

Pattern and Management of acquired Facial defects in Imo State University Teaching Hospital, Orlu, Nigeria.

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ABSTRACT

Background: The face combines function with important aesthetic implications. With organs and units so closely related a fine balance and symmetry must be maintained in reconstructing facial defects. Imo State University Teaching Hospital Orlu, has the bulk of its patients drawn from neighbouring rural communities and are mainly of a low socioeconomic group. They therefore tend to present late with relatively complicated pathologies. This article looks at the pattern, aetiology and management approach for facial defects in our centre and highlights the challenges faced in managing these patients.

Method: A review of clinical records of consecutive patients with acquired defects of the face managed at the Imo State University Teaching Hospital over a 12 month period was performed. Socio-demographic and clinical data were retrieved and analyzed.

Results: There were 31 patients (15 males and 16 females) with 33 facial defects, and a mean age of 36.2 years. The lips were most commonly involved (30%). The eyelids and eyebrows were least affected. Most defects (48%) followed excision of neoplastic tumors and 87% of these were in Albinos. Human bite was the commonest cause of lip defects. The nasal defects more often required a combination of procedures with multiple theatre sessions. Ninety one percent (91%) of the defects were reconstructed primarily with good results.

Conclusion: Surgical excision of squamous cell cancers in albinos and human bite are the commonest causes of facial defects in our environment.

In reconstructing facial defects of diverse aetiologies, adherence to laid down principles of facial reconstruction is necessary to achieve consistently acceptable results. We recommend primary repair of acquired facial defects as this gives optimal results.

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INTRODUCTION

The face is one of the most striking parts of the human body. It is the site of emotional expression and often defines one's personality. Unlike other parts of the body which may be covered up in clothing, the face is almost always left exposed. Defects of the face therefore, apart from the functional implications carry very significant aesthetic concerns. In recognition of the importance of aethesis in facial reconstruction, Gonzalez and Ulloa have divided the face into six regional aesthetic units¹. These aesthetic units have unique anatomical, aesthetic and functional characteristics which impact on reconstructive options and outcome.

These aesthetic units are; the forehead; eye/eyebrow; nose; lips; chin and the cheeks¹. These have been further subdivided by various authors into subunits²⁻⁴. These aesthetic units and subunits have visual anatomical boundaries. Scars kept parallel to the borders of these units and their subdivisions, are concealed by light reflection and shadows. Also, the correct orientation of scars next to these mobile functional and aesthetic facial structures will help avoid distortion of these structures with scar contraction⁵. In addition to the above principles, the age and sex of the patient, the aetiology and the size of defect are all factors that must be taken into consideration when defects of the face are managed.

Acquired facial defects represent a heterogeneous group with no clearly defined pattern. In the management of these defects adherence to the above guidelines help in achieving good results.

Imo State University Teaching Hospital is located in Orlu, a sub-urban town in Eastern Nigeria. It offers Plastic surgery services to the Entire Imo State and beyond. The bulk of our patients however come from neighbouring rural communities and are mainly of a low socioeconomic group. Their presentation to hospital therefore tends to be late due to poverty and ignorance. This article looks at the pattern, aetiology and management approach for these defects in our centre. It further highlights the challenges faced in managing these patients.

PATIENTS AND METHODOLOGY

The case notes of 31 consecutive patients with 33 acquired defects of the face managed in our unit over a period of 12 months (March 2007 to February 2008) were reviewed. For the purpose of this study, the ear was considered a part of the face. Defects resulting from burn injuries were excluded from the study. Defects resulting from Human bite were considered separate from other trauma causes due to the unique nature of these injuries. The data was analyzed using descriptive statistics.

RESULTS

A total of 31 patients, 15 (fifteen) males and 16 females with 33 defects of the face were managed during the period of the study

Their ages ranged from 8 years to 67 year with a mean age of 36.2 years. Table I.

The commonest part of the face involved were the lips, accounting for 30% of the cases, while the eyelids and eyebrows were least affected. Table II.

The commonest cause of these defects was following excision of neoplastic tumors, accounting for 48% of all cases (15 defects). Fig.1. Thirteen (87%) of these patients with neoplastic tumors were Albinos, and all had Squamous cell carcinoma. Human bite was the commonest cause of lip defects. Fig. I

With the lip injuries, human bite accounted for half (5 patients). In all cases of human bite injuries, the victim and the assailant were involved in a fight. These human bite injuries were commoner in females in the third and fourth decades of life. Whichever sex was involved however, the assailant was usually of the same sex as the victim. The only other site involved in human bite injuries was the ear (2 patients). The human bite injuries to the lips involved predominantly the lower lips while the tumours involved the upper lip. Fig II.

The sizes of these facial defects ranged from 1cm by 3cm to 10cm by 8cm. The larger defects were those involving the cheeks. Table II

All defects following tumour excision were reconstructed primarily. Human bite injuries presenting within 24hrs, were also primarily reconstructed. Those presenting later than 24hrs post injury or obviously infected had delayed primary reconstruction. Secondary reconstruction was done in one patient who presented with a healed wound.

Seven patients presented with cheek defects requiring reconstruction. Six of these followed excision of malignant lesions, five of which were squamous cell carcinomas in Albinos. Local and regional flaps were the workhorse of our reconstructive techniques. For defects of zone 1, we used cheek advancement and local transposition flaps. The zone 2 defects were larger, up to 8cm by 10cm, and involved the adjacent parts of zone 1. For these defects, we used the posteriorly based anterolateral neck transposition flap.

The commonest procedure used in upper lip reconstruction, was bilateral cheek advancement in combination with lip switch. This was employed in 3 patients with defects 40% and above, involving the central upper lip. For the lower lip, relatively central defects less than 30% in size and sparing both commissures, were reconstructed with direct closure after a wedge excision. Similar defects 30 to 60% in size, or in which the angle of the wedge would exceed 60°, were reconstructed by advancing the lateral lip tissues along the labio-mental crease after a 'blunt wedge' resection (fig -IV). In 3 of the six patients with nasal defects, a combination of

flaps were used, while three of the six patients required two or more theatre sessions. The commonest flaps used were Nasolabial flap in four patients, and a V-Y advancement of the glabellar and nasal skin in three patients.

Keloid excision was the commonest cause of the ear defects, accounting for 50% of these. For these defects, keloidal flaps

TABLES AND FIGURES

Table 1: Age Distribution.

Age in yrs	< 10	11-20	21-30	31-40	41-50	51-60	61-70	> 70	Total
N0. of pts	1	2	8	11	4	1	4	0	31

Table II: Patient Data

Aesthetic unit	N0. of defects	Age	Sex	Site of defect	Size of defect	Surgical procedure
Fore Head	1	35yrs	M	Left Lateral unit	6 x 5cm	Temporoparietal flap + SSG
	2	22yrs	M	Central unit	2 x 5cm	Direct closure
	3	20yrs	F	Central unit	1.5 x 4cm	Direct closure
Eyelid	1	65yrs	F	Lower lid	20%	Lid advancement
Nose	1	47yrs	M	Left Ala	2.5x1.5cm	Nasolabial flap + Bucal mucosal flap
	2	37yrs	F	Nasal dorsum	3x3.5cm	V-Y adv. flap
	3	25yrs	F	Left side wall	2.5x2cm	Nasolabial flap
	4	23yrs	M	Rt. Ala, side wall and Ala	2.5x2.5cm	V-Y adv. flap + Nasolabial flap
	5	8yrs	F	Collumela + septum.	1.5x1.5cm	Cantilever bone graft + forehead
	6	42yrs	F	Collumela + Septum	2.5x2cm	-----
Cheek	1	65yrs	M	Zone 1	2.5x2.5cm	Cheek transposition flap
	2	57yrs	F	Zone 1 and 2	10 x 8cm	Neck transposition flap
	3	67yrs	M	Zone 2	6.5 x 5cm	Neck transposition flap
	4	35yrs	M	Zone 1	1.5x5cm	Direct closure
	5	32yrs	F	Zone 3	1 x 3cm	Direct closure
	6	37yrs	F	Zone 1	2.5 x 3cm	Cheek adv. flap
Ear	1	35yrs	M	Dorsum	1.5 x 3cm	Post auricular flap
	2	32yrs	F	Middle 3rd	4 x 1.5cm	Post auricular flap + cartilage graft.
	3	19yrs	F	Ear lobe	2.5x2cm	Modified lateral neck flap
	4	15yrs	M	Upper 3rd	1.5x3cm	Direct closure
	5	27yrs	F	Upper 3rd	2x4cm	Post auricular flap + cartilage graft.
Lip	6	40yrs	M	Upper and middle 3rd	3x5cm	Post auricular flap + cartilage graft + neck flap
	1	48yrs	M	Lower lip	30%	Lip advancement + Z - plasty
	2	42yrs	M	Upper lip lat. segment	25%	Wedge excision + Direct closure
	3	24yrs	M	Upper lip central portion	40%	Cheek advancement + Abbe flap
	4	41yrs	M	Lower lip	30%	Wedge excision + Direct closure
	5	65yrs	F	Upper lip central	80%	Bilatral cheek advancement + Abbe flap
	6	32yrs	F	Lower lip	60%	Blunt - wedge excision + lat. lip advancement.
	7	39yrs	F	Lower lip	40%	Blunt - wedge excision + lat. lip advancement.
	8	37yrs	M	Lower lip	40%	lip advancement. + Z - plasty
	9	29yrs	F	Lower lip	35%	Blunt-wedge excision + lat. lip advancement
10	42yrs	F	Upper lip central	30%	Cheek advancement +	

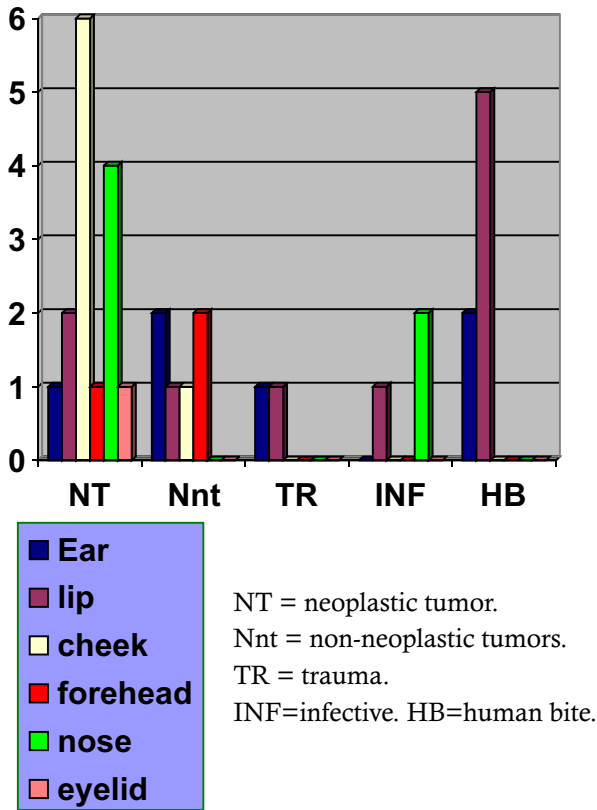


Fig. 1. Aetiology and distribution of defects.



Fig 3. Bilateral cheek adv. with peri-alar triangular skin excision and lip switch in a Patient with upper lip loss.

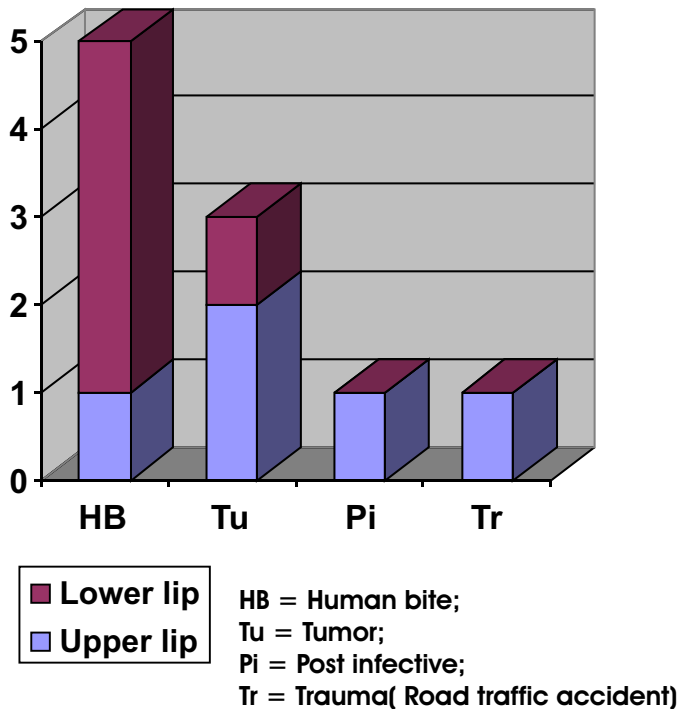


Fig 2. Aetiology of lip defects.



Fig 4. 'Blunt wedge' excision of lip defect with lateral lip advancement along the Labio-mental crease.



Fig 5. Posteriorly based anterolateral neck flap reconstruction of a large zone 2 cheek Defect.

were utilized in reconstruction. There were no flap losses.

DISCUSSION

The increased risk of developing skin cancers in African albinos, has been well documented^{6,7}, with squamous cell carcinoma being the commonest^{8,9}. Several studies suggest the head and neck region as being the most frequently involved part of the body, with the cheeks being one of the most commonly involved aesthetic units of the face^{10,11}. Our findings confirm this pattern. Surgical excision with a margin has been the mainstay of treatment for these lesions¹² and with this comes the challenge of reconstruction.

The cheek defects following excision of these lesions were more often zone 2 defects, extending up to the temporal region. For these defects we found the posteriorly based anterolateral neck transposition flap adequate in size and color match. Fig 5. The anteriorly based cervicopectoral flap has been said to be ideal for the extensive zones 1 and 2 defects¹³. However its unreliability for defects above a line joining the oral commissure with the ipsilateral tragus has been documented¹⁴. The anteriorly based neck transposition flap has a better reach for these high zone 2 defects; however its donor site will often require skin grafting¹⁵. This is a major draw back. For these defects we prefer a posteriorly based anterolateral neck transposition flap of skin and platysma, with direct closure of the donor site. Fig 5. This flap involves less dissection, spares the risk of breast distortion seen in females with the cervicopectoral flap and has been reliable in our hands well above the line of safety of the cervicopectoral flap.

The use of skin grafts in cheek reconstruction often gives unsatisfactory results due to poor color and contour match¹⁴. In our centre we do not use skin grafts in managing cheek defects.

The lips were the most commonly involved aesthetic unit in our series. Human bites accounted for 50% of these lip defects with the lower lip being more commonly involved. This preponderance of lower lip involvement has been corroborated in previous studies^{16,17}. In patients with lower lip defects 30 to 60% in size, or in which the angle of the wedge would exceed 60°, advancement of the lateral lip tissues along the labio-mental crease after a 'blunt wedge' resection (fig -4), was our preferred approach. It is our opinion that this technique maintains the pouting of the lip

better than a classical wedge resection with direct closure.

For those patients with significant upper lip loss involving the central portion, bilateral cheek advancement with an Abbe flap for the central portion was quite an attractive option. With this we could maintain representation of each of the upper lip subunits, thus maintaining the balance of the lip. In procedures involving bilateral cheek advancement, we prefer peri-alar triangular rather than crescentic excision of skin. Fig 3. This we believe gives us better tissue advancement.

The nasal defects presented the greatest reconstructive challenge.

These defects commonly involved more than one aesthetic subunit of the nose, thereby requiring a combination of techniques in order to maintain the identity of each of the involved subunits. Also a number of these defects involving the ala, collumela and septum required skeletal support as well as inner lining. We found the nasolabial flap particularly suitable for reconstruction of alar defects; with proper inset of this flap, we could easily maintain the contour of the alae.

Keloid excision was the commonest cause of the ear defects. In these cases, keloidal skin flaps were used in reconstruction with good results. The use of keloidal skin flaps in post excisional repair/reconstruction has been advocated¹⁸. The risk of developing new keloids with violation of virgin tissues, possibly makes the use of keloidal skin flaps in these keloid formers a better option.

CONCLUSION

Acquired defects of the face have a wide range of causes. However surgical excision of squamous cell cancers in albinos and human bite are the major aetiologic factors in our environment. These have significant public health implications.

People should be enlightened on civilised ways of settling scores rather than resorting to physical fights.

Also albinos should be taught early in childhood about protecting themselves from the harmful effects of the sun. Their school uniforms and general wears should be long sleeves and trousers or long skirts. They should wear hats with broad rims, limit their outdoor activities out in the sun and use sun protective creams.

Whatever the aetiology of these defects however, adherence to laid down principles of facial reconstruction is necessary to achieve consistently acceptable results. We recommend primary repair of acquired facial defects as this gives optimal results.

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