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What Is Your Diagnosis?

History

An adult brown Chinese goose (*Anser cygnoides*), weighing 5.1 kg, was presented with a 1-week history of head-shaking, coughing, nasal discharge, and difficulty swallowing after eating. The goose had been residing at a pond located within a housing development for approximately 10 years. The owner mentioned that the goose had suffered from hypothermia during one winter, and that, 2 years before this presentation, it had been attacked by a dog. The goose had survived the attack with relatively minor injuries, including a bite wound to the mid-cervical region. The goose was fed cracked corn, birdseed, and dry dog food along with forage vegetation.

On physical examination, the only abnormalities observed were excessive swallowing and dried yellow exudate surrounding the conjunctiva of both eyes. Results of a blood sample submitted for a complete blood count (CBC) and a plasma biochemical analysis were within reference ranges. Radiographs were taken of the neck area at the site of the dog bite injury (Fig 1).

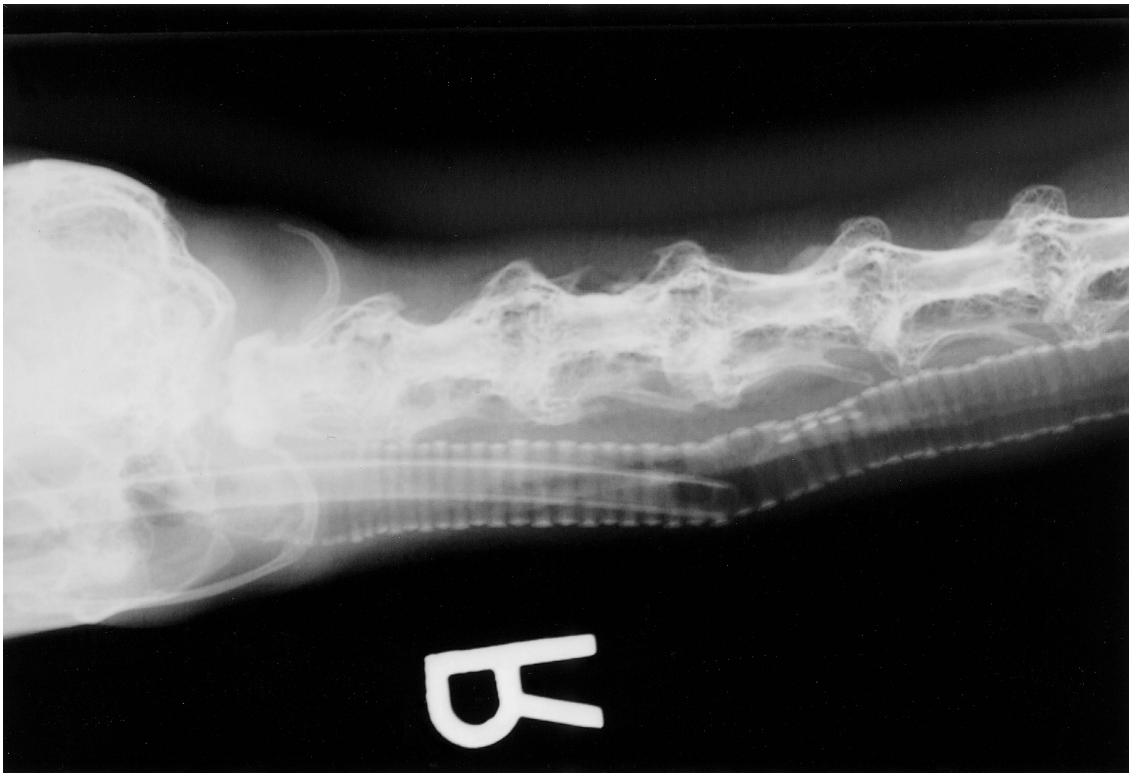

Figure 1. Lateral survey radiograph of the cervical region of a brown Chinese goose with a history of a healed wound from a dog bite in the neck area. The goose was presented because of coughing, head-shaking, nasal discharge, and difficulty swallowing.

Please evaluate the history, results of the physical examination, diagnostic tests, and Figure 1 before continuing. What are your differential diagnoses as to the cause of the head-shaking and difficulty swallowing, and what other diagnostic tests may be helpful in making a diagnosis?

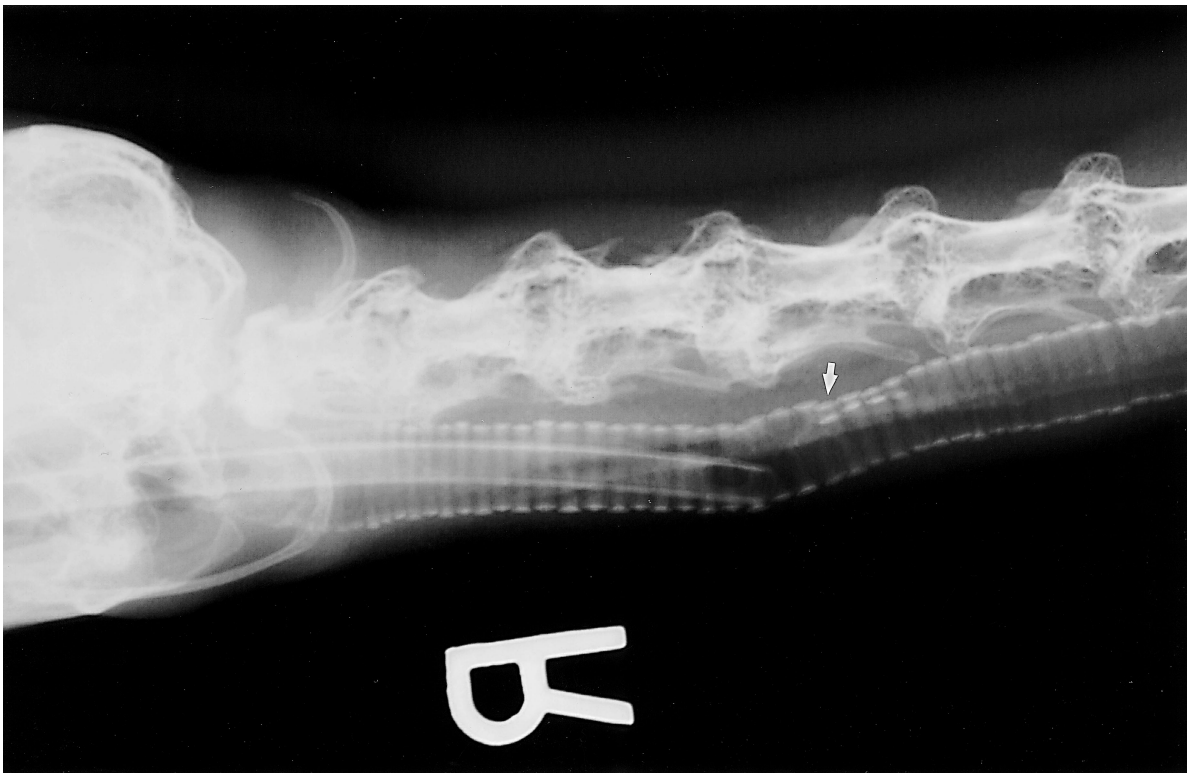

Figure 2. Same as Figure 1. Arrows point to the compromised tracheal rings in the neck region at the site of the dog bite injury.

Diagnosis

Differential diagnoses included complications from the tracheal injury, infectious tracheitis, an inhaled foreign body, inflammatory or infectious respiratory disease, and esophageal injury. On the lateral radiograph (Fig 2), the tracheal injury is visible caudal to the endotracheal tube.

We determined that the extent and the effect of this injury on the bird's condition could be better evaluated by endoscopic evaluation of the trachea. The goose was induced for anesthesia by face mask with 5% isoflurane and maintained on 2.5% isoflurane. An air sac breathing tube was inserted into the left caudal thoracic air sac and attached to the anesthesia unit for ventilation during tracheoscopy.[1] On endoscopic examination, the tracheal injury appeared healed and the epithelium was normal, with no evidence of inflammation or irritation that would explain the presenting condition of excessive swallowing. However, the lumen diameter was severely reduced at the site of the injury (Fig 3). Recovery was uneventful.

Treatment was begun with carprofen (1 mg/kg PO q12h for 10 days; Rimadyl, Pfizer Inc., New York, NY, USA) and enrofloxacin (15 mg/kg PO q12h for 10 days; Baytril, Bayer). Although results of the CBC and plasma biochemical panel were unremarkable, the clinical signs observed in this goose were most consistent with an inflammatory, possibly infectious process. While the tracheal injury was healed, complications resulting from the reduced lumen diameter may have been the cause of

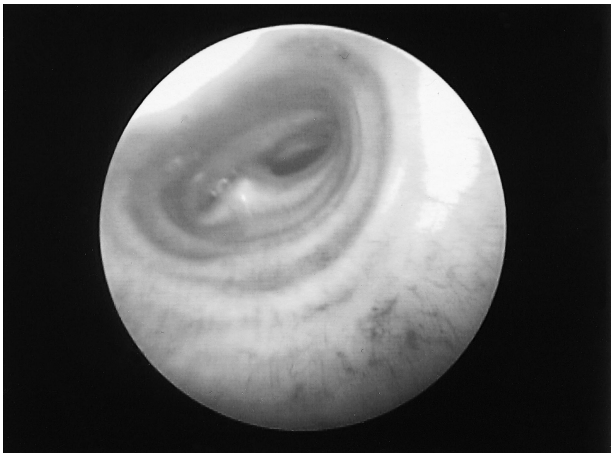

Figure 3. Endoscopic view of the trachea of the goose described in Figure 1. The stenotic area within the tracheal lumen is visible, but the epithelial surface appears normal.

the clinical respiratory signs, which may have directly or indirectly affected esophageal function.

Comments

This goose had a history of a healed cervical injury. For approximately 2 years after the dog attack, the extent of the injury to the underlying anatomical structures was unknown. At presentation, complications resulting from a tracheal or esophageal injury were considered possible causes of the clinical signs. The goose was not in severe respiratory distress; however, it showed signs consistent with tracheal injury, such as coughing, shaking its head, and excessive swallowing.[2,3] Although dysphonia is a common sequela of tracheal stenosis, it was not noted in this goose, possibly because the tracheal constriction was not severe enough to affect the vocal resonance.[2] Complicating factors, such as winter weather and an immunosuppressive state due to age, may have led to the clinical signs observed in this bird. Although radiographs revealed tracheal damage, radiographs are not a dependable means of detecting the severity of tracheal stenosis.[2,4] Endoscopic examination is the preferred diagnostic test to examine the tracheal lumen, not only to determine the extent of tracheal stenosis but also to observe inhaled foreign bodies and fungal granulomas.[2]

In this case, tracheal surgery to repair the stenotic area was considered. Successful tracheal resection and anastomosis to remove stenotic sections has been described in 2 birds.[2,5] Bougienage and surgical resection and anastomosis are the common methods for repairing tracheal stenosis.[2] Fortunately, the goose responded to antibiotic and anti-inflammatory therapy for an apparent infection that was exacerbated by the tracheal damage. Because of the abnormal anatomy of the healed trachea, the owner was informed that the goose may be predisposed to inflammatory or infectious disease involving the trachea and respiratory system.

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References

1. Good D, Heatley JJ, Tully TN, Smith JA. Anesthesia case of the month—air sac cannulation in a blue and gold macaw. *J Am Vet Med Assoc.* 2001;219:1529–1531.
2. Clippinger TL, Bennett RA. Successful treatment of a traumatic tracheal stenosis in a goose by surgical resection and anastomosis. *J Avian Med Surg.* 1998; 12:243–247.
3. Morrisey JK. Diseases of the upper respiratory tract of companion birds. *Semin Avian Exotic Pet Med.* 1997;6:195–200.
4. Taylor M. Endoscopic diagnosis of avian respiratory tract diseases. *Semin Avian Exotic Pet Med.* 1997;6: 187–194.
5. Aguilar RF, Redig PT. What is your diagnosis? Tracheal fungal granuloma removed by surgical resection and anastomosis. *J Avian Med Surg.* 1997;11: 121–124.