

Short Communication**Harvesting fascia lata for brow suspension procedure  
via two small skin incisions***Ali Reza Zandi\****Abstract**

**BACKGROUND:** In severe ptosis with poor levator function, a sling procedure for repair is needed. When a preserved fascia or a fasciotomy is not available, the usual way to obtain this fascia is through a long skin incision on the thigh. In this research, we evaluated the technique of obtaining enough amount of fascia via two small skin incisions on the thigh.

**METHODS:** In a prospective study, 22 eyes from 14 patients with severe congenital ptosis that were required frontalis suspension procedures were included in the study. Two skin incisions, 1 cm in length and 10 cm apart were made on the lateral aspect of the thigh muscle. Via the first incision, the fascia was well dissected and decollated and via the second one, the distal end of the fascia was cut and the whole length of fascia was removed.

**RESULTS:** With this method, we were able to obtain enough amount of fascia with the least skin scar on the thigh. Prolonged follow up of these patients didn't reveal any complication on the thigh along desirable lid high, favorable cosmetic outcome, and no notable exposure.

**CONCLUSIONS:** For severe congenital ptosis, harvesting fascia lata via two small skin incisions was a useful method with the least scar on the thigh.

**KEY WORDS:** Fascia lata, brow suspension procedures, sling.

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**P**alpebral ptosis indicates abnormal drooping of the upper lid, caused by partial or total reduction in levator muscle function<sup>1</sup>. For severe ptosis with a levator function <5 mm, a brow/frontalis suspension is indicated<sup>2</sup>. Frontalis suspension with autogenous fascia-lata or synthetic material as Gore-tex is performed in case of levator resection failure, nonfunctioning muscle, and muscular dysfunction as in the Marcus Gann syndrome<sup>3</sup>. It is sometimes the first choice at the first stage for severe ptosis with poor levator function in isolated congenital ptosis, blepharophimosis syndrome, Marcus Gann jaw-winking ptosis with severe myopathy and some traumatic ptosis<sup>4</sup>.

Several materials are available in order to secure the lids to the frontalis muscle including autogenous fascia lata, preserved (tissue bank) fascia, non-absorbable suture material (such as 2-0 prolene), silicon band suture reinforced sclera and Gore-tex. Other autogenous materials used less frequently are palmaris longus tendon and temporalis fascia<sup>5</sup>. Although the longterm success rate with the autogenous fascia lata is slightly higher and this remains the first choice, allograft fascia lata is a good alternative in patients in whom fascia could not be harvested<sup>6</sup>. Frontalis suspension using autogenous fascia is proposed as a possible procedure for correcting congenital ptosis in

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children younger than 3 years of age<sup>7</sup>. Auto-genous fascia lata has shown the best long term results and usually enough amount of fascia lata for brow suspension procedure is obtained from bank fascia or directly by a fasciotomy or by making a lengthy incision on the thigh. Because a preserved fascia or a fasciotomy is not available in most instances, in order to avoid a large scar on the thigh, we evaluated the technique of harvesting an enough length of fascia via two small skin incisions on the thigh.

### Methods

Twenty-two eyes of 14 patients were operated on. Nine patients were women and 5 were men. The patients were aged between 7 and 21 years. Among them, 9 had severe congenital ptosis, 3 had previous history of unsuccessful levator resection procedures and two were cases of severe jaw winking syndrome. In all of the patients, two skin incisions 1 cm in length and 10 cm apart were made on the temporal aspect of the thigh after general anesthesia. The first incision was 5 cm above the knee joint. Then the subcutaneous tissue and fat over the fascia were well dissected and decollated by a tall arm seizure in both incisions to the other side (figure 1). Identification of the fascia was made by its white glistening appearance and parallel fibers. The fascia lata runs as a broad sheet of parallel fibers from the lateral aspect of the greater trochanter to the lateral condyle of the tibia. Blunt dissection of the fat over the fascia for a distance of 8-10 cm with long-handle scissors creates a 20-25 mm wide tunnel in line with the direction of the fascia lata fibers. The veil-like adhesions between the fat and fascia should separate easily and bloodlessly with a spreading action of the scissors in this avascular band of loose connective tissue. It is fairly safe to dissect here because of the absence of large arteries, veins and nerves<sup>8</sup>. Then, decollation beneath the fascia from the bulky muscle was done with a blunt-tip instrument in the same direction (figure 2). When the dissection and decollation over and below the fascia was well completed, two longitudinal cuts

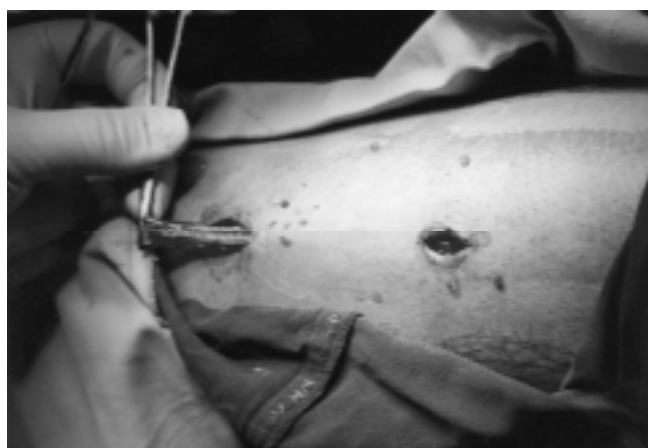
parallel to each other were made on the length of the fascia and finally a transverse cut was made on its distal end and about 12 cm of fascia, 1-1.5 cm in width was removed (figure 3).



**Figure 1.** Decollation of subcutaneous tissue over the fascia.



**Figure 2.** Decollation beneath the fascia from the bulky muscle.



**Figure 3.** Removal of the fascia.

It is better to place the fascia on a wooden cutting board and dissect off all extraneous tissue with scissors. We divided the fascia longitudinally into four or two equal strips and at the end of the procedure sutured the leg incisions with 4-0 absorbable suture subcutaneously and 5-0 nylon suture for skin.

## Results

Among 22 eyes with severe congenital ptosis, only 3 had undergone previous unsuccessful levator resection and the others were primary cases with no previous operations on the lid. After obtaining a long enough strip of fascia, separating it to 2 or 4 strips and using it as a suspensor for lid to the frontalis muscles, we found a good long-term result, desirable lid high, favorable cosmetic outcome, and no notable exposure. The expected lagophthalmos was within normal limits in all patients. On the thigh, only two inconspicuous scars remained which faded over time. In these 14 cases, we observed only one muscle herniation on the muscle harvesting site which had no clinical importance in long-term follow up.

## Discussion

Today, fascia lata has a broad range of uses in medicine and harvesting it is an important subject worldwide. Fascia lata is commonly used in orthopedics for repair of the cruciate ligament in the knee joint and in urology for bladder suspension and it has been used in dural repair, hernia repair and repair of orbital floor defect, retinal detachment and facial palsy<sup>9</sup>. Also there is a natural safe treatment in microvascular surgery and infective aortic false aneurysm using fascia lata<sup>10</sup>. To improve air tightness of stapled long parenchyma using fascia lata, harvesting of this fascia is performed by a 15 cm longitudinal incision over the lateral surface of the thigh<sup>11</sup>. Because thoracic surgery needs a 10 to 20 cm section of the fascia, this large incision is reasonable, but

oculoplastic surgery requires only a 1 to 12 cm section of the fascia for sling procedure and it can be accessed by two small incisions of 1 cm each. A minimally invasive technique for harvesting autologous fascia lata for pubo-vaginal sling suspension is described by Chibber and colleagues in the Department of Urology in Mumbai, India. They harvested fascia by using a fascia stripper and a single or two or three incisions just above lateral femoral epicondyle<sup>12</sup>. But in our technique we used only two separated 1 cm incisions without using stripper. Naugle described a form of fascia lata harvesting using a high leg incision because he had confronted problems like conspicuous scar, herniation of muscle belly and hematoma with traditional lower lengthy incision<sup>13</sup>. However, as the length of incisions was only 1 cm in our series, these complications were avoided and there was no reason to change the site of incision. In a retrospective study in 1997, Wheatcroft reviewed complications of 24 consecutive patients who had undergone brow suspension procedure using fascia lata. He found that the final cosmetic appearance of the scar caused minor concern in 38% of patients<sup>14</sup>, but they applied 3 to 4 cm linear skin incisions using Mosely fasciotom. In our series, there were no cosmetic problems with two separate small incisions of 1 cm which faded over time in all patients.

Today obtaining enough fascia lata for brow suspension procedure is usually done by fasciotom (stripper) or a lengthy incision on the quadriceps muscle (8 cm by direct harvesting). When these instruments are not available or a large leg incision is unacceptable for the patients, we can obtain enough fascia via these two small skin incisions. Because the required skin incision in this method is even smaller than the 4 cm incision for introducing the fasciotom, we recommend it as the preferred approach for sling procedure.

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