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VERSATILITY OF BILOBED FLAP AND ITS APPLICATIONS

Plastic Surgery

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ABSTRACT

Introduction: The bilobed flap is used primarily for the reconstruction of varied sizes of circular cutaneous defects. It was first described in 1918 by Esser for use in nasal tip reconstruction. The original flap used a rotational arc of 180 degrees with large dog ear(1). In 1953 Zimany demonstrated that the second and third lobes could be smaller than the first and that the flap could be utilized for reconstruction in more anatomical areas(2). In the 1980s McGregor and Soutar introduced the concept that a reduced pivotal angle would result in smaller standing cutaneous deformities and decreased pin-cushioning effect(3). Zitelli went onto to describe limiting the total rotational arc to between 90 and 110 degrees. **Objectives:** To assess the applications of bilobed flap in various regions of the body. **Materials And Methods:** 18 patients (12 males, 6 females)with age group of 5 months to 64 years with varied sizes of circular defects were treated with bilobed flap for a period of 2 years from march 2019 to march 2021. For all the cases prior flap design was done based on the biogeometry of bilobed flap. This flap was done in various regions of the body like face, chest, abdomen and back. **Results:** Of all the 18 cases only one had wound dehiscence which healed with secondary intention. All the other flaps survived without complications. **Conclusion:** The bilobed flap is a versatile local transposition flap that spreads tension across a wider surface area than a conventional rotational flap, but sacrifices scar length and concealability in the process. Shall be employed in other areas of the body with tissue laxity.

KEYWORDS

Bilobed flap, circular defects

INTRODUCTION

Reconstruction of moderate to large circular defects of trunk are challenging aspects of reconstructive surgery. The causes for large soft tissue defect in the trunk are following trauma, post-surgical and post infective. Though they are treated with free flaps, perforator flaps which needs expertise and training,have their own failure rates . This article reviews the use of bilobed flap for circular defects of varying sizes in various regions of the body . Preoperative planning, was performed. No skin grafts were required to achieve final closure, with acceptable cosmetic and functional results. Bilobed flaps allow for local tissue transfer in regions of otherwise limited tissue laxity and mobility, classically designed and utilized in the region of the nose. We describe its applicability to closure of moderate to large trunk defects that may otherwise result in donor site morbidity or the use of tissue expanders later.

MATERIALS AND METHODS

It is a retrospective study conducted in Madras Medical college/ RGGGH,Chennai from March 2019 to March 2021. 18 patients were studied 12 male and 6 female of age group 5 months old to 64 years .Study was conducted after approval of the institutional ethical committee. For all cases prior design was made based on biogeometry of bilobed flap.

SURGICAL TECHNIQUE

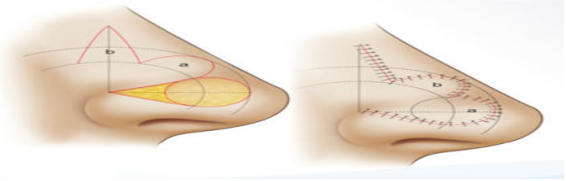
The following is the list of key landmarks required in a successful bilobed flap.

Defect Size

- The dimension of the defect that is to be filled by the bilobed flap is measured.
- The radius/diameter of the defect is measured

Pivot Point

- A distance from the defect is equal to the radius of the defect.
- The farther the pivot point is away from the defect, the larger is the flap.
- Two semicircles are drawn outer one is 3r and inner one is 2r from pivot point



Flap A

At a 45-degree angle, the concentric circle is drawn at the same diameter and distance as the defect.

Flap B

- At a 90-degree angle from the pivot point.
- This skin is often more mobile, so can be slightly smaller or in a more triangular fashion.

Dog-Ear/Standing Cutaneous Deformity :

- A dog-ear excision is marked from the defect to the pivot point
- This creates space for the flap to rotate and advance

CASE 1

56 years old female with BCC nasal tip (FIGURE 1 A). Post excision the defect size was 1.5*1 cm. Intraop picture after final suturing (FIGURE 1 B). After suture removal (FIGURE 1 C).

CASE 2

34 years male a case of traumatic paraplegia with gluteal pressure sore measuring 10*10cm (FIGURE 2 A). Bilobed flap planned (FIGURE 2B). Flaps raised (FIGURE 2 C). After final sutures (FIGURE 2 D). This patient had epidermal necrosis (FIGURE 2 E). Wound healed by secondary intention (FIGURE 2 F)

CASE 3

5 months old baby with lumbar meningomyelocoele (FIG 3A).Post excision defect was found to be 10*9 cm (FIG 3B).Bilobed flap is planned and raised (FIG 3C).Intra op after final suturing (FIG 3D).3 weeks post op after suture removal(FIG 3E).

RESULTS :

1 patient had wound dehiscence which healed by secondary intention.

DISCUSSION :

The bilobed flap is a double transposition flap wherein the first lobe serves to fill the primary defect, and a second lobe fills the "secondary defect"(first flap donor site). Second flap donor site is closed primarily. This approach distributes tension across a wider area of tissue, but at the cost of additional incision length and scarring in a complex curvilinear pattern that makes concealment within aesthetic subunit boundaries challenging. The blood supply to bilobed flaps arises from the subdermal plexus; for this reason, most surgeons categorize bilobed flaps as having a "random pattern" blood supply, as opposed to an "axial" blood supply that comes from a named vessel entering the flap[4]. Most bilobed flaps are therefore raised in a subcutaneous plane, ensuring that the subdermal vascular plexus remains intact, although many surgeons will raise nasal bilobed flaps in a submuscular plane to include the nasalis muscle in the flap and improve perfusion[5]. Venous drainage flows through the subdermal plexus as well. Lymphatic drainage can be problematic as well, and the dependent part of the flap will often swell such that its skin surface rises above that of the surrounding tissue - a phenomenon known as a "trapdoor deformity" .

CONCLUSION:

The bilobed flap is a versatile local transposition flap that spreads tension across a wider surface area than a conventional rotational flap, but sacrifices scar length and concealability in the process. It has undergone many technical improvements over the years, and is most commonly used for reconstruction in the head and neck region, particularly the nasal tip, but can be employed in other areas of the body as well.Its applicability is however limited in extremity reconstruction due to limited tissue laxity.

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