

What Is Your Diagnosis?

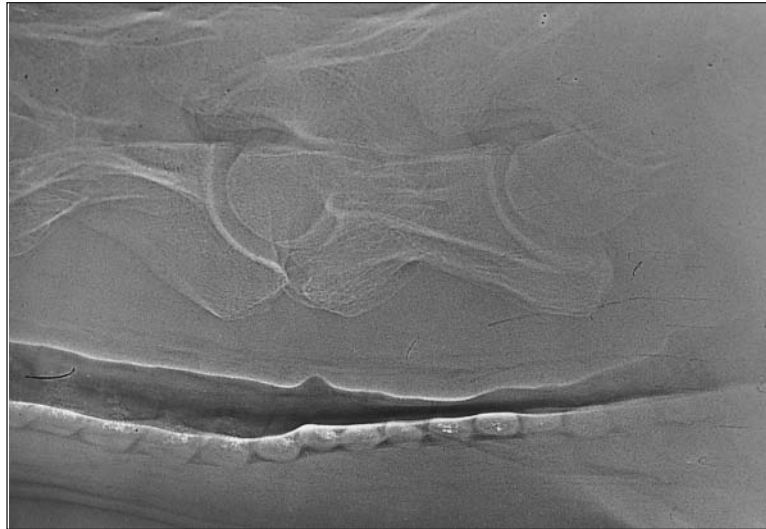


Figure 1—Lateral xeroradiographic view of the caudal cervical region of a 10-year-old mule with mild dyspnea. The image was obtained while the mule was standing.

History

A 10-year-old mule was admitted to the teaching hospital for excision of a squamous cell carcinoma of the third eyelid. In addition, the owner reported that the mule suffered from exercise intolerance and infrequent episodes of respiratory distress. During physical examination, the mule became excited and developed mild dyspnea that abated as soon as the examination was terminated. A whistling sound was heard on inspiration during this period of respiratory distress. Abnormalities were not detected during thoracic auscultation. However, harsh sounds were auscultated over the cervical region of the trachea. A cervical xeroradiograph was obtained (Fig 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page ▶

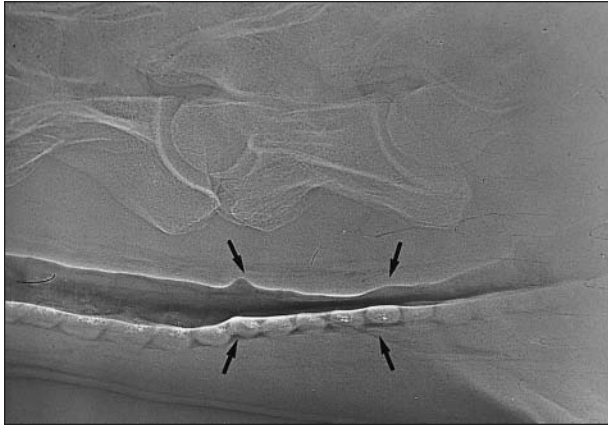


Figure 2—Same view as in Figure 1. Tracheal collapse is evident at the level of the sixth cervical vertebra (arrows). The black line within the trachea proximal to the collapsed region is an artifact.

Diagnosis

Radiographic diagnosis—Tracheal collapse at the level of the sixth cervical vertebra (Fig 2).

Comments

Differential diagnoses for the abnormal respiratory signs were tracheal collapse, tracheal mass, and peritracheal mass. History, clinical signs, and results of xeroradiography were consistent with a definitive diagnosis of tracheal collapse. Although plain-film radiographs would have been equally useful for diagnosis of this condition, xeroradiographs were obtained to more precisely delineate tracheal and surrounding structures.

Xeroradiography is a technique that differs from conventional radiography in that an image is formed on a charged selenium-coated aluminum plate and then transferred to paper. Although first used in human radiology, xeroradiography has found favor with veterinary radiologists, especially for examination of horses. There are 2 major advantages of xeroradiography over conventional radiography. The first is a broad exposure latitude so that excellent soft-tissue detail is maintained even with good bone penetration. The second advantage is the edge-enhancement effect of xeroradiography that allows the borders of adjacent or superimposed structures to be easily delineated. Thus, xeroradiography provides a sharper and more detailed image than conventional radiography. Because of the edge-enhancement effect, xeroradiography is clinically useful for detecting subtle bone lesions such as incomplete fractures. Disadvantages of xeroradiography include the high cost and the greater x-ray exposure needed to produce an image. The high x-ray intensities required for this technique place a greater demand on equipment and increase radiation exposure to personnel.

Clinical signs often associated with tracheal collapse include a dry, honking cough, palpable vibration of the trachea, tachypnea, and a palpable defect of the affected portions of the trachea. Clinical signs and history are often sufficient for diagnosis, but radiography or endoscopy is usually necessary to document the site and severity of the collapse.¹ For the mule of this report, both radiography and endoscopy were performed. Endoscopy revealed a collapsed trachea that began 45 cm from the nostril and was 30 cm in length.

Treatment of tracheal collapse is determined by the length and location of collapse, as well as involvement of soft tissues.¹ A collapse that involves only soft tissue and is associated with pneumonia may resolve completely after rest and treatment with antibiotics and anti-inflammatory drugs.² However, if the collapse is caused by cartilaginous tracheal ring deformity, surgical treatment may be needed. Tracheal ring resection and end-to-end anastomosis are used to correct the deformity in horses. One to 5 tracheal rings may be removed with good success; however, removing more rings may result in decreased range of neck motion.³⁻⁵ In dogs, extraluminal polypropylene prostheses are commonly used to stabilize the trachea.⁶ The mule of this report was living comfortably in a pasture. Thus, medical or surgical intervention was not required to correct the collapsed trachea. However, the mule was at a high risk for developing complications associated with general anesthesia. We discussed this risk with the owner and proceeded with general anesthesia and surgery for removal of the squamous cell carcinoma. The mule recovered without the need for a tracheotomy. However, it did develop respiratory distress during recovery that was treated via intranasal administration of oxygen and nasotracheal intubation.

References

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This report was submitted by Amy M. Woodford, VMD; Debra K. Baird, DVM, PhD, DACVR; and James A. Orsini, DVM, DACVS; from the Departments of Surgery (Woodford, Orsini) and Radiology (Baird), New Bolton Center, University of Pennsylvania, Kennett Square, PA 19348. Dr. Woodford's present address is 115 N Main St, North Wales, PA 19454.