray and discharged with instructions to handwalk for 3 d before returning to jogging or galloping. Postoperative medications consisted of intranasal throat spray for 14 d, phenylbutazone (4 mg/kg, p.o.) for 5 d, and a decreasing regime of oral prednisolone for 14–21 d. If an endoscopic examination at 1 wk indicated uncomplicated healing of the surgery site, horses were returned to full training.

Follow-up information was obtained by ongoing communication with the referring veterinarian and/or trainer throughout the immediate postoperative period and for up to 1 yr after surgery. For the Standardbred racehorse population of the study, the 4th quarter finishing times for the mile were obtained for the two races prior to and post-surgery as a method of objectively determining whether or not dorsal displacement may have occurred. Racing information was supplied by the USTA and The Jockey Club.

3. Results

The study population consisted of 42 Standardbred and 10 Thoroughbred racehorses. All horses had a recent history of exercise intolerance that was at-
ttributed to the upper airway by the referring veterinarian and/or the trainer. Forty-six horses were reported to have an audible upper respiratory noise detected at or near the end of a race, breeze, or training mile. Forty-seven horses (90%) had evidence of ulceration along the caudal free edge of the soft palate on the preoperative endoscopic examination.

A STT was performed concurrently in 42 horses—8 horses had previously undergone a tenectomy at an earlier date, and in 2 horses the preoperative diagnosis of DDSP was questionable and only the laser cauterization procedure was recommended.

For the cauterization procedure, 15 W of power from a GaAlAs diode laser was directed through a 600-μm bare fiber in all cases with an average energy expenditure of 1098 joules (range 954-1679). Average surgery time was 9.3 min (range 6.4–15) and there were no intraoperative complications.

Fifty of 52 horses raced after surgery at the time of publication. Eight of the 10 Thoroughbreds raced at least 3 times after surgery; 2 horses have not yet started for reasons unrelated to the upper airway. All of the 42 Standardbred racehorses raced at least 5 times after surgery. In 38 of the 42 Standardbreds that had raced before surgery, the average last quarter time in the 2 races before surgery was 31.2 s (range 29.2–36); the average last quarter time in the initial 2 races after surgery was 28.3 s (range 26.4–29). Forty-six horses (92%) were considered by their trainer to have raced successfully with either a significant decrease (14 horses) in, or cessation (32 horses) of, upper respiratory noise at work. Of the eight horses that had previously undergone a STT with marginal improvement, all were reported to have a markedly decreased, or elimination of, upper respiratory stridor after the laser cauterization procedure. Subsequent endoscopic examinations performed by either the referring veterinarian or the attending clinician revealed, subjectively, a smoother and firmer appearance to the soft palate with the cauterized area having been replaced with a faint white scar tissue. Forty-four of the 47 horses that had previously been observed to have ulceration of the caudal edge of the soft palate had a normal appearance to this area on follow-up endoscopic examinations after returning to racing. The remaining three horses with preoperative ulcerations were not examined again postoperatively.

There were no reported postoperative complications except for fistula formation at the surgery site in one horse that did not receive any of the recommended medications. This horse developed a permanent fistula through the soft palate that communicated with the oral cavity; however, this appeared to have no negative affect on racing performance.

4. Discussion

Transendoscopic laser cauterization of the soft palate appears to be an effective adjunctive treatment for intermittent DDSP in the racehorse. The surgery was brief and easy to perform in the standing horse and resulted in no intraoperative complications. The postoperative care was minimal and horses were able to resume exercise within 3 d of the surgery with a resumption of speed work after 1 wk. The recommended medical treatment (throat spray and anti-inflammatory medications) after surgery is very important in reducing the secondary thermal effects associated with the laser. The one horse that developed a fistula at the surgery site did not receive any postoperative treatments.

Owner/trainer satisfaction was very high with this procedure as 92% of the horses showed improvement in or resolution of the previous problem of poor performance. Some horses were in late training but could not start due to the breathing difficulties associated with DDSP and were able to race successfully after surgery. The most obvious effect of the surgery was the report from trainers that the upper respiratory stridor either markedly decreased or resolved completely.

The most common presenting complaint for horses experiencing DDSP during exercise is the presence of a characteristic upper respiratory stridor in conjunction with a marked decrease in performance at or near the end of a work or race. There was a marked improvement in 4th quarter times in the Standardbred population following surgery. That parameter, coupled with the trainers’ reports of a reduction or cessation in upper airway stridor, seems to indicate that DDSP was not occurring at the end of the mile after surgery. However, it is important to note that this is an assumption and not necessarily a clinical fact.

It is the authors’ opinion that the STT remains a very important component of surgical treatment of intermittent DDSP in the racehorse, but based on the results of this prospective study, the laser cauterization procedure is a viable alternative to concurrent staphylectomy. The technique was an effective, adjunctive treatment for intermittent DDSP. The laser procedure, in conjunction with the STT, was helpful in reducing or eliminating upper respiratory stridor associated with DDSP, was minimally invasive, required little aftercare, and allowed for a rapid return to full training.

References


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