Transcervical Repair of Tracheal Diverticulum

John D. Collin, MBChB, MRCS, Tim Batchelor, MSc, FRCS (CTh), and Ceri W. Hughes, FDSRCS, FRCS(OMFS)
Departments of Oral and Maxillofacial Surgery and Cardiothoracic Surgery, Bristol Royal Infirmary, Bristol, United Kingdom

Tracheal diverticula are rare congenital or acquired abnormalities of the posterior tracheal wall. They are usually asymptomatic, and therefore treatment has not been widely reported. We describe the entity and surgical management of a symptomatic tracheal diverticulum.

Accepted for publication Feb 17, 2014.
Address correspondence to Mr Collin, Bristol Dental Hospital, Lower Maudlin St, Bristol, United Kingdom BS2 1LY; e-mail: jcollin@doctors.org.uk.

© 2014 by The Society of Thoracic Surgeons
0003-4975/536.00
http://dx.doi.org/10.1016/j.athoracsur.2014.02.081

Fig 1. Chest radiograph demonstrating radiolucency at right base of neck owing to tracheal diverticulum.

Fig 2. Axial chest computed tomographic image demonstrating tracheal diverticulum to the right side of the trachea.
tracheoesophageal fistula repair [7]. There is inadequate evidence to recommend any one modality at present.

**Technique**

A 54-year-old male smoker was referred to the respiratory physicians by his general medical practitioner for investigation of a 6-month history of intermittent dyspnea, productive cough, dysphagia, and neck pain. A number of years earlier, he had similar symptoms that resolved spontaneously. A plain chest radiograph demonstrated what appeared to be radiolucency at the base of the neck on the right side (Fig 1). Computed tomography scans subsequently showed this radiolucency to be a cavitating lesion in continuity with the posterior wall of the trachea, just below the cricoid cartilage (Fig 2). The lesion had caused displacement of the trachea to the left side, and it was initially thought to be a tuberculous cavity. Further radiologic and surgical review led to the diagnosis of a tracheal diverticulum. The patient was transferred to the care of the thoracic surgery team for surgical treatment, which was undertaken in conjunction with the maxillofacial surgery team.

Surgical resection of the diverticulum was performed with a cervical collar incision. The strap muscles were divided, and the diverticulum was identified below the inferior pole of the right lobe of the thyroid (Fig 3). After dissection around the neck of the diverticulum (Fig 4), it was amputated at its attachment to the posterior wall of the trachea (Fig 5). The small, residual tracheal wall defect was closed and oversewn with a patch of paratracheal fat mobilized from below and maintained on a vascular pedicle (Fig 6). Alternatively, closed stapling of the diverticular neck could have been undertaken, but two-layer closure was preferred in this case because of the friability of the diverticular tissue.

---

![Fig 3](image3.png) **Fig 3. Intraoperative view of the tracheal diverticulum (green arrow) with overlying recurrent laryngeal nerve (black arrow) after retraction of the thyroid (blue arrow).**

![Fig 4](image4.png) **Fig 4. Intraoperative view of the tracheal diverticulum (green arrow) after dissection to the base of the lesion (black arrow). The recurrent laryngeal nerve is seen beneath the diverticulum.**

![Fig 5](image5.png) **Fig 5. Intraoperative view of defect in trachea (arrow) following resection of diverticulum.**

![Fig 6](image6.png) **Fig 6. Intraoperative view of paratracheal fat inset over tracheal defect (arrow).**
Histologic analysis of the resected specimen revealed numerous diverticula comprising respiratory epithelium only. Combined with the presence of fibrosis and chronic inflammatory changes, these findings favored an acquired tracheal diverticulum. The patient required a course of oral antibiotics for superficial neck wound infection, but otherwise his recovery was uneventful and his symptoms resolved.

Comment
Tracheal diverticulum is a rare cause of recurrent cough and respiratory infection. The radiographic appearance can mimic other causes of paratracheal air collections and cavities, such as tuberculosis, lung cancer, and pneumomediastinum. Asymptomatic diverticula do not require intervention. We recommend a multidisciplinary approach to the management of symptomatic cases, combining the expertise of thoracic and head and neck surgery teams. Our experience with this case demonstrates that surgical resection using a transcervical approach is an effective and safe treatment option.

References