Section: General Surgery

Case Series

EVALUATING THE ROLE OF FACIAL ARTERY BASED FASCIO-CUTANEOUS FLAPS IN FACIAL RECONSTRUCTION: A CASE SERIES

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ABSTRACT

Reconstruction of facial defects like lower lip, upper lip, nose and cheek following trauma, tumor resection, or infection remains a surgical challenge. Facial artery based fascio-cutaneous flaps offer a versatile, reliable reconstructive option with good aesthetic and functional outcomes.[1,2] This case series describes eight patients who underwent reconstruction using facial artery based fascio-cutaneous flaps for defects of the cheek, nose and lips. All patients achieved satisfactory healing with no complications.

INTRODUCTION

Facial artery based fascio-cutaneous flaps represent a cornerstone in reconstructive surgery due to their dependable vascular supply, relative ease of dissection, and adaptability in covering complex soft tissue defects.[1,3,4]

These flaps encompass skin, subcutaneous tissue, and the underlying fascia, thereby offering structural integrity and enhanced perfusion critical for postoperative viability. Their application is particularly valuable in settings of post-traumatic deformity and oncologic resection, where both form and function must be restored.

Cutaneous malignancies of the face, most notably basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), frequently necessitate wide local excision, resulting in defects that challenge reconstructive strategies. Skin grafting, while simple, is often suboptimal for large or dynamic areas due to poor contour conformity, insufficient durability, and inadequate color and texture match. Conversely, distant flaps may provide coverage but often result in bulkiness and aesthetic mismatch, especially in cosmetically sensitive zones such as the lips and perioral region.[5,6]

In this context, facial artery based fascio-cutaneous flaps offer a reliable alternative, providing well-vascularized tissue with superior color and texture match. These flaps preserve native facial contours and allow dynamic reconstruction, which is essential for regions involved in speech, expression, and oral competence.[4,7]

Nonetheless, their utilization demands meticulous planning due to anatomical constraints, limited regional tissue availability, and the intricate vascular architecture of the face.[8,9]

While fascio-cutaneous flaps have long been employed in extremity reconstruction, their role in facial and perioral defect repair has also expanded in recent years.[2,3,10,11]

The technique offers promising results in terms of functional restoration, aesthetic integration, and overall surgical success, warranting further evaluation and documentation in facial reconstructive studies. This study aims to study the outcome of using facial artery based fascio-cutaneous flaps on upper lip, lower lip, cheek and nose.

MATERIALS AND METHODS

A retrospective analysis including a group of 8 patients with diseases on the face, specifically nose, upper lip, lower lip and cheek for a duration of one year in the Department of General Surgery at Venkateshwara Institute of Medical Sciences, Gajraula, UP.

RESULTS

Patients were of both sexes, aged between 23 and 78 years. All of the flaps survived. Significant functional improvement and excellent aesthetic results were reported.

DISCUSSION

Facial Artery-Based Fasciocutaneous Flaps: A Mainstay in Facial and Lip Reconstruction

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Facial artery-based fasciocutaneous flaps are a preferred option for reconstructing defects of the face and lips. This is primarily due to their reliable vascular supply, which stems from the facial artery, a major branch of the external carotid artery. The flap's vascularity ensures a high success rate and reduces the risk of tissue death (necrosis). These flaps are also relatively easy to raise and transfer, making them a practical choice for surgeons.[1,2,4] The tissue they provide is thin, pliable, and well-matched in color and texture to the surrounding facial skin, leading to aesthetically pleasing results. The versatility of these flaps allows for their modification to suit the specific location and size of the defect, ensuring optimal functional and cosmetic outcomes.[3,4,6]

Fig 1: Case of Arterio-venous Malformation

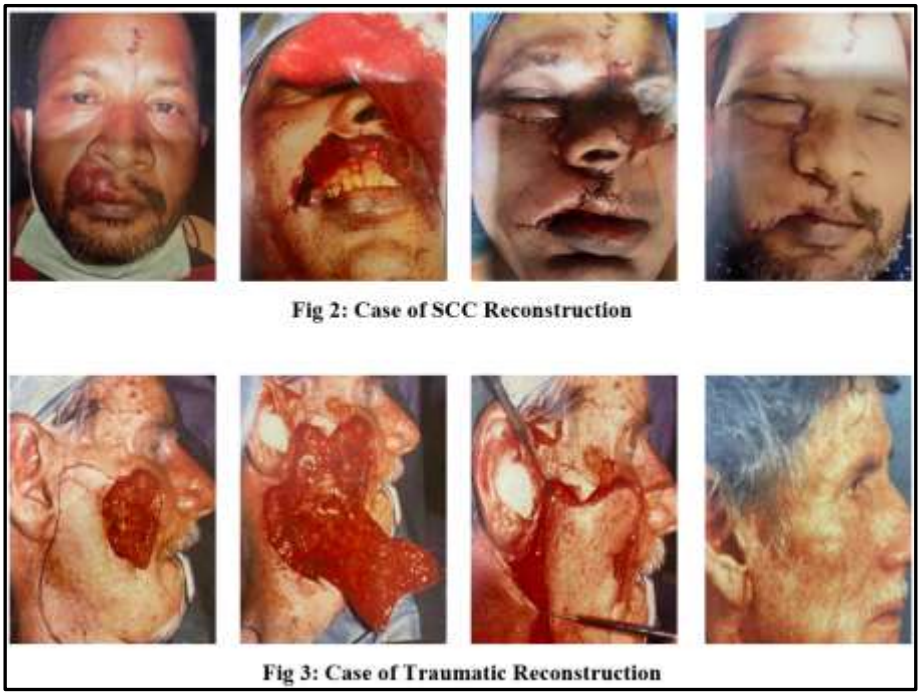

Fig 2: Case of SCC Reconstruction

Fig 3: Case of Traumatic Reconstruction

Comparison with Alternative Flaps

While other regional flaps, like the platysma myocutaneous flap or SMAS (superficial muscular aponeurotic system)-based island flaps, are also used, they have some limitations. Platysma flaps, which include muscle, can be bulky, while SMAS flaps may have a higher risk of partial necrosis.[7,8] In contrast, facial artery-based fascio-cutaneous flaps offer a thinner, more pliable tissue that better integrates with the delicate features of the perioral and nasal regions.[3,4,6] The superior aesthetic outcome of these flaps is a key advantage.

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Underlying Vascular Principles

The reliability of these flaps is rooted in the angiosome principle. An angiosome is a three-dimensional block of tissue (skin, fat, muscle, and bone) that is supplied by a single source artery.[9] The facial artery provides a consistent angiosome, which ensures that the flap's blood supply remains intact after it is moved to the recipient site. This principle is crucial for the successful design and survival of the flap, as it guides surgeons in planning the dissection to include the necessary blood vessels.[12,13]

CONCLUSION

Facial artery based fascio-cutaneous flaps provide a dependable and versatile option for reconstructing defects on the face, nose and lips. With careful flap planning and execution, they yield excellent outcomes.

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