



Clinical Treatment Efficacy and Incidence of Complications in Asymmetric Double Eyelid Repair Surgery

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Abstract: Objective: It's to analyze the clinical treatment efficacy and incidence of complications in asymmetric double eyelid repair surgery. Methods: Fifty patients who underwent asymmetric double eyelid repair surgery at our hospital from March 2022 to March 2023 were selected. Using a random number table, the patients were divided into two groups of equal size. The observation group (n=25) underwent small incision fat removal and continuous buried suture repair, while the control group (n=25) underwent traditional incision surgery. The treatment efficacy (excellent, effective, ineffective) and one-year postoperative complication incidence (conjunctival blockage, eye swelling, bruising) were compared between the two groups, as well as clinical data (operation time, healing time, incision length). Results: The total effective rate in the observation group (96%) was higher than that in the control group (64%); the one-year postoperative complication incidence in the observation group was lower than that in the control group ($P<0.05$); the operation time, healing time, and incision length in the observation group were all less than those in the control group ($P<0.05$). Conclusion: Double eyelid repair surgery demonstrates significant clinical efficacy and a low incidence of complications in treating asymmetric double eyelids, warranting further promotion.

Keywords: asymmetric double eyelids, repair surgery, treatment efficacy, incidence of complications

1. Introduction

There are many factors that can cause asymmetric double eyelids, including congenital factors and eyelid inflammation [1]. Asymmetric double eyelids refer to the uneven elevation of the double eyelids on both sides, which may be caused by unilateral ptosis or eyelid inflammation such as styes or cellulitis, resulting in redness and swelling of the eyelids and different appearances of the double eyelids. In addition, there are congenital developmental abnormalities, such as some patients having one single eyelid and one double eyelid, which is not a disease but rather asymmetrical development of eyelid skin folds. With the improvement of people's quality of life and economic level, there is increasing emphasis on personal appearance, leading to a growing demand for the correction of asymmetric double eyelids. The common method for patients with asymmetric double eyelids is traditional incision surgery, which, although corrective, results in long recovery times, noticeable incisions, and may leave scars in severe cases, ultimately failing to meet patient expectations [2]. Therefore, there is a desire for a safer and more convenient repair method. With the advancement of medical technology, there is currently a treatment method involving small incisions to remove excess orbital septal fat and part of the orbicularis oculi muscle, followed by buried sutures [3], which has been applied clinically in recent years. Our hospital selected 50 patients as research subjects to analyze the treatment efficacy and incidence of complications of two types of asymmetric double eyelid repair surgery. The following report is now presented.

2. Materials and Methods

2.1 General Information

Fifty patients who underwent asymmetric double eyelid repair surgery at our hospital from March 2022 to March 2023 were selected. Using a random number table, the patients were divided into an observation group of 25 cases and a control group of 25 cases. Among them, the observation group comprised 12 males and 13 females, with ages ranging from 19 to 32 years and a mean age of (25.31 ± 1.22) years, and an average weight of (65.32 ± 5.23) kg. The control group comprised 11 males and 14 females, with ages ranging from 20 to 32 years and a mean age of (26.21 ± 1.32) years, and an average weight of (66.32 ± 5.43) kg. There was no statistically significant difference in patient characteristics between the two groups ($P>0.05$).

2.2 Exclusion or Inclusion Criteria

2.2.1 Inclusion Criteria

(1) Patients diagnosed with asymmetric double eyelids; (2) Signed informed consent form; (3) Meeting the surgical treatment criteria.

2.2.2 Exclusion Criteria

(1) Patients with organ dysfunction; (2) Patients with coagulation disorders; (3) Patients with mental disorders; (4) Patients with a tendency to scar formation; (5) Patients with contraindications to medication; (6) Patients who have undergone recent facial plastic surgery; (7) Patients in menstruation or pregnancy; (8) Patients with internal or external eye infections.

2.3 Methods

The control group underwent traditional incision surgery. Based on the patient's facial features, a double eyelid line that met the patient's requirements was designed. After anesthesia, one strip of orbicularis oculi muscle was excised, and the prolapsed orbital septal fat was removed, followed by intermittent suturing. The observation group underwent small incision fat removal combined with continuous buried sutures: ① Determine the position of asymmetric double eyelids in the patient. ② Use professional instruments to press the skin of the middle of the eyelid and inner canthus towards the eyelid plate, have the patient open their eyes to ensure symmetry of the double eyelids. ③ Once the position is confirmed, mark the incision site with a marker pen. ④ Local anesthesia is applied to the eyelid area, using a mixture of 0.5ml adrenaline and 10ml 1% lidocaine. ⑤ Incise the marked skin, clamp the orbital septum with small vascular forceps, then incise, locate the fat pad within the orbital septum, peel and remove excess fat from the orbital septum, and use electrocoagulation for hemostasis while preserving the orbital septal fat. ⑥ Use a 1/2 curved needle for vertical suturing, continuously stitch with 7-0 suture thread, burying the suture thread in the needle holes without removal after surgery. ⑦ Postoperatively, apply erythromycin ointment beneath the patient's eyelids, and use cold compresses to reduce eye swelling.

2.4 Observational Indicators

(1) Comparison of treatment efficacy between the two groups, categorized as excellent, effective, or ineffective. The overall effective rate of cosmetic repair = (excellent + effective) / total number of cases * 100%. The judgment criteria are as follows: excellent when the double eyelids are symmetrical and there are no obvious surgical scars when the eyes are closed; effective when the double eyelids are almost symmetrical and there are minimal surgical scars when the eyes are closed; ineffective when the double eyelids are asymmetrical and there are obvious surgical scars when the eyes are closed.

(2) Comparison of the incidence of complications one year postoperatively between the two groups (conjunctival blockage, eye swelling, bruising).

(3) Comparison of clinical data between the two groups (operation time, healing time, incision or suture length).

2.5 Statistical Analysis

Data were analyzed using SPSS 23.0 software. For continuous variables ($\bar{x} \pm s$), a t-test was conducted, while for categorical variables, the data were analyzed using the χ^2 test, reporting percentages. A significance level of $p < 0.05$ was considered statistically significant.

3. Results

3.1 Comparison of Treatment Efficacy between the Two Groups

The overall effective rate in the observation group (96%) was higher than that in the control group (64%), as shown in Table 1.

Table 1. Comparison of Treatment Efficacy between the Two Groups [n (%)]

Group	n	Excellent	Effective	Ineffective	Total Effective Rate
Control Group	25	12 (48.00)	4 (16.00)	9 (36.00)	16 (64.00)
Observation Group	25	18 (72.00)	6 (24.00)	1 (4.00)	24 (96.00)
χ^2					0.895
P					0.343

3.2 Comparison of Clinical Data between the Two Groups

The observation group exhibited shorter operation time, healing time, and incision (suture) length compared to the

control group ($P < 0.05$), as shown in Table 2.

Table 2. Comparison of Clinical Data between the Two Groups ($\bar{x} \pm s$)

Group	n	Operation Time (min)	Healing Time (d)	Incision (Suture) Length (mm)
Control Group	25	36.21±4.32	9.43±2.12	9.89±2.59
Observation Group	25	20.32±3.12	6.33±2.32	3.89±1.29
<i>t</i>		14.909	4.932	10.368
<i>P</i>		<0.001	<0.001	<0.001

3.3 Comparison of Complication Incidence Rates One Year Postoperatively between the Two Groups

The observation group exhibited lower incidence rates of conjunctival blockage, eye swelling, and bruising compared to the control group ($P < 0.05$), as shown in Table 3.

Table 3. Comparison of Complication Incidence Rates between the Two Groups [n (%)]

Group	n	Conjunctival Blockage	Eye Swelling	Bruising	Total Incidence Rate
Control Group	25	3 (12)	2 (8)	3 (12)	11 (44)
Observation Group	25	0	1 (4)	0	1 (4)
χ^2					6.899
<i>P</i>					<0.001

4. Discussion

Plastic repair surgery can be used not only for asymmetric double eyelids but also for thyroid eye disease, extraocular muscle repair, eyelid degeneration correction, and upper eyelid shaping surgery. Correction of thyroid eye disease typically involves methods such as orbital wall resection, retro- and peri-orbital fat removal, and decompression, achieving both functional and cosmetic outcomes. There are generally two surgical methods for repairing asymmetric double eyelids: traditional incision surgery and small incision fat removal combined with continuous buried sutures. Incision surgery involves making small incisions between the upper eyelid and the eyelid plate, removing excess tissue and fat, and then fixing the eyelid skin to create double eyelids. On the other hand, buried suture technique is a common method used to improve the asymmetry of double eyelids. It involves burying protein threads between the upper eyelids, causing adhesion between the upper eyelid skin and the eyelid plate, thus converting monolids into double eyelids or enhancing the degree of pre-existing double eyelids to achieve symmetrical eyelids[4].

In the realm of cosmetic repair surgery for asymmetric double eyelids, while the traditional incision method is widely practiced and proficiently executed, it poses relatively larger surgical trauma. Postoperative swelling is severe, recovery time is prolonged, and linear scars may be left at the incision site, causing significant damage to the eye tissues. Additionally, in cases of surgical failure, rectification poses considerable challenges[5]. On the other hand, the buried suture technique offers advantages in the repair of asymmetric double eyelids. It provides reversibility, allowing for restoration to the preoperative state if uncertainty or difficulty in adapting to the postoperative appearance arises. Furthermore, this method boasts shorter operation times, minimal damage to upper eyelid tissues, resulting in less swelling and shorter recovery periods[6]. In this study, it was observed that there was no significant difference in the treatment efficacy between the observation group and the control group ($P > 0.05$). However, the overall effective rate in the observation group (96.00%) was higher than that in the control group (64.00%). Han Yubo [7] found in their research that using the small incision fat removal combined with continuous buried suture technique involved understanding the patient's facial and eye shapes, designing the double eyelid line, and determining specific points for the double eyelid line design, such as 5 cm below the pupil, 5 cm inside the outer canthus, and 5 cm above the inner canthus. The width of the double eyelid was set to 5 cm, 6 cm, and 6 cm, respectively, and a 5 cm incision was made at the marked position to keep it parallel to the upper eyelid margin. After anesthesia, the skin and subcutaneous tissue were incised along the design line, the lower orbicularis oculi muscle was incised, and part of the orbital septal fat was removed. The incision was sutured with 7-0 nylon thread, and the suture thread was buried in the needle hole without removal after surgery to prevent infection. Even without makeup, no scars could be found when looking downward. Comparing the incidence of complications one year postoperatively between the two groups, it was found that the complication rate in the observation group was lower than that in the control group, and the difference between the two groups was significant ($P < 0.05$). This result is consistent with the findings of Han Yubo's study, indicating that the small incision fat removal combined with continuous buried suture technique in plastic repair surgery results in minimal trauma, avoids suture

removal, and thus reduces the risk of infection, leading to a lower incidence of complications.

The analysis of clinical data for both groups of patients revealed that the operative time, healing time, and incision (suture) length were all shorter in the observation group compared to the control group, with significant differences noted ($P < 0.05$). This can be attributed to the fact that the plastic repair procedure employed a method involving small incisions for fat removal combined with continuous buried sutures, which facilitated quick and almost painless postoperative recovery. This approach primarily increases the contact area between the skin and the eyelid board, while only resulting in a single deeply buried suture line beneath the skin [8]. Therefore, the observation group exhibited shorter operative and healing times as well as incision length compared to the control group.

In conclusion, plastic repair procedures demonstrate significant efficacy in the treatment of asymmetric double eyelids, with a lower incidence of complications and shorter operative times. Thus, they are worthy of further promotion.

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