A Novel Technique of Small Incision Fascia Lata Harvesting without a Faciatome for Frontalis Suspension Procedure

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Abstract

Purpose: To introduce a small incision technique of fascia lata (FL) harvesting for frontalis suspension blepharoptosis procedure.

Methods: A skin incision was made in a line between the lateral condyle of the tibia and the anterior superior iliac crest, starting 4-5 cm above the knee and extending upward 2-2.5 cm. Approximately 8 cm superior to the first incision, a second skin incision was made with the same length. The FL was dissected from subcutaneous tissue from 1 cm superior to superior border of upper incision to 1 cm inferior to inferior border of lower incision. A 15 mm x 5-10 mm strip of FL was excised. The fascial defect was left open. Subcutaneous and deep layers were closed with three 4-0 plain catgut sutures and the skin with subcuticular 5-0 prolene sutures.

Results: The technique was used in 22 patients from 4 to 47 years of age (Mean: 18.29±14.20) for 34 frontalis sling procedures. Mean follow-up time was 6.17±3.21 (3-16) months. Wound hematoma (1/22, 4.5%), wound discharge (2/22, 9%), pain at rest (100%, up to 4 days), pain on walking (20/22, 90%; up to 3 weeks), limping (13/22, 59.1%; up to 7 days) were the main postoperative complications. No significant skin scar was observed and none of the patients needed scar revision.

Conclusion: Small incision FL harvesting procedure is a good alternative method when the FL stripper is not available.

Keywords: Fascia Lata, Frontalis Suspension, Ptosis


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Introduction

Fascia lata (FL) is preferred by many surgeons for its predictable and lasting results for frontalis suspension procedure. Fascia lata is usually harvested using a FL stripper. A long skin incision is however needed to harvest the FL for blepharoptosis repair in the absence of FL stripper. In a classical fascia lata graft the wound is the same length as the graft which can be cosmetically unacceptable and painful. Muscle herniation is also a significant postoperative complication where a large size of fascia lata is needed. Herein, a technique of small 2-incision FL harvesting is described to minimize the length of skin incision in the absence of FL stripper.

Methods

The leg was rotated medially, prepared and draped to expose the anterior and lateral thigh. After general anesthesia, a skin incision was made in a line between the lateral condyle of the tibia and the anterior superior iliac crest, starting 4-5 cm above the knee and extending upward 2-2.5 cm. Approximately 8 cm superior to the first skin incision, a second incision was made with the same length (Figure 1).

![Figure 1. Two-small incision method for harvesting the fascia lata for blepharoptosis repair](image)

The incisions were deepened until the FL comes into view: a glistening white sheet of avascular tissue, with fibers running in the direction of the incision, was encountered. The FL was dissected from subcutaneous tissue from 1 cm superior to superior border of upper incision to 1 cm inferior to inferior border of lower incision. Exposure and dissection were facilitated with right-angle retractors. Parallel longitudinal incisions (1-2 cm) were made 5-10 mm apart in the FL at most superior border with a knife in a way not to hurt underlying muscle fibers. The superior border of the strip was cut 1 cm above the superior border of upper skin incision. A 5-mm width was planned for unilateral and 10-mm for bilateral frontalis suspension procedure. Dissection of the FL from underlying thigh musculature was performed to release all tissue attachments to the FL from superior to the most inferior part with a long Metzenbaum scissors. The same scissors were directed inferiorly through the superior incision and used to make parallel incisions in the FL, 5-10 mm in width. The inferior part of the strip was cut 1 cm lower than inferior border of lower incision. From the superior incision, the cut end of the graft was grasped with a long clamp and drawn out of the incision. The final dimensions were approximately 15 cm by 5 to 10 mm. A standard pentagonal or double triangular frontalis suspension procedure was then performed. The fascial defect was left open. Subcutaneous and deep layers were closed with three 4-0 plain catgut sutures and the skin with subcuticular 5-0 prolene sutures. A Light gauze dressing was placed over the wounds. Topical antibiotic (Tetracycline ointment, twice a day for 10 days), topical steroid (Hydrocortisone ointment, twice a day for 6 weeks), and systemic antibiotic (Cephalexin 250-500 mg, four times a day for 3 days) were given. The sutures were removed 8-10 days later. Patients were followed a day, 1 week, 1 month, and 3 months after surgery. Apart from the eyelid and thigh wound examinations, the patients or their guardians were particularly asked about leg pain on rest, pain on walking, limping, and significance of the leg scar.

Results

Thirty-four FL frontalis suspension procedures were performed on 13 females and 9 males with blepharoptosis from June 2004 to July 2006 (Table 1). Technique of small incision fascia lata harvesting was performed in all cases. There were 24 eyelids with congenital ptosis (24/34, 70.6%), 4 with myasthenia gravis (4/34, 11.8%), 4 with chronic progressive external ophthalmoplegia (4/34, 11.8%), and 2 with third cranial nerve palsy (2/34, 5.9%). Pentagonal (2/34, 41.2%) and double triangular (2/34, 58.8%) configurations were used to pass the fascia lata based on the preoperative examination regarding to the
pattern of frontalis muscle in elevation of the eyelid and horizontal palpebral fissure length. Margin reflex distance significantly (P≤0.001) increased in last post-operative follow-up (Table 1).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Range</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>4 to 47</td>
<td>18.29 (14.20)</td>
</tr>
<tr>
<td>Levator function (mm)</td>
<td>2 to 4</td>
<td>3.08 (0.75)</td>
</tr>
<tr>
<td>Preoperative Margin reflex distance (mm)</td>
<td>-1 to +1.5</td>
<td>0.48 (0.71)</td>
</tr>
<tr>
<td>Postoperative Margin reflex distance (mm)</td>
<td>+1.5 to +4</td>
<td>2.48 (0.63)</td>
</tr>
<tr>
<td>Follow-up time (month)</td>
<td>3 to 16</td>
<td>6.17 (3.21)</td>
</tr>
</tbody>
</table>

All the patients had lagophthalmos postoperatively which was managed with conservative treatments. Reoperation was performed on 9 eyelids (9/34, 26.5%) because of over-correction (3 eyelids), under-correction (3 eyelids), significant corneal exposure (2 eyelids), and contour asymmetry (1 eyelid). One FL exposure and 2 granuloma and infection at the site of central eyebrow incision was successfully treated with repositioning and systemic and topical antibiotic agents.

There were no intraoperative complications related to the harvest of the fascia lata. Mild early postoperative hematoma that required no treatment was observed in 1 (4.54%) patient. Wound discharge and mild infection happened in two (9.09%) patients that were treated with systemic antibiotic. Postoperative pain at rest was reported in all patients that lasted from 1 to 4 days. Pain on walking and limping however were complained by some of the patients for different durations postoperatively (Table 2 and 3).

Table 2. Duration of pain on walking after small incision fascia lata harvesting in 22 patients with ptosis

<table>
<thead>
<tr>
<th>Duration (day)</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain on walking</td>
<td>2/22 (9.1%)</td>
</tr>
<tr>
<td>1-7</td>
<td>10/22 (45.5%)</td>
</tr>
<tr>
<td>8-14</td>
<td>6/22 (27.3%)</td>
</tr>
<tr>
<td>15-21</td>
<td>4/22 (18.2%)</td>
</tr>
</tbody>
</table>

Table 3. Duration of limping after small incision fascia lata harvesting in 22 patients with ptosis

<table>
<thead>
<tr>
<th>Duration (day)</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No limping</td>
<td>9/22 (40.9%)</td>
</tr>
<tr>
<td>1-3</td>
<td>5/22 (22.7%)</td>
</tr>
<tr>
<td>4-7</td>
<td>5/22 (22.7%)</td>
</tr>
</tbody>
</table>

There were two 2 cm incision scars on the lateral thigh (Figure 2). Subjectively, the patients were happy with the site of incision sites and none of them needed scar revision at last follow-up time. Muscle herniation at the site of FL harvesting was not observed (Figure 3).

Figure 2. Three months postoperative photograph of the site of small incision fascia lata harvesting

Figure 3. Preoperative and postoperative photos of a congenital blepharoptosis correction by small incision fascia lata harvesting for frontalis sling procedure.
Discussion

Autogenous fascia lata is commonly used as the material of choice for the frontalis sling in brow suspension blepharoptosis surgery in patients over 3 years of age.\textsuperscript{1-4} It is preferred by many surgeons for its predictable and lasting results. Currently, FL is usually harvested for different procedures using a fasciatome or stripper through a 4 cm linear skin incision in the lateral aspect of the thigh over the iliotibial tract.\textsuperscript{4,5} A long skin incision is however needed to harvest the FL for blepharoptosis repair in the absence of FL stripper.\textsuperscript{6} Disadvantages of the use of FL for frontalis sling procedure related mostly to potential donor site morbidity.\textsuperscript{6} Harvesting FL is reported to cause minimal or no postoperative morbidity though complications can arise when a large area of FL is removed.\textsuperscript{2,3}

Muscle herniation is a significant postoperative complication where a large size of fascia lata is needed.\textsuperscript{2} Whereas, this complication was not observed in a series of 24 patients with blepharoptosis, using fasciatome.\textsuperscript{4} Similarly, there was no muscle herniation in our series. Wheatcroft and associates\textsuperscript{4} used a fasciatome through a 3-4 cm linear skin incision and reported a pain on walking up to 30 days after surgery in 70% of the patients. There was a report of pain on walking up to 3 weeks in 90.09% of patients in our series (Table 2). This could be accounted for different subjective pain threshold.

Limping has been reported in 53.3% of patients (up to 2 weeks) after harvesting the FL with fasciatome for blepharoptosis frontalis sling procedure.\textsuperscript{4} This complication was reported in 36.4% of our patients up to 3 days and 22.7% up to a week after surgery (Table 3) which is almost the same as after using fasciatome.

A subcuticular closure of the incision is recommended to improve the cosmetic appearance, which was used in all cases in this series with no significant problem. Scar scoring was not performed in this study. Nevertheless, all the patients were happy with the incision sites and no scar revision was needed at last follow-up time.

Conclusion

In conclusion, small incision FL harvesting procedure is recommended as an alternative method when the fasciatome is not available.

References