

STERNOMASTOID BASED ISLAND FLAP FOR LINING AFTER RESECTION OF ORAL CARCINOMAS

By SATYA PARKASH, F.R.C.S.(Eng.), M.A.M.S,* K. RAMAKRISHNAN, M.B., B.S. and N. ANANTHAKRISHNAN, M.S.

Department of Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry-605006, India

INTRODUCTION

The concept of 1-stage excision and immediate reconstruction for cancers of the oral cavity is now soundly established.

Flaps from the neighbouring regions such as the forehead and temporal region (McGregor, 1966; Narayanan, 1970), deltopectoral flaps (Bakamjian, 1965), split tongue flaps (Papioannou and Farr, 1966) have largely superseded traditional tube pedicle flaps. The sternomastoid island flap for reconstruction of the cheek lining and musculature is an extension of the idea of O'Brien (1970) who used this flap in 2 cases for reconstruction of the lip.

MATERIALS AND METHODS

A sternomastoid based island flap has been used in the treatment of 19 selected cases of oral carcinoma during the period 1972 to 1978 in one of the surgical units of this Institution.

The stage distribution of the cancers according to the international classification (U.I.C.C.) is indicated in Table I.

TABLE I
Sternomastoid based island flap distribution of stage of lesion (U.I.C.C.)

Stage	Number
I	Nil
II	1
III	5
IV	13
Total	19

Preoperative preparation included dental extraction, antibiotic therapy for infection and regular antiseptic mouth washes. Preoperative radiotherapy was given to 8 of the patients.

TECHNIQUE

A stay suture was used to control the position of the tongue. The tumour was excised with a minimum clearance of 2 cm in all directions. The involved segment or the adjacent segment of the mandible was included in the excision. If the angle of the mandible was involved, a separate approach was made to permit an oblique division of the ramus with a Gigli saw placed in the condylar notch. Where necessary the entire

* Professor and Head, Department of Surgery.

half or more of the mandible was excised. An ipsilateral suprahyoid block dissection was done in continuity and the tumour with the mandible and lymph nodes removed *en bloc*. If enlarged lymph nodes were seen along the internal jugular vein, they were also picked out for histological examination.

The free ends of the mandible were stabilised by a suitably bent Kirschner wire 1.8-2.2 mm in diameter, inserted through drill holes in the lower jaw.

A suitably large island of skin was mapped out at the root of the neck (Fig. 1) overlying the sternomastoid. This flap of skin was raised with the muscle and an effort was made to preserve the blood supply from the superior thyroid artery (Fig. 2), in addition to the main supply from the sternomastoid branch of the occipital artery. The margins of the island flap were carefully sutured to the oral mucosa using 3/0 chromic catgut or interrupted mattress sutures of fine cotton thread (Fig. 3). The sternomastoid muscle was anchored to cheek or lip musculature. In most cases a local rotation flap from the neck and some adjustment of the skin of the infraclavicular region were sufficient to close the defect produced by the excision of the involved skin and the donor site of the island flap. In 2 patients a medially based deltopectoral flap was required to provide cover.

The tongue was anchored by a stay suture protected by a tube threaded in a T-fashion (Fig. 4). This kept the tongue inside the mouth but prevented it from falling backwards. A tracheostomy was never required.

Postoperative drainage of the wound by low pressure suction was maintained usually for 48 hours. Antibiotics were given pre and postoperatively and feeding, until the removal of sutures between the 10th to 12th postoperative day, was by nasogastric tube.

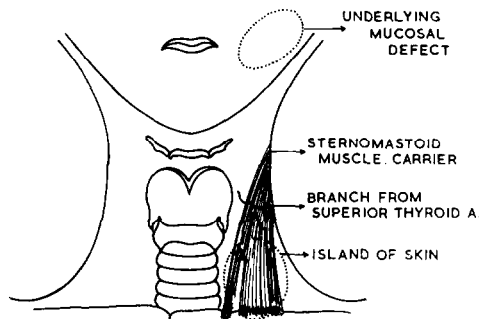


FIG. 1. Diagrammatic representation of the anatomical basis of a sternomastoid island flap.

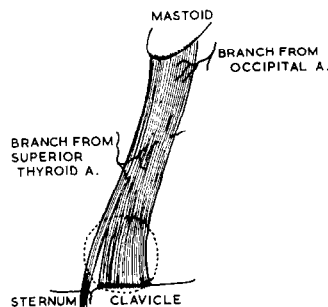
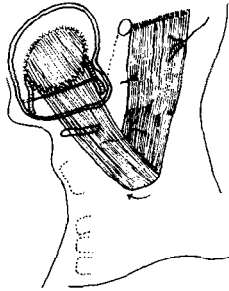


FIG. 2. Diagrammatic representation of the blood supply to the sternomastoid muscle raised and sutured into the intraoral defect.

ISLAND STITCHED
IN POSITION



FLAP CLOSING MUCOSA AND DEFECT
NOTE PRESERVED BRANCH FROM
SUPERIOR THYROID

FIG. 3. Flap raised and sutured into the intraoral defect.

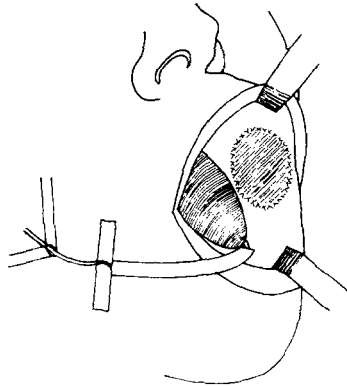


FIG. 4. Skin island in position. Tongue held by T-tube placed over a tongue stitch.



FIG. 5. Postoperative view of sternomastoid island flap in position.

DISCUSSION

The sternomastoid myocutaneous island flap provides a large amount of tissue with an excellent blood supply and epithelial lining. The bulk of the muscle gives a good cosmetic result and forms a base on which split skin grafts can be applied should there be any necrosis of the overlying skin cover. The largest island flap in this series measured 6×5 cm. It is especially useful in post-irradiation cases in which the immediately adjacent tissues are included in the radiation field and even tongue flaps may not be viable after they have been raised.

O'Brien (1970) claimed that the sternomastoid muscle could provide animation. We did not confirm this observation in our series.

The only significant postoperative complication was an orocutaneous fistula in 8 cases. Of these, 6 were small, required no further surgery and closed spontaneously in a few days. In 2 cases a secondary repair was required after control of a local wound infection.

REFERENCES

- MCGREGOR, I. A. (1966). Use of temporal flap in the primary repair of full thickness defects of the cheek. *Plastic and Reconstructive Surgery*, **38**, 1.
- NARAYANAN, M. (1970). Immediate reconstruction with bipolar scalp flap after excision of huge cheek cancers. *Plastic and Reconstructive Surgery*, **46**, 548.
- BAKAMJIAN, V. Y. (1965). A two-stage method of pharyngo-oesophageal reconstruction with a primary pectoral skin flap. *Plastic and Reconstructive Surgery*, **36**, 173.
- PAPIOANNOU, A. N. and FARR, H. W. (1966). Reconstruction of the floor of the mouth by a pedicle tongue flap. *Surgery, Gynecology and Obstetrics*, **122**, 807.
- O'BRIEN, B. (1970). A muscle skin pedicle for total reconstruction of the lower lip. *Plastic and Reconstructive Surgery*, **45**, 395.
- OWENS, N. (1955). Compound neck pedicle designed for the repair of massive facial defects—Formation, development and application. *Plastic and Reconstructive Surgery*, **15**, 369.