Clinical records

Tracheal stenosis

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Introduction

Surgical management of stenosis of the cervical part of the trachea has presented a problem for some time; several techniques have been described for replacing the stenosed segment with prosthetic materials—dacron, marlex, etc. These are generally unsatisfactory, firstly because the foreign material tends to be rejected and secondly because the graft does not clear secretions satisfactorily as it does not become lined by ciliated epithelium and it does not have a sensory nerve supply.

A much more satisfactory technique appears to be resection of the stenosed area with end-to-end anastomosis of the tracheal segments; Ogura (1962) was one of the first to show that this is feasible. A similar technique is described in this paper.

Method

The extent and position of the stenosed segment is first assessed accurately; this is best done by a laryngogram. An extensive stenosis cannot be dealt with by end-to-end anastomosis, but at least four cm. can be resected with primary repair—hence the importance of accurate pre-operative assessment.

The patient often has a tracheostomy—if so, anaesthesia is given through this, but an endotracheal tube is introduced through the larynx and left lying in the upper part of the trachea above the stenosis. If the patient has no tracheostomy, general anaesthesia is given through an endotracheal tube, with the cuff below the site of the stenosis.

The neck is opened through a collar incision, upper and lower skin flaps elevated, and the fascia divided vertically in the midline to expose the trachea. The thyroid isthmus is divided (if this has not been done previously) and the trachea dissected free above and below the stenosed area. The recurrent laryngeal nerves are exposed to preserve them and the trachea freed from the oesophagus by blunt dissection. The position of the upper end of the stenosis is measured on the laryngogram, using the lower border of the cricoid cartilage as a reference point. The trachea is then divided at the appropriate point and the stenosed fragment removed. If an endotracheal tube is already in place continuity of the airway is assured, provided the cuff is below the excised area; if a tracheostomy has been used the endotracheal tube which was left in the larynx before the operation is now passed downwards into the lower tracheal segment.

The lower segment of the trachea is mobilized as far as possible with finger dissection, taking care not to injure the posterior wall. The two ends of the

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trachea should now meet without tension and are anastomosed with interrupted nylon sutures. The wound is closed with suction drainage.

Materials and results

The results are shown in the Table. All patients have a completely satisfactory airway, with a good voice and normal swallowing, except one patient who still requires dilatation at six weekly intervals.

Name	*Age*	*Cause*	*Length of Stenosis*	*Result*
E.B.	59	Neoplasm	3·0 cm.	Satisfactory
M.H.	18	Tracheostomy	1·5 cm.	Satisfactory
W.H.	58	Tuberculosis	3·0 cm.	Still needs dilatation
P.M.	20	R.T.A.	4·5 cm.	Satisfactory
H.R.	26	Trauma	3·5 cm.	Satisfactory
E.F.	17	Tracheostomy	1·0 cm.	Satisfactory

Discussion

Fortunately, stenosis of the trachea has in the past been an uncommon problem—fortunate because the methods of dealing with it were unsatisfactory. But, since the two common causes of this lesion are tracheostomy and car accidents, its incidence can be expected to increase.

The methods using prostheses have always been unsatisfactory for the reasons outlined above, and there seems little doubt that resection of the involved area with re-anastomosis is the best technique currently available. The technique described here differs from that described by Ogura who leaves a stent within the larynx for six weeks, during which time the patient has a temporary tracheostomy. The presence of the stent can stimulate the formation of granulations, however, and if the stenosis was caused by a tracheostomy in the first place, a further tracheostomy would appear to be inviting trouble. In all cases in this series the patient has been left without a tracheostomy; therefore this also decreases the possibility of infection at the suture line.

Furthermore, it has only once been necessary to mobilize the upper laryngeal segment as described by Ogura and by Dedo (1969). In all other patients in this series the tracheal segments have been approximated by mobilization of the distal segment only.

Summary

A method of dealing with stenosis of the cervical trachea is described; the stenosed area is resected and the ends re-anastomosed.

This technique has been used satisfactorily on six patients.

REFERENCES

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