Pectoralis Major Rib Osteomyo Cutaneous Flap in Primary Mandibular Reconstruction in Floor of the Mouth Cancer

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We report pectoralis major rib osteo myocutaneous flap in reconstruction of cancer floor of the mouth in 8 cases. We have discussed it's advantages in country like ours over the micro vascular graft. The rib (Vascularised bone graft) incorporated in this flap gives ideal support for mandibular arch reconstruction.

Key words

P. M. rib Osteomyocutaneous flap, free graft, mandibular arch.

Resection of mandible for floor of the mouth cancer results in predictable deformity depending on the extent of resection. Anterior segment resection results in medial rotation of both remaining segment combined with loss of support for the base of the tongue and hyoid bone. Such a defect results in a devastating functional and aesthetic deformity which so debilitating that primary reconstruction is mandatory.

Reconstruction of composite defect is performed

Fig-1

Showing the pre operative lesion in the floor of the mouth

Fig-2

Showing the marking of the flap with fifth rib

with bone and soft tissue in one operation as far as possible to shorten the hospital stay.

The reconstruction of bony part is always a challenge. It may be plates, titanium trays, cortico cancellous grafts etc. These have high complication rate for extrusion and infection. By contrast, vascularised bone graft like Osteomyocut. and microvascular flaps allow for primary healing of the graft as if it were a simple fracture (3). The recent popularity of free graft

Fig-3

Operative photograph showing the flap at the reconstructive site.

has made them a first choice for many surgeons. However the increased operating time, high failure rate, frequent need for operative rescue, specialised post operative care and facilities and specialised training required to perform them have prompted many extripative surgeons to attempt other techniques like P.M. Osteomyocut. flap for mandibular reconstruction. We present the procedure, complications and results of single stage P.M. rib Osteomyocut. flap reconstruction in cancer floor of the mouth in a series of 8 cases.

PATIENTS AND METHODS

These patients were admitted to our centre between Jan, 1991 to June, 1993. All these 8 cases were biopsy proved cases of squamous cell carcinoma. Details of these patients are given in the Table-I. The anatomy and operative technique of the P.M. composite flap are well documented (3 & 7).

The blood supply to the skin flap is through the muscle perforators and to the rib via periosteal blood supply. The skin flap can be cut obliquely or transversely. We have taken it transversely in all our female patients at the infra mammary site for better cosmesis. Fifth and sixth rib can be taken as the bony component (1, 2). But we have used 5th rib in all our cases because of more muscle attachment to it (3). The disadvantages of 5th rib is the pedicle remains under tension

due to it's short length, but in our series we were comfortable in our repair. Rib is first fixed with mandible by 24 gauge wire. To avoid tension due to post operative oedema we have always taken a little redundant flap. The flap was stitched by atraumatic 1/0 silk. Oral feeding was started on 5th post operative day.

RESULT

We had no cases of flap necrosis. The Orocutaneous fistula and epidermal separation were managed by debridement and local dressing. The infection in the first cases did not subside for a long period, then we remove the steel wire under local anaesthesia after 8 months and it healed.

In two cases the pleural cavity was opened and we prophylactically put the intercostal tube. In two cases the flap covered both mucosa as well as skin, as skin involvement was there. These two

Fig-4

Post operative photograph showing adequate opening of the mouth and good cosmesis.

cases were post operatively irradiated. There is no death in this series.

DISCUSSION

To provide vascularised bone with soft tissues for mandibular reconstruction in floor of the mouth cancer numerous regional flaps are used. These are sternocleido mastoid flap with clavicular bone, the pectoralis major myo. cut. flap with rib (4) and sternum (8). The viability of the rib has been confirmed by many investigators by flurochrome markers (4). The vascularity of the bone is adequate enough for union with mandible (6, 9), inspite of the intra oral contamination. It is a simple procedure. Vascularity is adequate for post operative irradiation which ensures no complication like non-union. This is also cosmetically good like microvascular flap (5, 10). We feel this technique is superior to that of split

sternum osteomyo. cut. flap in which the perforating vessels are severed so that future utilisation of the Bakamjian flap becomes difficult. We didnot had any flap necrosis because we took utmost care in raising the flap and safeguarding the nutrient pedicle. Our mean operating time was four hours. Good cosmosis and function, reliable vascularity for primary healing and lack of infrastructure for free flap has made the pect. major rib osteomyocut. flap an ideal reconstructive procedure for many of the centres in our country.

CONCLUSION

When both soft tissue and bone are required to rehabilitate the operative defects, the P.M. rib osteomyocut. flap has proven to be a reliable and time effective procedure.

Table - I

Sl No.	Name	Age	M/F	Length of rib in c.m.	Measurement of skin flap in c.m	Complication	Hospital stay in days	Period of follow up
1.	H.M.	55	M	6	5 x 3	infection	40	2 yrs.
2.	B.N.	60	M	6	4 x 3	Nil	12	2 yrs
3.	M.B.	50	F	5	4 x 4	Epidermal separation	20	1½ yrs
4.	B.P.	45	M	7	5 x 3	Oro-cut. fistula	40	1 yr.
5.	D.P.	65	M	6	4 x 3	Nil	12	1 yr.
6.	M.D.	62	F	6	4 x 3	infection	45	10 months
7.	M.S.	48	M	7	5 x 3	Nil	12	8 months
8.	R.D.	52	M	6	4 x 3	Nil	12	6 months

Table-I Showing details of patients taken in this study.

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