

# Pectoralis Major Flap In 77 Head And Neck Reconstructions

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## KEY WORDS

Flap, Pectoralis Major, Reconstruction.

## ABSTRACT

77 patients with head and neck excisional defects are treated by use of Pectoralis major myocutaneous, myocutaneous with skin paddle, and composite, incorporating rib. Results are presented.

## INTRODUCTION

Pectoralis major myocutaneous flap was first described by Ariyan in 1979 and since then it has come to be the mainstay of reconstruction in the head and neck region. The anatomy and technique of flap elevation has been detailed by Magee in 1980.

## MATERIAL AND METHODS

Six year period of study is from 1984 to 1990, the most common indication was buccal mucosa cancer in 49 patients. cancers of the alveolus, tongue and floor of mouth being other common indications. Table -

TABLE-I : Indications for using PMMF

TABLE-I : Indications for using PMMF for reconstruction.

|                                  |       |    |
|----------------------------------|-------|----|
| Ca Buccal Mucosa                 | ..... | 50 |
| Ca Alveolus                      | ..... | 12 |
| Ca Tongue                        | ..... | 7  |
| Ca Floor of Mouth                | ..... | 4  |
| Mandibular tumours               | ..... | 2  |
| Recurrent Basal Cell Ca eye      | ..... | 1  |
| Fracture mandible with skin loss | ..... | 1  |
| Total :                          |       | 77 |

The skin island was designed medial and inferior to the nipple. In 61 patients, the flap was used for reconstruction of lining alone, in 2 for skin defects as both, lining and cover. In 12 patients as double island flap.

In two patients it was used as a myo-osseous flap for reconstruction of mandible. In 9 patients it was used to provide skin lining and/or cover and 5th rib was also included for mandibular reconstruction. The mandibular reconstruction was done in patients in whom the symphyseal portion of the mandible was resected for cancer.



Figures :

1. 4<sup>th</sup> Day PMMF.
2. One Month Old Double Island PMMF.

OBSERVATIONS

Total loss of the flap occurred in 7 (9 %) patients (Table - II).

TABLE - II : Flap necrosis

|         | No. | Total | Partial |
|---------|-----|-------|---------|
| Males   | 50  | 2     | 2       |
| Females | 27  | 5     | 4       |
| Total : | 77  | 7     | 6       |

The incidence of total flap necrosis was higher in females (5/27) than in males (2/50). In one patient, the flap was noticed to have poor vascularity upon raising and was discarded and alternate reconstruction was used. In 4 patients the flaps became pale and cold in early post-operative period and were subsequently lost. On debridement of the dead skin and fat, the underlying muscle was found to be viable in all these patients. In two patients, (1 male and 1 female) the flaps which looked healthy in early post-operative period developed patchy necrosis and purulent discharge on the 5th post-operative day due to necrotising infection.

DISCUSSION

Pectoralis major flap has been named the workhorse of head and neck reconstruction by Magee. The incidence of total flap necrosis varies from 1-7% in different series (Baek, 1982, Wilson, 1984). Various causes for flap loss are compression by metal implants, compression, in the sub-cutaneous tunnel and necrotizing infections (Ossoff, 1983). It has also been proposed that lateral pectoral artery which is usually divided in flap elevation may some times be the dominant blood supply of the flap and this may be the cause of complete loss in some of these patients (Moloy and Gonzales 1988).

Baek in 1982 reported a series of 133 PMMFs in 128 patients (112 males, 14 females). There are two complete losses, one of them in a female. The reason given was necrotising infection. Schuller in 1983 reported a series of 50 flaps in 47 patients (40

males, 7 females). Complete flap necrosis occurred in two patients. No cause for failure was mentioned.

Wilson et al in 1984 reported 112 flaps in 102 patients (77 males, 25 females). Total flap necrosis occurred in 8 patients. It is not mentioned how many of these were females. Two of these patients were reported to be obese. Another two flaps which necrosed were based on lateral thoracic pedicle alone. They also stated that incidence of failure in extended flaps was higher.

In 5 patients (four women, one man) the necrosis occurred because of vascular insufficiency. In all of them, vascular compression and spasm were excluded by the presence of a healthy muscle edge after excision of necrotic skin and fat. The tunnels were of adequate size and no metal implants were used to cause any compression of the pedicle.

Magee has described the surgical anatomy of the pectoralis major muscle. The clavicular head originates from the anterior medial half of the clavicle. The sternocostal head takes origin from the sternum and upper 6 costal cartilages. A third head originates from the junction of rectus abdominis fascia and serratus anterior fascia and blends with the external oblique. It is however, not distinct from the large sternoclavicular head. The inferiorly extended flap depends for its blood supply on the arborisation of small vessels that extend over the rectus fascia and supply the skin distal to the muscle. In a woman with large breast the major part of the skin island of PMMF has to be placed below the muscle and is separated from it by a thick layer of adipose tissue. The blood supply of such an island may not be adequate and this appears to be the cause of total flap necrosis in 4 of our patients.

Two of our patients had total flap necrosis because of necrotising infection. One was an obese male and other a female.

In early part of our series, the pectoralis major flap was used to provide lining for full thickness defects of oral cavity in our patients. A second flap, usually the deltopectoral flap was used in those

patients to provide cover whenever required. With increasing experience with this flap, it has been used as a bipaddle flap for both lining and cover for small to moderate size full thickness defects in males (Fig. 2). In three females in whom the cutaneous defect was small, this flap has been used as a double island flap. The use of this flap is avoided in women with larger breasts. In patients undergoing resection of symphyseal part of the mandible, the 5th rib can be included to reconstruct the mandible.

#### CONCLUSIONS

To conclude one should use wherever possible in females alternative source for reconstruction more so in obese females with large breast because of higher failure rates. The flap can be used to replace the buccal mucosa and/or cheek skin or both as bilobbed flap.

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