Ablation of Progressive Ethmoidal Hematomas of Horses by Intralesional Injection of Formaldehyde Solution

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Horses with a progressive ethmoidal hematoma can be treated safely and effectively by a pernasal, intralesional injection of 4% formaldehyde solution if all or a portion of the lesion protrudes into the nasal passage. The lesion may reappear with the use of this method of treatment, but retreatment is easily performed. Authors' addresses: Dept. of Large Animal Medicine and Surgery, Texas Veterinary Medical Center, College of Veterinary Medicine, College Station, TX 77843-4475 (Schumacher and Honnas); Dept. of Surgery, School of Veterinary Medicine, University of California at Davis, Davis, CA 95616 (Yarbrough, Pascoe, and Meagher); and Dept. of Medicine and Surgery, College of Veterinary Medicine, Oklahoma State University, Stillwater, OK 74078 (Woods). © 1997 AAEP.

1. Introduction
A progressive ethmoidal hematoma (PEH) is an expansive mass, of unknown etiology, that originates in the submucosa of the ethmoid labyrinth of horses.1,2 A PEH causes a sanguineous nasal discharge, and as the lesion expands the horse may become dyspneic at exercise or even at rest.

Horses with PEH’s are treated most commonly by surgical ablation of the lesion.1,2 A horse must be anesthetized to ablate a PEH surgically, and severe hemorrhage often accompanies the procedure. Other treatments include pernasal cryotherapy and transendoscopic laser therapy.3 Cryotherapy to ablate a PEH can be performed with the horse standing, but treatment may only be effective in the ablation of small lesions. A PEH can be ablated by laser with the horse standing and sedated, but the cost of the equipment may limit its availability.

Prognosis for cure is guarded to poor regardless of the method by which a PEH is ablated.1,2 Following surgery, the incidence of recurrence, either at the site of the original lesion or on the contralateral ethmoidal labyrinth, is reported to be between 40% and 45%.1,2

2. Materials and Methods
We treated 21 horses with 27 PEH’s by injecting the lesions with a 4% solution of formaldehyde.4 Affected horses were treated while they were standing and sedated. Formaldehyde solution was delivered through a commercial, polypropylene catheter with a retractable, swaged-on 23-gauge needle5 inserted through the biopsy channel of an endoscope.
Lesions were injected until they distended and began to leak formaldehyde solution around the catheter.

3. Results

Lesions significantly reduced in size or disappeared following 1 to 18 injections (median 5), and all horses had remission of clinical signs. Seventeen of 27 lesions (60.7%) completely resolved following 1 to 18 injections (median 5), but one lesion of one horse recurred at 14 months. Follow-up time for these 17 lesions ranged from 1 to 26 months (median 7.0 months). Five lesions of four horses failed to resolve completely, but because these lesions were small and caused no clinical signs of disease, treatment was discontinued. Two horses were lost to follow-up before lesions were completely resolved. The lesion of one horse was removed surgically, at the owner’s request, following one treatment by intralesional injection, and one horse was not returned for further treatment following 15 injections. One horse developed transient signs of laminitis following 3 of 12 injections. No other complications in the technique were noted.

4. Discussion

Formaldehyde solution (4%) has been infused into mammary glands of cattle to involute chronically infected quarters. It has been infused into the parotid salivary gland of horses with chronic fistula of the parotid salivary duct to involute the gland. Formaldehyde solution (4%) has been administered intravenously to horses, with apparent safety, to treat purpura hemorrhagica.

In our study, 17 of 27 lesions (60.7%) completely resolved following multiple (median 5) intralesional injections of formaldehyde solution. The ablation of PEH’s of horses by using formaldehyde solution (4%) avoided complications associated with ablation by surgery, and general anesthesia was not necessary. With this technique of ablation, the only complication noted was transient laminitis developed by one horse following 3 of 12 injections.

Based on our experience gained from chemical ablation of 27 PEH’s of 21 horses, we recommend injection of the PEH with formaldehyde solution (4%) until the lesion distends and formaldehyde solution begins to leak around the injection device. We recommend reinjection at 3- to 4-week intervals until the lesion has disappeared or is so small that reinjection is not possible. As with other treatments for horses with PEH’s, the lesion may reappear.

References and Footnotes


Formalin, Baxter Diagnostics Inc., Deerfield, IL 60015.