

Frontalis suspension procedure with an upper retroauricular fascia graft: a preliminary case report

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Dear Editor,

We present the first reported case of frontalis suspension procedure with the retroauricular fascia (RF) for a patient of unilateral congenital ptosis. Frontalis suspension procedure is one of the major surgical procedures for congenital ptosis^[1]. This procedure connects the affected eyelid and the brow with a graft and utilizes the frontalis muscle as the power of opening the upper eyelid^[2]. Numerous grafts using various materials have been developed for frontalis suspension procedure, such as autologous grafts, homologous grafts, and alloplastic materials, even though each of these have their own advantages and disadvantages^[2-3].

The RF graft is widely used in many surgeries, including those for lip enhancement^[4] and correction of nasal^[5] and ear^[6-7] defects^[8]. The RF, which locates posterior to the auriculocephalic sulcus, has superficial, innominate and deep fascia layers^[8]. The cranial and caudal portions of the superficial fascia are known as the temporal fascia and mastoid fascia, respectively^[8]. The innominate fascia underneath the superficial fascia is very thin and they are well adhered. Because it is relatively difficult to separate the innominate

fascia from the superficial fascia, we named superficial and innominate fascia layer “the upper retroauricular fascia (URF)” all together.

Here, we present, to our knowledge, the first reported case of congenital ptosis with poor levator function who was treated with the URF, which is a new autologous graft for the frontalis suspension procedure. We obtained the written informed consent from the patient, and this case study is in accordance with the tenets of the Declaration of Helsinki.

A 2-year-old boy with left congenital ptosis underwent surgery under general anesthesia. His levator function of the affected side was poor and obvious ptosis impaired visual function preoperatively (Figure 1). From a skin incision along the edge of the hairline (Figure 2A), the URF was elevated (Figure 2B). The URF with thickness of a few millimeters was cut into a rectangle of 35 mm length and 20 mm width (Figure 2C). The skin incision was then made 6 mm above the eyelid margin, and the central area of the upper brow margin was also incised. A tunnel was made from the brow incision to the pretarsal area through the suborbicularis oculi layer. The URF graft was passed through the tunnel and the caudal end of the graft was sutured with 6-0 non-absorbable thread at 3 points (one central point above the pupil, the other two points medially and nasally) to the upper one-third of the tarsal plate. The upper eyelid curvature was then confirmed by pulling the graft through the suborbicularis tunnel (Figure 2D). After the upper eyelid height was adjusted appropriately with a trial suture at the brow incision, the cephalic end of the graft was fixed at the subcutaneous tissue of the brow. The redundant graft was excised.

One year after the operation, the upper eyelids showed symmetrically appropriate heights. The patient did not demonstrate exposure keratitis, wound infection, lagophthalmos, or ptosis in a year following the operation (Figure 3). Scar along the edge of the hairline was not noticeable and no hypertrophic scar was observed at both donor and harvest site (Figure 4).

Despite its extensive clinical use, the RF has not been used as a graft for frontalis suspension procedure previously. Being softer and more flexible, the URF may be a more manipulative material than another autologous grafts. About 4×6 cm²



Figure 1 Preoperative view of a 2-year-old boy with left congenital ptosis.

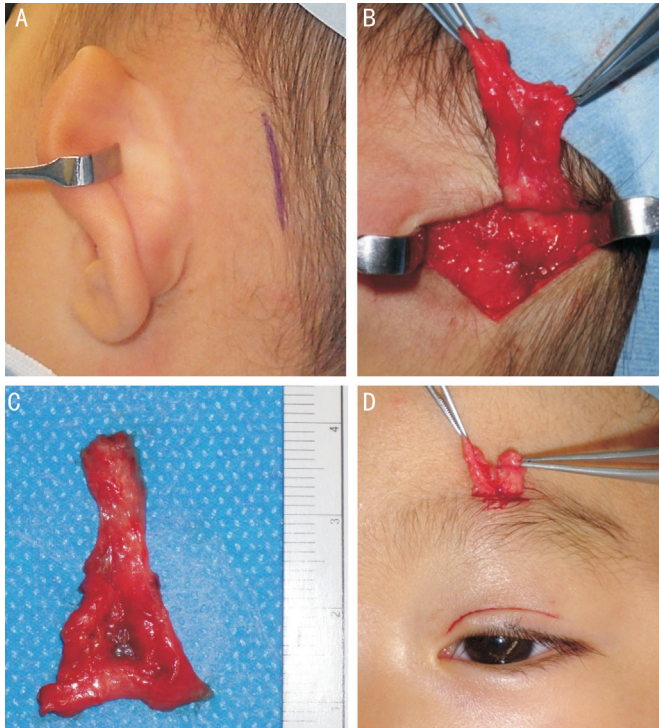


Figure 2 Intraoperative finding A: Skin incision along the edge of the hairline; B: Elevated URF; C: Rectangular (35 mm length and 20 mm width) shape of URF; D: Confirmation of upper eyelid curvature by pulling the graft through the suborbicularis tunnel.



Figure 3 Optical findings 12mo after surgery showing good aesthetic results.

rectangular piece of the URF can be collected with 3 cm skin incision. Therefore, sufficient amount of graft can be prepared even for bilateral cases.

Among the many autologous materials reported, the deep temporoparietal fascia^[9], palmaris longus tendon^[10] and tensor fascia lata^[2,11] are commonly used and easy to harvest, however, they usually result in donor-site morbidity. Harvesting deep temporoparietal fascia leaves transient or permanent alopecia along the temporal incision. Harvesting a palmaris longus tendon causes a visible incision scar on the patient's wrist. In addition, median nerves injury has been



Figure 4 Scars along the edge of the hairline were not noticeable.

reported during the scarification of the tendon^[12]. Harvesting fascia lata may leave spread scar on thigh and postoperative seroma has been reported in some cases^[13].

The URF is accessible in the same operation field, easily harvested and also leaves an aesthetically invisible scar behind auricle and hair (Figure 4). Despite its soft and pliable structure, the URF is able to maintain its suspension power for a long period of time. The results so far are very encouraging, but we need longer follow-up to evaluate the long-term results. We firmly believe that it can be the primary choice for frontalis suspension procedure in the future.

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