Cheek Reconstruction Following Excision for Malignancy*

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Introduction :

The incidence of oral and pharyngeal cancer is 45%, of the total 18%, of these are in in the cheek (Paymaster, 1956). The incidence in U.S.A. is only 3% (Lawrence etal, 1945).

The cheek cancer usually has a low grade. The patient presents late and hence the excision may involve the full thickness of the cheek, either or both lips, the angle of the mouth, the mandible and the maxilla. A cervical block dissection may also be done. The cure rate is improved from 28 % to 42% in resectable cases with surgery than with radiotherpy (Obrien and Cathin, 1965).

Excision produces an oral cripple having an oral fistula, a continuous dribble of saliva, maceration and infection of skin, dysarthria, inability to eat properly and a socially unacceptable appearance. The gruesome aftermath of excisional surgery demands an adequate reconstruction.

A good repair corrects the functional deficits, restores the appearance and rehabilitates the person socially. The aesthetic and anatomic perfections may have to be subjugated to an expeditious repair which would allow the patient to spend the rest of his lifespan in reasonable comfort.

Material :

The material consists of thirty-six cases treated at the K.E.M. Hospital, Bombay, from 1962 to 1968. Twenty-six of these were males and ten females (Table 1).

Table 1

Sex Incidence

Sex		No. of cases
Male	...	26
Female	...	10
	Total	36

The maximum number of cases was in the 31-40 year age group (Table 2).

Table 2

Age Incidence

Age in years		Number of cases
31—40	...	15
41—50	...	12
51—60	...	6
61—70	...	2
71—80	...	1
	Total	36

The primary excision of the malignancy was done by us for six cases. Out of the remaining thirty referred for reconstruction, six had to undergo a release and skin grafting operation for their trismus

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(Table 3).

Table 3

Primary excision done	Without trismus	With trismus	Total
Elsewhere	24	6	30
By us	6	—	6
		Total	36

Timing of Repair :

Opinions differ regarding the time that should elapse after excision. The two extremes are an immediate repair and a delay till a cure is established. In our cases, the delay has depended upon the type and spread of the growth. Defects following excision of early growths have been reconstructed immediately. In a widespread lesion the trauma of surgical excision precludes a repair at the same stage. Hence the reconstruction is deferred for 6 months. During these six months the patient is built up physically and morally and the recurrences if any are treated.

Principles of Repair :

1. Improvement of the nutrition and morale.
2. Evaluation of the defect in terms of missing components (if necessary after recreation of the defect, Fig. 1).
3. Selecting the ideal donor site.

Special Problems :

1. A deficient lip is best replaced by a fan-flap from the other lip. (Gillies & Millard, 1957). A flap is necessary ot replace both lips.
2. A satisfactory acute angle of the mouth is a key-stone of aesthetic success. The new angle must be at the correct level in all dimensions.
3. The loss of lining is too extensive to be replaced by a free mucosal graft. A free split skin graft is also never satisfactory. A healthy, hairless, saliva resistant flap skin is ideal (Zoltan, 1958).
4. The covering skin must be matching in colour and texture.
5. Adequate subcutaneous fat gives a good contour whenever the underlying bone is intact.
6. Bony defect may be corrected by bone grafting. But none of our patients was willing for any further surgery.
7. Proximity of the donor area to the defect shortens the time for repair and reduces the problems of tissue transport (Barsky et, al,1958).
8. Repair must be achieved in the shortest time and employing a minimum number of operations.

Methods :

They are divided into three groups (Table 4):

(a) Local flaps
(b) Local+distant flaps
(c) Distant flaps

Table 4

	Type of Repair	
Local flaps:	(i) Fan flap	1+4
Transitional group	(i) Temporal island flap +local flap	2
	(ii) Local flap+neck flap	4
	(iii) Local flap+A.P. Tube	3
	(iv) Local flap+Arm Tube	1
Distant flaps	(i) Delto-acromial flaps	3
	(ii) Acromio-pectoral tube pedicle	24
		38+4

Local flaps: They were used at the time of excision of growth. In Case No. 22, a fan flap completed the repair. The other 4 fan flaps were used to repair the oral commissure. The cheek was repaired by other methods.

Case No. 2 (Fig. 2 and 3). A temporal island flap was used for lining and a local flap for cover.

The colour match and texture are excellent, though the contour may not be restored satisfactorily (New & Erich, 1950) Previous irradiation will compel the use of distant flaps.

The depressed dark donor area on the forehead is also too much price to pay.

Transitional Group :

A local flap, sometimes delayed, provides the lining. A distant flap from neck, upper arm, deltoacromial region or acromiopectoral region supplies the cover. Depending upon the distance of the donor site, the repair is complete in one, two or three stages.

Neck flap (Fig. 4 and 5):

A large flap is rotated from the neck and acromiopectoral region to provide cover A local hairless flap forms the lining. This is an excellent one-stage method. The pre-requisites are a hairless cheek skin and a long neck with loose skin. Hence this method may not be applicable to the younger patients; to those with short necks; irradiated tissues and where a radical neck dissection has been carried out.

Distant flaps: These include the deltoacromial and the acromiopectoral tube pedicles. The abdominal and back flaps were not used as they always became hyperpigmented. The texture is also different from the facial skin. The problems of the carrier wrist were also avoided, as the flaps could be sutured directly to the defect. This also reduced the operative stages and the time for repair.

Deltoacromial flap (Fig. 6—8) (Kirschbaum, 1958; Pinto et al, 1968):

This flap has been used to provide the cover as well as lining. It is a two-stage method. The donor area over the lower half of the deltoid muscle appears depressed and dark. This part is usually hidden by the clothes.

Acromiopectoral tube pedicle (Figs. 9—12) (Peet & Patterson, 1963).

This method is being used less frequently It is used as a last resort when no other tissue is available or after failure of other methods. It may not be applicable to persons who have undergone a cervical block dissection but a tube could be raised on the opposite side. The usual objection to this flap is the exposed scar at the donor site in the infraclavicular region. In our country, this region is usually covered by a sari.

The colour and texture in distant flap are the best obtained from this flap.

Complications (Table 5) :

An unusual complication was avulsion of the transferred tube pedicle in the immediate post-operative period. It was resutured immediately under local anaesthesia.

Another was collection of mucoid fluid between the two flaps in two cases. It was aspirated.

Complete loss of flap occurred in two cases. They were reconstructed by acromiopectoral tube pedicles, subsequently.

Fig. 1—Case No. 12. S. R. Re-creation of the defect and skin graft to the raw area. Immobilisation over dental stent compound.

Fig. 2—Case No. 2. A. J. The defect after excision.

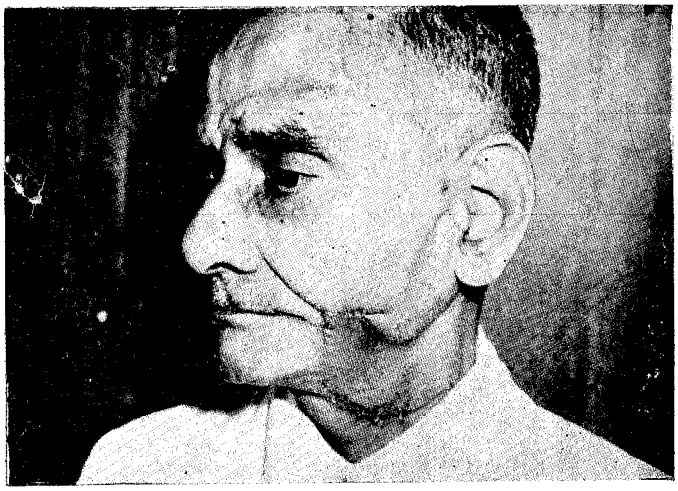

Fig. 3—Case No. 2. A. J. Repair with temporal island flap (lining) and local flap (cover) (three weeks post-operative).

Fig. 4—Case No. 34. S. M. The defect.

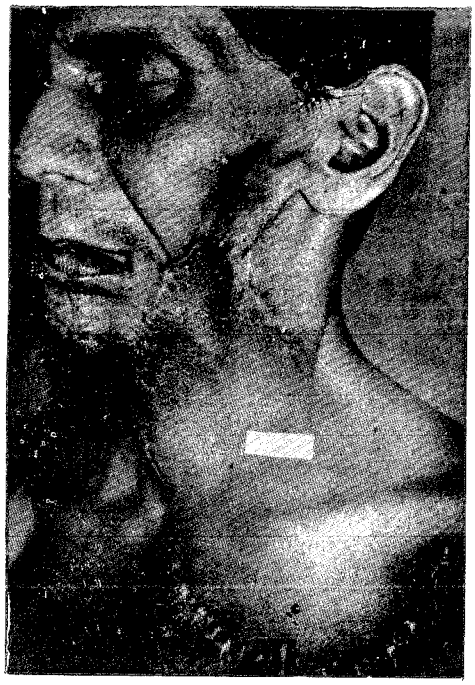

Fig. 5—Case No. 34. S. M. Repair by local flap (after a delay) and neck flap (cover)—2 weeks post-operative.

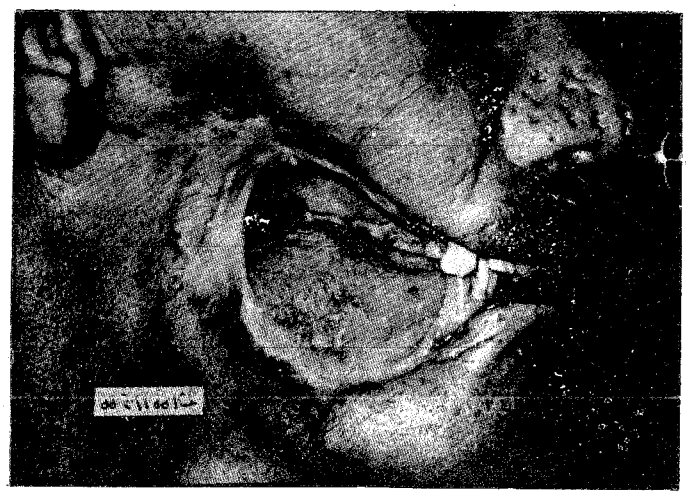

Fig. 6—Case No. 29 K. B. The defect.

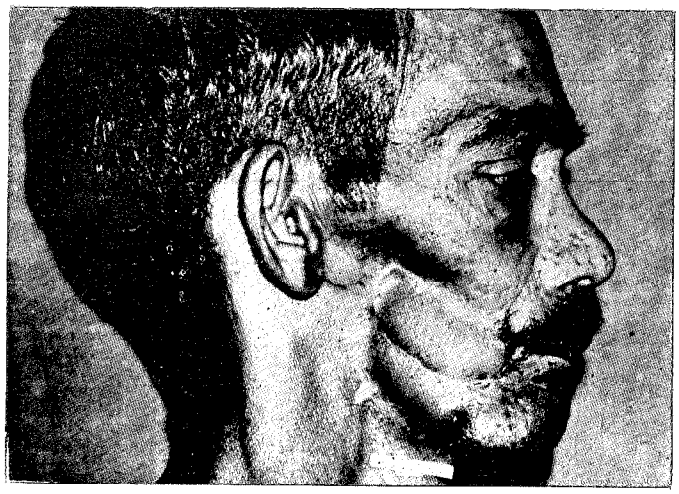

Fig. 7—Case No. 29 K. B. The repair with deltoacromial flap.

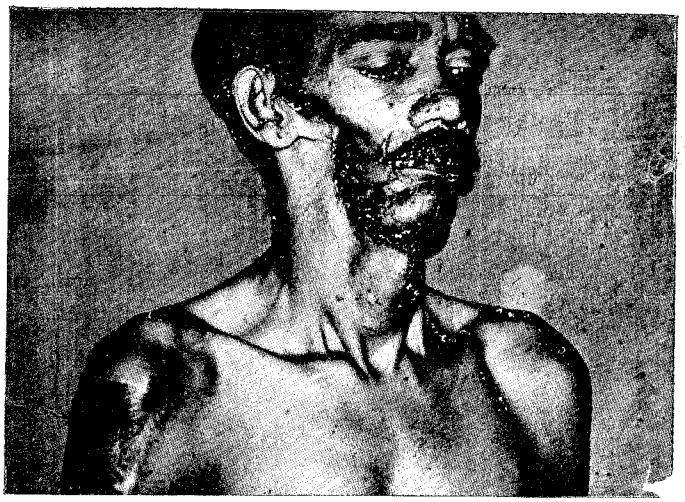

Fig. 8—Case No. 29. K. B. Donor area disfigurement and extent of return of the unused flap.

Fig. 9—Case No. 7. The defect.

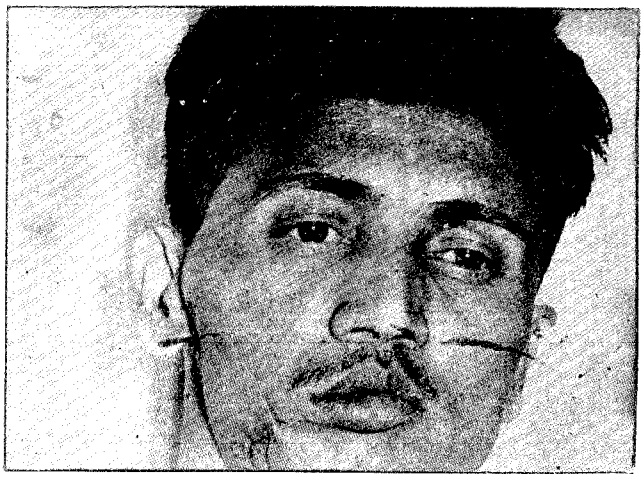

Fig. 10—Case No. 7. The repair with acromiopectoral tube pedicle and local flap.

Fig. 11—Case No. 6: The defect.

Fig. 12—Case No. 6. The repair with Acromiopectoral tube pedicle.

Table 5

Complications

Minor infection	... 9	
Partial loss of flaps	... 9	(times)
Complete loss of flaps	... 2	
Haematoma	... 3	
Fluid collection	... 3	
Recurrence :		
During repair	... 3	
After repair	... 1	
Hair growth from lining skin	... 1	
Avulsion of transferred tube pedicle	... 1	

Results

The results were good where the defects were small and without any bony loss. The contour was never symmetrical when there was a partial loss of mandible as the patient was never willing for a bone graft. He was satisfied with the fistula closure only. Hence the cheek depression remained prominent despite a good colour match and imperceptible scars.

The hospital stay was shorter for one-stage repairs. The maximum hospital stay was $13\frac{1}{2}$ months (Table 6).

Table 6

Hospital stay

Less than 1 month	...	6
Less than 2 months	...	5
3 months	...	8
4 months	...	6
6 months	...	3
9 months	...	1
12 months	...	3
$13\frac{1}{2}$ months	...	1
Total	...	36

Summary and Conclusions

Thirty-six cases of cheek defects following malignancy excision are presented. The problems and principles of reconstruction are discussed. A skin to mucosa closure must be achieved after the excision. Any raw area should be covered with a split skin graft.

The scope and limitations of local flaps are described. Local and neck flaps seem to be a good one-stage method of repair.

Deltoacromial flap is a two-stage method bringing in distant tissues.

The acromiopectoral tube pedicle is used as a last resort.

Acknowledgement

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