Vol 3 | Issue 1 | Pages 17-23

Journal of Cosmetic Surgery
ISSN: 2689-8772

Review Article

MZ Cat Eye Lifting: A New Cosmetic Procedure for Brow Lifting

Senthil Kumar Supramaniam, MBBS and Michael Zacharia, FRACS, FACCSM*

Australasian College of Surgery and Medicine, Sydney, Australia

Abstract

Purpose: This article explores different techniques used for brow lifting, with a particular focus on "cat eye lifting," while considering factors such as age, ethnicity, and fashion trends.

Methods: A comprehensive review of literature and surgical approaches was conducted to examine the various techniques employed in achieving the desired brow lift effect. The techniques discussed include canthoplasty, blepharoplasty, temporal lifting, and endoscopic brow lifting. Patient characteristics and surgical goals were taken into account to determine the most suitable technique for each case.

Results: The study revealed a notable increase in global interest and demand for brow lift procedures, with Google trends showing over a 50% rise in search queries over the past year. The term "cat eye" has gained popularity within the cosmetic surgery field, although it has long been used in the fashion industry to describe a specific brow shape. Surgical approaches for brow lifting were described, emphasizing both their advantages and limitations.

Conclusions: The choice of technique for brow lifting should be tailored to the individual patient. Minimally invasive options such as internal and external brow pexy offer effective stabilization of the brow. However, internal browpexy has shown superiority over temporal brow lifting in achieving the desired results. The direct brow lift presents a straightforward solution for addressing brow ptosis and reshaping, but may be associated with a higher risk of numbness and brow descent. In contrast, the endoscopic brow lift provides a less invasive alternative to the traditional coronal approach, resulting in reduced scarring and increased patient satisfaction.

Introduction

The aesthetic appearance of the brow is affected by various factors including gender, age, ethnicity, and current fashion trends. Recent advancements in technology, coupled with the desire to enhance one's appearance, have led to an increased interest in brow lift procedures. This interest is evident from the high visibility of the search term "brow lift" on Google trends, which has increased globally over the past five years (Figure 1) [1].

Although "cat eye lifting" has been a focus in the cosmetic surgery field in recent years, this term has not been widely used by researchers. The term "cat eye" is more commonly used in the fashion industry, particularly in Hollywood [2]. In this article, we explicitly define the term "cat eye lifting".

There are various eye shapes such as almond, upturned, downturned, rounded, and cat eyes, and different methods can be used for brow lifting in each case. In the past, cat eye lifting has been associated with canthoplasty, blepharoplasty, and temporal lifting. Some experts describe cat eyes as similar to almond eyes but with an upward lift at the outer edge and superior canthal tilt. However, the cat eye effect can also be achieved in downturned eyes, but this requires a combination of lower eyelid retraction surgery and canthoplasty [3,4].

There are different terms for cat eye surgery, including "Bella eye" and "fox eye lifting" [5,6]. Dr. Ariel N. Rad defines "cat eye lift" as canthopexy and offers three different approaches, namely, canthopexy alone, canthopexy with brow lift, and canthopexy with brow lift and upper blepharoplasty [7]. On the other hand, Dr. S. Larry Schlesinger links "cat eye surgery" with "blepharoplasty" [8]. According to Dr. Christopher Khorsandi, "cat eye surgery" or "cat eye lift surgery" refers to the canthoplasty procedure, which involves lengthening the eye opening and lifting the outer corner simultaneously [9].

The ideal technique for brow stabilization may vary

***Corresponding author:** Senthil Kumar Supramaniam, Australasian College of Surgery and Medicine, Sydney, Australia

Accepted: September 05, 2023

Published online: September 07, 2023

Citation: Supramaniam SK, Zacharia M (2023) MZ Cat Eye Lifting: A New Cosmetic Procedure for Brow Lifting. J Cosmet Surg 3(1):17-23

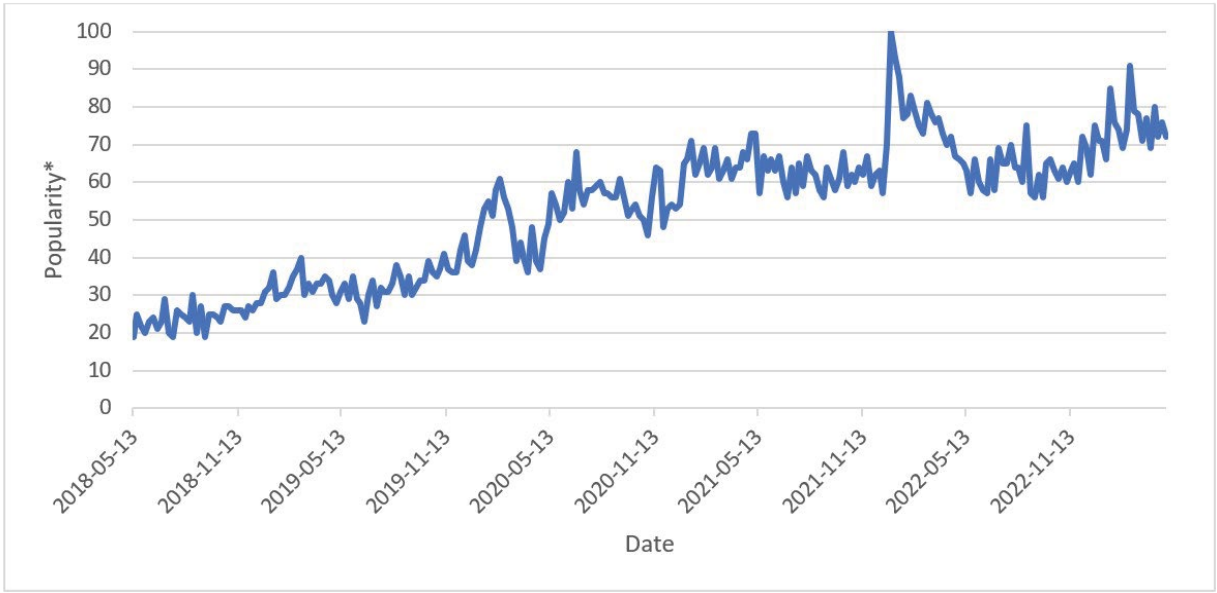

Figure 1: Google Trends for Search Term "Brow Lift," 2017-2023 [1]" about here.

depending on patient characteristics and surgical goals. For patients with high foreheads or those who do not require a full brow lift, browpexy through the upper lid (BUL) may be appropriate, as this technique can achieve brow stabilization with or without lateral lift via direct bony fixation [10]. However, transblepharoplasty techniques, which rely on periosteal fixation, have limitations in terms of brow elevation and increased complication rates. While coronal forehead-lift and endoscopic brow lifting can address brow height and contour, these procedures have drawbacks such as longer operative times, visible scarring, hair loss, elevated hairlines, and scalp paresthesia, which may prompt consideration of alternative approaches [10].

Methods

Internal and external browpexy versus temporal brow lift

Internal browpexy is a minimally invasive technique with distinct advantages and disadvantages. This approach involves fixing underlying eyebrow soft tissue to the periosteum to achieve stabilization [11]. Internal browpexy is safe, highly reproducible, and effective in improving eyebrow appearance without the need for fixation [12]. Additional benefits include the absence of visible scarring, no need for secondary surgery, and no requirement for anesthesia. External browpexy is a newer technique that involves suspending the brow through a small incision just within or above the upper brow cilia. This method is rapid, safe, and results in simple healing without a perceptible scar due to the cutaneous incision. Long-term follow-up studies have not revealed significant differences between internal and external browpexy [13].

Temporal brow lifting, also known as lateral brow lifting, is another minimally invasive technique that changes the forehead area and simultaneously lifts the eyebrows. In a comparative study of internal browpexy vs. temporal brow lifting, internal browpexy was found to be a superior technique [14]. For instance, significant changes in lateral brow plump line were observed after internal browpexy, whereas no change was noted after temporal brow lift [11].

Direct Brow Lift

The direct brow lift is a straightforward surgical procedure that affords surgeons greater control over the amount of tissue excised and the resultant postoperative brow contour. Its frequent use for the treatment of brow ptosis is well established [15]. When the brows are thick, direct brow lifting may be an optimal choice. Furthermore, global brow reshaping is often required in cases of asymmetry due to baldness or high anterior hairline, and direct brow lifting is commonly utilized for such cases [16].

Reports of scarring following direct Transcutaneous Brow Shaping (TBS) have surfaced, but studies have suggested that the scarring may be the result of poor surgical technique. Direct TBS, which allows for more precise reshaping and correction of minor asymmetries, has been reported to be effective [16].

Recently, reports have indicated that direct brow lift surgery can be associated with a higher incidence of numbness [17]. The efficacy of this technique is limited by postoperative brow descent, particularly in cases of severe preoperative ptosis or when absorbable sutures are used. Depressed scars and hypertrophic scarring may occur at the superior edge of the brow; however, these can be addressed through laser resurfacing [18].

Endoscopic Brow Lift

The endoscopic brow lift has undergone significant advancements since its initial introduction by Vasconez, et al. and Isse. As a less invasive alternative to the coronal approach, the endoscopic technique has become increasingly favorable

among patients. It has been associated with reduced scarring and patient morbidity, particularly in women, when compared to open coronal brow lift procedures [19]. However, this technique is not without its challenges. The endoscopic approach has a steeper learning curve and is a more time-consuming and costly technique than traditional methods [20]. Early recurrence of glabellar lines may be observed due to insufficient glabellar muscle in the endoscopic brow lift, and asymmetry can occur as a result of unilateral upper eyelid ptosis. Patients should be informed that preexisting asymmetry may persist following surgery. Other potential complications include over or under-elevation of the lateral brow, unattractive brow shape due to excessive medial brow subperiosteal release, and inadequate lateral release [21].

Various fixation methods have been described for endoscopic brow lift procedures, with implant-based techniques associated with long-term persistence and palpability. Adetayo, et al. recently introduced the MitekMicrofix Quick Anchor method, which utilizes an absorbable bone anchor to precisely fix soft tissue to bone [19]. This technique avoids the need for bone tunnel fixation devices and is associated with reduced material costs, but is more complex and time-consuming and may cause discomfort due to palpation on the scalp. The absorbable nature of the device allows for integration within three to six months. Despite the availability of the Mitek Microfix Quick Anchor, interest in endoscopic brow lift has declined in recent years, with open brow lifting being favored due to its longevity in lift results. Less complicated techniques, such as the isolated temporal lift, the transpalpebral corrugator resection, and the chemical brow lift using botulinum toxin, have also contributed to the decreased interest in endoscopic brow lift [21].

Lateral Canthoplasty

Lateral Canthoplasty is a complex surgical technique that involves the anchoring of the lateral canthus to the lateral orbital rim through lateral cantholysis. Its primary objective is to control the position of the lower lid to obtain the desired shape of the eyelid fissure, as well as to lengthen the eyes and elevate the downward slant of the eyelid [22]. This procedure is also used to reconstruct the lateral canthal angle in aging patients [23]. Figure 2 displays the preoperative and postoperative positions of the eyelid fissure after lateral canthoplasty.

Cosmetic lateral canthoplasty, also known as cat eye lift, is an elective procedure aimed at achieving a more appealing eye shape [9]. Three surgical techniques are typically utilized to enlarge and brighten the eyes, namely double eyelidplasty, epicanthoplasty, and lateral canthoplasty. Double eyelidplasty is used for any vertical changes, while epicanthoplasty is reserved for inner corner modifications, and lateral canthoplasty is utilized for outer edge enlargement [24]. Scarless Epicanthoplasty and Concomitant Double Eyelidplasty are now possible [25].

Canthal rounding and canthal webbing are known complications that may arise after surgery and require repair.

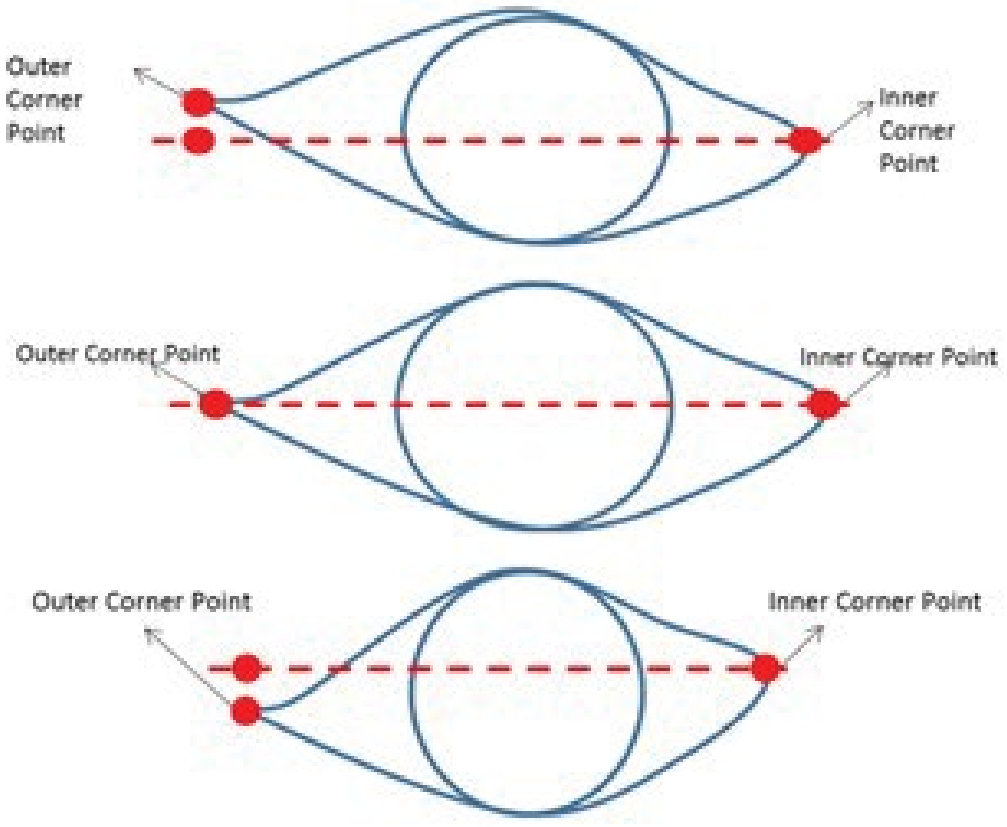

Figure 2: Illustration of eye shape classification" about here.

Canthal webbing is often due to the excessive removal of skin around the eyes. It can also occur when the lateral aspect of the upper blepharoplasty incision is taken below the equator of the lateral canthus [26]. Canthal rounding, on the other hand, is a condition in which the medial or lateral canthus is surgically altered, resulting in a rounded fold of skin and scar tissue within the normal canthal angle, resulting in the shortening of the eyelid aperture in the horizontal direction [27].

Although lateral canthoplasty has gained popularity for improving eye appearance, some experts still question the success of the procedure. In a retrospective medical record review, four patients reported tearing from a lacrimal ductile fistula following lateral canthoplasty to lengthen a horizontal palpebral fissure [28]. Furthermore, it has been reported that during surgery, accidental suturing of conjunctival tissue with skin tissue resulted in the proliferation of conjunctival epithelial cells, leading to the formation of a fistula connecting the skin and conjunctival sac [29].

Results

Complications and their management in brow lift procedures

The occurrence of complications during brow lift procedures and their respective remedies depend on the method employed and the level of expertise of the practitioner. In a recent systematic review, specific attention was given to complications that may arise during coronal, direct, hairline, temporal, transblepharoplasty, endoscopic, botulinum toxin, and radiofrequency brow lift procedures [17]. Common complications and their potential remedies are listed in Table 1 [16,30-32].

MZ Cat Eye Lift

The MZ Cat Eye Lift is a novel technique for brow lift surgery that aims to enhance the appearance of the eyes by achieving specific aesthetic outcomes related to eye shape, lower eyelid positioning, and eyebrow apex location. Upturned eyes, the elimination of visible white sclera below the iris, and the positioning of the eyebrow apex above the lateral canthus are the primary goals of this approach.

Achieving these outcomes can significantly improve the overall appearance of the eyes, resulting in a more youthful and aesthetically pleasing look characterized by upturned eyes, lifting of the lower eyelid to eliminate any visible white sclera below the iris, and eyebrow apex positioned above the lateral canthus.

Upturned eyes refer to the alignment of the medial and lateral canthus. Based on this alignment, eyes can be classified as upturned, downturned, or straight, as shown in Figure 2. Specifically, upturned eyes are those in which the outer corner point is located above the imaginary line drawn through the inner corner point. Thus, in the MZ Cat Eye Lift, achieving upturned eyes is a primary goal.

Table 1: Common complication.

Complication	Remedy
Visible Scarring	Ultra-refined follicular unit transplantation [30]
Hematoma	Expeditious surgical evacuation [31]
Hair loss	Hair transplant surgery [32]
Alopecia	Vasodilator [16]

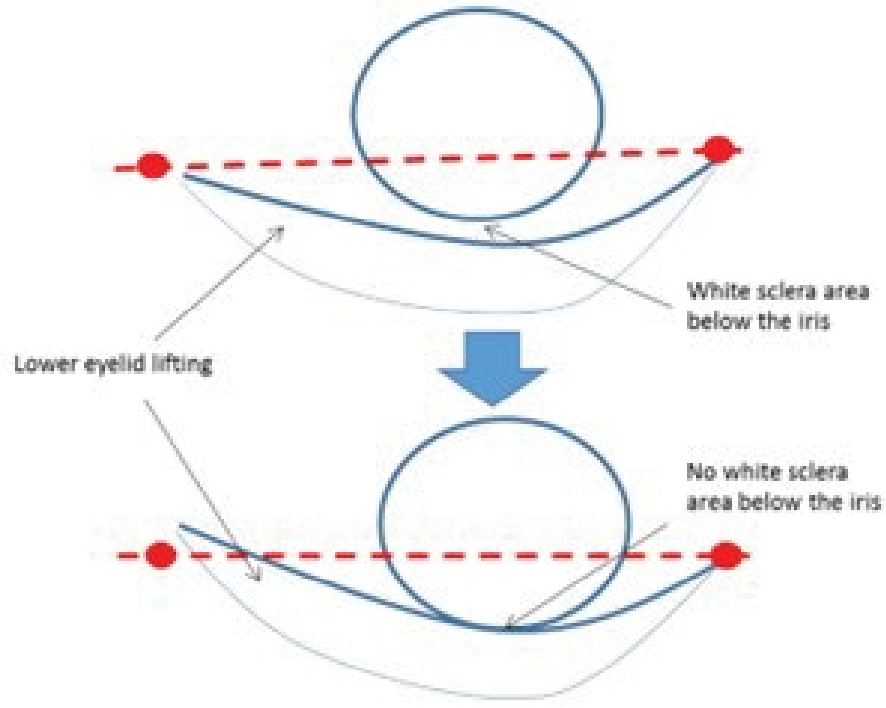

Figure 3: Illustration of gap in the form of sclera between lower eyelid" about here.

Another objective of the MZ Cat Eye Lift is to lift the lower eyelid and lateral canthus in such a way that any visible white sclera below the iris is eliminated (Figure 3). This is particularly important in cases where the lower eyelid has become retracted or tilted downwards, resulting in lateral canthal dystopia [33].

The positioning of the eyebrow apex is also a critical consideration in aesthetic brow lift surgery (Figure 4). Four locations for the apex of the eyebrow can be defined, including above the lateral limbus, above the middle of the lateral limbus and lateral canthus, above the lateral canthus and lateral most brow [34]. In the MZ cat Eye Lift, the eyebrow apex is specifically positioned just above the lateral canthus. This is noteworthy because previous observational case series studies have shown that this natural positioning is only present in a small percentage of cases [35]. As a result, surgical intervention may be necessary to achieve the desired outcome using this approach.

The MZ Cat Eye Lift is a promising technique for patients seeking a more youthful and aesthetically pleasing appearance. To achieve the best possible results and ensure long-lasting outcomes, surgeons should consider various factors and adhere to established best practices (Table 2). These factors include, for example, comprehensive preoperative assessment, precise anatomical landmarks, optimal skin incisions and tissue dissection, suture selection and placement, incorporation of canthoplasty if necessary, use of adjunctive procedures, postoperative care and follow-up, and staying up-to-date on surgical techniques. By following these guidelines, surgeons can help maximize the success and satisfaction of patients undergoing MZ Cat Eye Lift procedures.

In summary, the MZ Cat Eye Lift represents a new approach to brow lift surgery that aims to address specific aesthetic concerns related to eye shape, lower eyelid positioning, and eyebrow apex location. The technique offers a promising option for patients seeking to achieve a more youthful and aesthetically pleasing appearance.

Discussion

The pursuit of aesthetically pleasing facial features has led to an increase in demand for surgical procedures such as MZ Cat Eye lifting. However, each surgical technique has its own unique features, making it difficult to single out one technique that satisfies all the attributes required for MZ Cat Eye lifting. For instance, while temporal lifting is effective for lifting brows, it may not be ideal for lifting the lower eyelid or canthus [36].

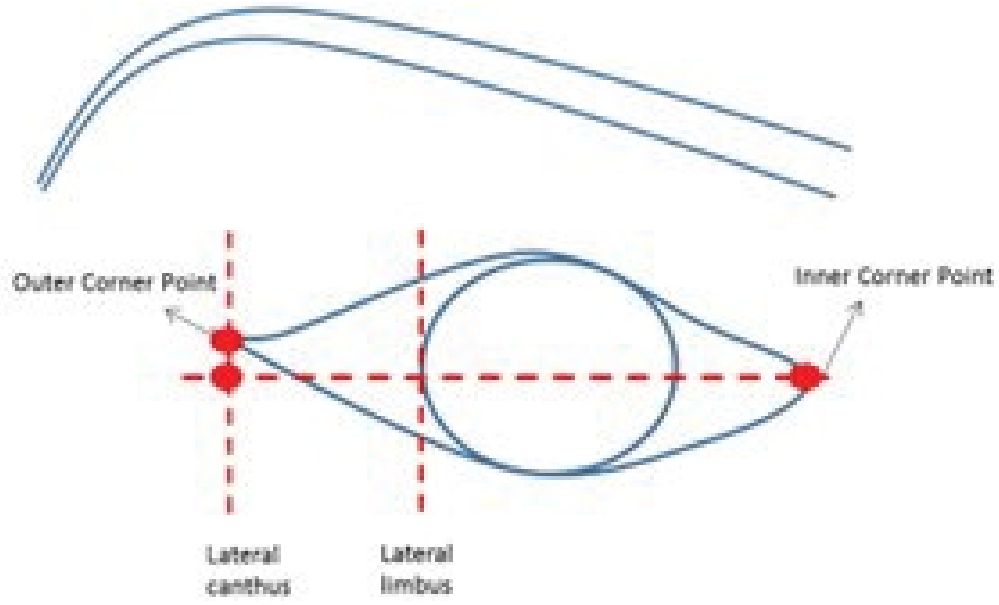

Figure 4: Illustration of eyebrow apex above the lateral canthus" about here.

Table 2: Recommendations for achieving long-lasting results in MZ Cat Eye Lift.

Recommendation	Rationale
Comprehensive preoperative assessment	Helps determine the most suitable surgical technique and set realistic expectations
Utilize appropriate anatomic landmarks	Ensures precise positioning of the lateral canthus and eyebrow apex
Optimal skin incisions and tissue dissection	Minimizes scarring, ensures proper healing, and maintains natural appearance
Suture selection and placement	Crucial for maintaining desired results over time and preventing relapse
Incorporate canthoplasty, if necessary	Addresses lateral canthal dystopia and ensures lower eyelid positioning
Use of adjunctive procedures, if needed	Enhances overall aesthetic results by addressing additional concerns (e.g., ptosis)
Postoperative care and follow-up	Allows for monitoring of healing, assessing results, and addressing complications

Lateral canthoplasty, on the other hand, has proven to be a suitable technique for achieving upturned eyes in those who do not have it naturally. A less invasive option for creating upturned eyes is canthoplasty with eyelid retraction surgery, also known as almond eye surgery. This approach is preferred due to its cost-effectiveness, minimal invasiveness, and reduced postoperative complications [37]. Lateral canthoplasty can also be applied to lift the lower eyelid and minimize the white sclera area below the iris, with the use of a soft collagen implant [33].

If the eyebrow apex position is not above the lateral canthus, endoscopic brow lifting can be used to reposition the eyebrow apex. This technique is preferred as it requires smaller incisions, causes less trauma to underlying tissues, and allows for faster healing with minimal scarring.

Conclusion

In this study, we introduced a new technique named "MZ Cat Eye lifting" and discussed its three attributes in detail. Our findings indicate that no single surgical technique is effective for MZ Cat Eye lifting, and a combination of different techniques should be considered for efficient brow lifting. Our review of prospective surgical techniques has revealed that lateral canthoplasty, almond eye surgery, and endoscopic brow lifting may have relevance in MZ Cat Eye lifting. Further research is needed to determine the effectiveness and safety of these techniques in achieving the desired outcome.

Precis

This article examines various brow lifting techniques, including "cat eye lifting," considering factors like age, ethnicity, and fashion trends, and discusses surgical approaches, their advantages, and limitations.

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