

Surgical Repair of Congenital Cleft Palate in Horses: Eight Cases (1979–1997)

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The use of a transhyoid pharyngotomy approach resulted in a lower morbidity rate in the surgical repair of cleft palatal defects when compared with the use of a mandibular symphysiotomy approach. Successful healing was achieved completely in four horses, partially in three horses, and not at all in one horse following one or more surgical repairs. Authors' address: Equine Hospital, College of Veterinary Medicine, Cornell University, Ithaca, NY 14853. © 1998 AAEP.

1. Introduction

Congenital cleft palate in horses is a relatively rare deformity (0.1–0.2%) that most commonly affects the caudal portion of the soft palate. The defect is derived from a failure of lateral palatine process fusion during embryonic development.¹ The treatment for cleft palate involves a surgical correction of the defect, but high complication rates dictate a poor postsurgical prognosis.² Mandibular symphysiotomy and transhyoid pharyngotomy are two approaches described for cleft palatoplasty. The objective of this study was to review the results of these two different surgical approaches and two different repair techniques of congenital cleft palate in horses, with respect to surgical exposure, postoperative complications, and outcome.

2. Materials and Methods

From January 1, 1979 to December 31, 1997, 15 horses were admitted to the Equine Hospital with congenital cleft palate. The medical records and videoendoscopic recordings were evaluated for history, physical exam findings, treatment, and outcome. Only horses that received surgical repair of the

palatal defect were included in the study (8/15). Owners and referring veterinarians were contacted when possible for follow-up information.

3. Results

Eight horses, including four intact males and four females, ranging in age from 4 days to 4 years (median = 5 months), were diagnosed with congenital cleft palate. Three Thoroughbreds, two grade horses, one Arabian, one Welsh pony, and one Paint, weighing between 32 and 408 kg (median = 170 kg), presented with cleft palate, which was associated with milk or food coming from both nostrils (eight), coughing (five), and lower respiratory disease (eight). An endoscopic evaluation revealed the involvement of both hard and soft palates (one), the soft palate only (six; caudal 2/3 in five, and entire soft palate in one), or no description in one case.

Surgical approaches included the following: transhyoid pharyngotomy (TP), three; mandibular symphysiotomy (MS), two; and combined mandibular symphysiotomy with transhyoid pharyngotomy (MS-TP), three. Transhyoid pharyngotomies were performed by using a standard pharyngotomy incision

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with extension rostrally to include a midline bisecting of the basihyoid. Mandibular symphysiotomies were performed by using a lip-sparing incision, extending from the caudal angle of the mandible rostrally, with an osteotomy of the mandibular symphysis.

Closure of the palatal defect included a two- or three-layer closure (five) or Z-plasty technique (two), or both closure techniques in one horse requiring two surgeries. In the two- or three-layer closure technique, after a strip of tissue was removed from the sides of the palatal defect, simple continuous or simple interrupted absorbable sutures were placed in the nasopharyngeal and oropharyngeal mucosa, and interrupted horizontal mattress sutures were placed in the oropharyngeal mucosa, submucosa, and muscularis (when present). A double-opposing Z-plasty as described by Furlow was used for the Z-plasty technique.³ An intraoral light source and long instrument set aided in the visibility and accessibility of the cleft palate site. A tracheostomy was performed in six horses, and an esophagostomy was performed in two horses at surgery. Three horses required two surgical repairs; two because of partial palatal dehiscence, and one because of inadequate surgical exposure.

Methods of feeding postoperatively included the following: pelleted gruel, four; esophagostomy with feeding tube, two; nursing mare's milk, two; and nasogastric feeding tube, one. All horses were restricted from eating hay for 2 weeks postoperatively. The two horses with esophagostomies experienced wound dehiscence and reflux of feed from the esophagostomy site, and both were ultimately euthanized.

Fewer incisional complications and lower mortality rates were associated with transhyoid pharyngotomies alone (0/3, 0/3) than with mandibular symphysiotomies (2/2, 1/2) or MS-TP (2/3, 2/3). No complications were directly associated with transhyoid pharyngotomies, but other complications in these horses included complete (one) and partial (one) palatal dehiscence, ingesta from both nostrils (one), acidosis (one), and anemia (one). Complications associated with mandibular symphysiotomy included painful swelling of the incision site (one), draining tracts (one), pin migration (one), and salivary duct rupture (one). Other complications in these horses were partial dehiscence of the soft palate (two), pneumonia (one), laminitis (one), acidosis (one), and ingesta from both nostrils (one).

Horses receiving both a MS and TP developed swelling of the MS site (one), temporary tongue paralysis (one), partial dehiscence (one), acidosis (one), pneumonia (one), nasal discharge (two), and Salmonellosis (one).

Soft palate repair using a two- or three-layer closure technique produced complete healing after one surgery in three horses and partial healing in three horses. Another horse healed completely after two surgeries. Three horses died or were euthanized following this procedure, although other confounding factors were present (esophagostomy, salmonellosis).

Soft palate repair by using Z-plasty techniques produced complete healing in one horse after one surgery and in one horse after two surgeries. Total palatal dehiscence occurred in one case following this technique. No horses died or were euthanized.

4. Discussion

The overall morbidity rate for complications (87.5%, or 7/8) observed in this study was similar to that cited in other reports.^{2,4} However, the rate of successful healing of the cleft palate defect appeared higher in this study, with 50% (4/8) defects healing completely after one or more surgeries. Partial healing was observed in 37.5% (3/8), with total failure in 12.5% (1/8) of the horses.

5. Conclusions

Previous reports have described the transhyoid pharyngotomy approach, but an inadequate surgical exposure of the palatal defect usually necessitated a mandibular symphysiotomy as well.⁴ An adequate surgical exposure was attained by using the transhyoid pharyngotomy approach for soft palate repair in the horses in this study. We believe this approach offered a more desirable outcome and adequate surgical exposure for most caudal soft palatal defects.

References

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