

Excision of adenoid cystic carcinoma of the cervical trachea via an anterior castellated approach

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Abstract

Adenoid cystic carcinoma of the cervical trachea is rare and its diagnosis and surgical management challenging. We report a case with an unusual presentation and discuss the diagnosis and management. The preferred surgical management is tracheal resection, however this is often not feasible and many alternative techniques have been used. Here an anterior castellated approach is described, a modification of that more commonly used for benign tracheal strictures. We found it gave excellent access to the posterior tracheal wall which we feel is superior to a straight vertical tracheal incision. It also facilitates a tracheal widening procedure if indicated, and safeguards the recurrent laryngeal nerves which are particularly vulnerable in the cervical part of the trachea.

Key words: Tracheal neoplasms; Carcinoma, adenoid cystic; Surgery

Case report

A 49-year-old man presented to three different otolaryngologists over the course of 10 years complaining of a persistent irritation of the throat. Later he complained of coughing bouts, but he had no voice changes, stridor or dysphagia. There were no other symptoms. Clinical examination was entirely normal and eventually an endoscopy was performed which revealed a smooth 3 cm swelling in the posterior wall of the trachea. CT scanning demonstrated an oval 3 × 5 cm mass situated between the trachea and oesophagus extending downwards from just below the cricoid cartilage (Figure 1). There was no evidence of metastases. The lesion was biopsied endoscopically via the trachea and then excised using a transtracheal castellated approach. The area was treated with post-operative radiotherapy. Histological examination revealed an adenoid cystic carcinoma. Following surgery the patient's symptoms resolved.

Operation

With the patient supine the neck was hyperextended and a shoulder support inserted. The skin was prepared and the patient draped to expose the neck and upper chest. A low collar skin incision was made. The superior and inferior flaps were elevated and the strap muscles divided to expose the trachea and thyroid isthmus. The thyroid isthmus was then divided and reflected laterally. A castellated incision was then made in the anterior tracheal wall (Figure 2). When opened it gave excellent access to the posterior tracheal wall which was incised and the well defined tumour mass was excised. The posterior tracheal wall was then closed with absorbable sutures and the castellated incision with non-absorbable sutures which were inserted via small holes drilled in the tracheal rings. The strap muscles were opposed and the skin was closed.

Discussion

Primary tumours of the trachea are rare. Adenoid cystic carcinoma is the second commonest malignant tracheal tumour after squamous cell carcinoma (Grillo, 1982). Adenoid cystic carcinomas constitute 23 per cent of all salivary carcinomas (Siefert, 1986). Only 6.6 per cent of all adenoid cystic carcinomas occur in the trachea compared to 34 per cent in the oral cavity and pharynx and 22.8 per cent in the nose and paranasal sinuses (Kleinsasser, 1988).

Adenoid cystic carcinomas are malignant epithelial neoplasms which histologically have a characteristic cribriform appearance composed of ductal epithelial and myoepithelial cells. The aetiology is unknown (Ferlito, 1974).

The most common presentation of primary tracheal tumours is upper airway obstruction cough and haemoptysis. Varying degrees of wheeze and stridor are also seen (Grillo, 1982). Adenoid cystic carcinoma has a characteristically slow and insidious onset most commonly with upper airway obstruction. Presentation as in this case with persistent throat irritation is extremely unusual.

Diagnosis is often delayed due to the slow growth and often nonspecific symptoms. CR or MRI scanning may well demonstrate a mass and endoscopy with biopsy should confirm the diagnosis.

The preferred management is surgical resection of the affected segment of the trachea with reconstruction as required and post-operative radiotherapy (Grillo and Mathisen, 1990). If the tumour is not suitable for resection of the whole tracheal segment a variety of other surgical procedures can be used for local excision including endoscopic coring out of the tumour.

We did not favour tracheal resection in this case due to the length of the tumour, its posterior position and its well circumscribed nature. In addition the tumour was situated in the infracricoid area and tracheal resection would have been associated with significant risk of recurrent laryngeal nerve damage due to the intimate relationship of the nerve

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FIG. 1

Axial CT scan through cervical trachea showing posterolateral mass.

to the trachea in this region. The fact that the tumour was radiologically well circumscribed made a more conservative procedure possible.

The castellated tracheal incision was originally described by Evans and Todd (1974) as part of a laryngo-tracheoplasty procedure for benign subglottic stenosis. We used a modification of this incision. Evans and Todd (1974) made the horizontal part of the incision through the tracheal rings themselves whereas we found it more

convenient to cut between the rings. We also did not need to incise the cricoid and thyroid cartilages.

The castellated anterior tracheal incision ensured a better exposure of the posterior tracheal wall than a straight vertical tracheal incision would have permitted and facilitated a tracheal widening procedure if following resection of the tumour there had been tracheal stenosis.

For these reasons we propose the use of an anterior approach via a castellated tracheal incision for access to the posterior wall of the upper trachea, to facilitate excision of tumours in this situation when it is felt that complete excision of the whole tracheal segment is not practicable. Post-operative radiotherapy is recommended for adenoid cystic carcinomas of the trachea (Grillo and Mathisen, 1990). Primary radiotherapy has been used for those cases which are completely unsuitable for surgery but in expert hands this is very unusual (Grillo and Mathisen, 1990).

Various chemotherapeutic regimes have been used (Shramm *et al.*, 1981; Suen and Johns, 1982; De Haan *et al.*, 1992) but the role of chemotherapy in adenoid cystic carcinoma of the trachea remains unclear.

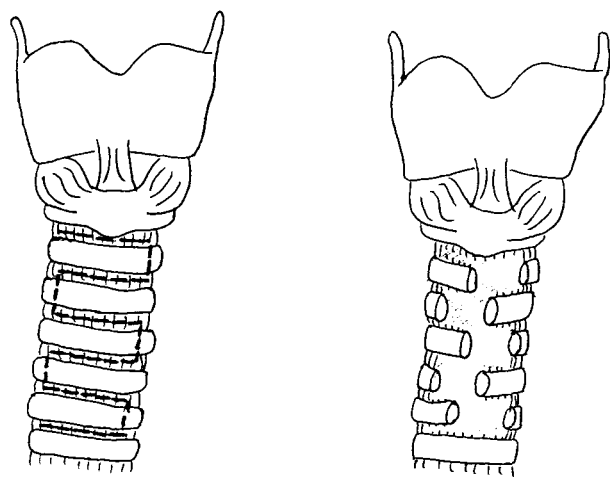


FIG. 2

The anterior castellated tracheal incision.

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