CASE REPORT

Use of Combined Contralateral Deltopectoral Skin Flap and Ipsilateral Island Latissimus Dorsi Myocutaneous Flap for Massive Cervico-Thoracic Oesophagus Defect Repair

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Summary

Restoring the intestinal continuity of an acquired massive cervico-thoracic oesophagus defect is a reconstructive challenge. A case requiring such defect restoration following a failed pedicled colonic interposition bypass graft between the cervical oesophagus and stomach for an intra-thoracic oesophageal perforation is presented. The defect between the oesophagostome at the lower left neck and the stoma of the colonic stump at the lower left chest measured about 20 cm. An ante-thoracic skin-tube neo-esophagus was constructed in two stages using a pedicled contralateral right deltopectoral skin flap and a pedicled ipsilateral island left latissimus dorsi myocutaneous flap (LD MC flap). A normal swallowing mechanism was re-established.

Key Words: Ante-thoracic skin-tube neo-oesophagus, Deltopectoral flap, Latissimus dorsi myocutaneous flap

Introduction

Restoration of the swallowing mechanism in a major eosophgeal defect following a failed oesophageal surgery is technically challenging. In such a situation, it is necessary to construct an extra-thoracic skin-tube neo-oesophagus of sufficient channel lumen to ensure a normal food intake. Integrated donor tissues composed of cutaneous and myocutaneous flaps derived from the chest wall offer the safest option.

Keyes et al [1], in 1982, reported the first myoepithelial construction of the thoracic oesophagus. They used a split skin grafted pedicled pectoral major and serratus anterior to form the channel of the neo-oesophagus and the overlying huge deltopectoral flap to cover this channel. Commins et al [2], in 1994, reported the use of a tubed pedicled LD MC flap to construct a cervico-thoracic oesophagus.

This case report presents a unique method of constructing a skin-tube neo-oesophagus. It involved using the intact neck and chest skin to form the posterior portion of the channel of the skin-tube neo-oesophagus. The remaining anterior portion of the proximal half of the neo-eosophagus was formed by using the contralateral pedicled deltopectoral flap and the anterior portion of the distal half, by using the island pedicled ipsilateral LD MC flap. As the lumen of the channel obtained is voluminous, the passage of normal solid food is easy with no dysphagia.

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Case report

A 43 year old malnourished woman presented with an oesophagostome at the lower left neck and a stoma of the colonic stump at the lower left chest following a failed emergency colonic interposition bypass graft surgery for an oesophageal perforation performed at another medical institution. The distance between these two fistulous stomas measured about 20cm. There was considerable maceration of the intervening skin due to efflux of saliva and gastric contents. A feeding Foley catheter had been inserted through the stoma of the colonic stump into the stomach.

A two-stage skin-tube neo-oesophagus construction was undertaken. The first stage comprised of creating the proximal half of the skin-tube neo-oesophagus. A pedicled right deltopectoral skin flap based on the second, third and fourth intercostal blood vessels was raised to create the anterior portion of the inner channel of the proximal half of the neo-oesophagus. The skin of the anterior neck and chest was used to form the posterior portion of the skin-tube neo-oesophagus. The deltopectoral flap was not tubed to form the neo-oesophagus as the resulting inner channel will be too narrow for the passage of normal food. A bigger lumenal skin-tube could be created by using the flap to create only the anterior portion of the neo-oesophagus, allowing easy passage of normal food. An incision was made on the superior aspect of the oesophagostome. This incision was extended on the right side to the top of the base of the deltopectoral flap and on the left side, to the upper third of the left sternal edge. The deltopectoral flap was turned-over, spiralled and sutured to the neck and chest incisions with interrupted absorbable sutures (Fig. 1). The seam of the wound was covered by advancing the adjacent cervical and chest skin. The remaining raw area of the reversed deltopectoral flap was covered with split skin grafts. At the lower end of the upper half neo-oesophagus was a sizeable stoma. A Foley catheter was inserted into the upper jejunum per abdomen for enteral feeding.

A primary healing of the wound of the proximal half neo-oesophagus could not be obtained, resulting in a few fistulous openings. These fistulous openings were gradually closed by repeated advancing of the adjacent neck and chest skin.

The second stage of the neo-oesophagus construction was performed six months after the first stage. A pedicled island left LD MC flap was raised to form the anterior portion of the distal half of the skin-tube neo-oesophagus. The skin of the chest was used to form the posterior portion of the neo-oesophagus. The LD MC flap was transposed to the lower left anterior chest wall via a subcutaneous tunnel in the left axilla. A skin incision was made on the inferior aspect of the stoma of the colonic stump. This skin incision was extended on the right side to the lower aspect of the base of the deltopectoral flap and extended on the left to the left side of the stoma of the proximal half neo-oesophagus. The LD MC flap was turned over and sutured to the chest wound with interrupted absorbable sutures, forming the inner channel of the distal half of the neo-oesophagus (Fig. 2). The seam of the wound of the distal half of the neo-oesophagus was covered by the latissimus dorsi muscle. The raw surface of the latissimus dorsi muscle was covered by split skin grafts.

Again, a primary healing of the wound could not be obtained, resulting in a few fistulous openings. These fistulous openings were gradually closed by repeated advancing of the adjacent skin. A normal continuity between the oesophagus and stomach was finally obtained two years after the first operation. The feeding Foley catheter jejunostomy was subsequently removed.

For the past six years, with the re-establishment of complete continuity between the oesophagus and stomach, she has had no problem with normal food intake.

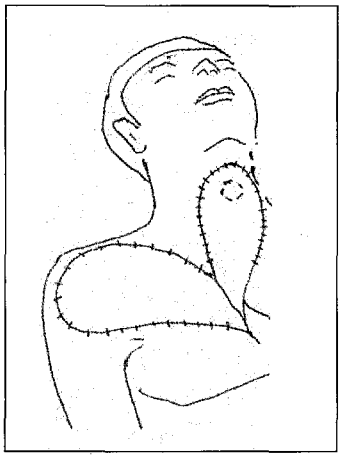

Fig. 1: The pedicled right deltopectoral flap transposed and reversed to form the anterior portion of the inner channel of the proximal half of the skin-tube neo-oesophagus

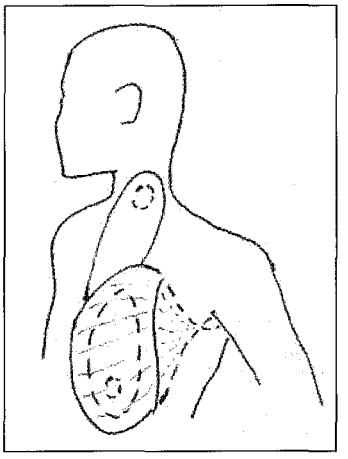

Fig. 2: The pedicled island left latissimus dorsi myocutaneous flap transposed and reversed to form the anterior portion of the distal half of the skin-tube neo-oesophagus

Discussion

Any surgery undertaken to form a channel to re-established the flow of food from the oral cavity to the stomach following previous failed oesophageal surgery must not pose a threat to life. This unique surgical technique presented, though technically demanding and multi-staged, does not pose any life threat as the surgery is performed extra-thoracically. This form of ante-thoracic skin-tube neo-oesophagus construction results in an inner channel of sufficient lumen allowing the intake of normal food.

References

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