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LATERAL TRANSTHYROID ARYTENOIDECTOMY

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THERE are already several different techniques described for the construction of an adequate glottic airway following bilateral abductor palsy. These operations may be performed either by external or transoral approaches (Thornell, 1948) but most suffer from a limitation of access to the arytenoid cartilage. A method providing a wider field of approach was contemplated and the technique devised by Alonso (1952) for partial laryngectomy was modified with this aim in mind.

Previous external techniques may be conveniently divided into lateral and midline. The former include those of Woodman (1946), Kelly (1941) and King (1939) and the latter those devised by Hoover (1932) and Loré (1936).

A technique of lateral transthyroid arytenoidectomy and cordopexy is described together with a case report.

Technique

An oblique skin incision is made at the level of the middle of the right ala of the thyroid cartilage. The platysma is divided and the upper and lower skin flaps developed. The investing layer of the deep cervical fascia is incised and the superior belly of the omohyoid and sternohyoid muscles are divided at their insertions into the body of the hyoid bone. These muscles are then turned downwards in the wound and the sterno-thyroid

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muscle is divided at its insertion into the oblique line of the thyroid cartilage and also turned downwards. The thyrohyoid muscle is then identified and separated from its origin on the oblique line and dissected upwards towards its insertion into the hyoid.

Both parts of the cricothyroid muscle are divided at their insertion into the thyroid cartilage, but the attachment of the inferior constrictor muscle to the cricoid cartilage is left intact at A (Fig.).

The thyroid ala is then divided obliquely along BC with shears after the inner perichondrium has been separated from the thyroid cartilage by means of a dissector passed through a small incision in the thyrohyoid membrane at C. The thyrohyoid membrane is then incised backwards along the superior edge of the thyroid cartilage along CD. Care to avoid damage to the internal laryngeal nerve and vessels must be exercised at this stage of the operation.

The flap ABCD is then retracted backwards and the internal laryngeal musculature exposed. At this site it is mainly composed of the thyro-arytenoid and the lateral cricoarytenoid muscles.

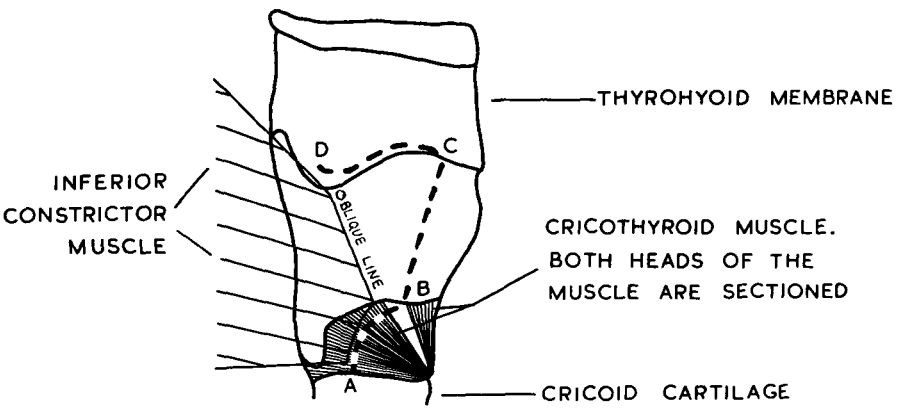


FIG.
Showing construction of chondro-muscular flap.

After the inner thyroid perichondrium is divided, the muscle fibres are split and the arytenoid cartilage identified and after submucous dissection removed except for its vocal process. A chromic catgut suture (size "o") is placed through the vocal process of the arytenoid and the vocal cord retracted laterally. After the ideal amount of abduction has been obtained and checked by direct laryngoscopy, the cord is tethered to the inferior constrictor and the cricothyroid stump at A.

The infrahyoid muscles are sutured to the origin of the inferior constrictor along the oblique line of the thyroid cartilage in order to avoid any medial displacement of the chondro-muscular flap.

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A temporary tracheostomy is then performed if this was not instituted at an earlier date.

Case Report

Mrs. W.M., aged 39 years, had a partial thyroidectomy performed at another hospital for thyrotoxicosis in August, 1963. The operation was a particularly difficult one due to excessive bleeding and damage to both recurrent laryngeal nerves occurred, resulting in a bilateral abductor paralysis. Although the patient did not require an emergency tracheostomy, follow-up in an E.N.T. clinic showed no spontaneous recovery of cordal function. In June, 1965, it was noted that she had obvious limited exercise tolerance and complained of considerable difficulty in breathing when she developed a head cold.

She was admitted to hospital on July 13th and a transthyroid arytenoidectomy and cordopexy was performed. A feeding tube was inserted at the end of the operation and removed 4 days later. Three days later the tracheostomy was closed and she was discharged home 3 days after this.

The patient's airway is now satisfactory and she is able to climb stairs and perform all her usual household duties without respiratory distress.

Comment

This technique, besides providing a wide surgical approach, has two added advantages. The chondro-muscular flap is replaced at the end of the operation, so obviating any loss of thyroid cartilage or disruption of the origin of the inferior constrictor muscle. Secondly, division of the cricothyroid muscle is clearly an added bonus since its contraction produces adduction of the vocal cord as well as increasing its tension. Moreover this adductor action is most probably more pronounced when the other intrinsic muscles are paralysed (Hollinshead, 1954).

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