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CASE REPORT

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Progressively worsening ptosis in a woman: A case report

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Key Clinical Message

Filler injections into the upper eyelid may cause levator aponeurosis fibrosis and ptosis. This risk must be considered. When ptosis appears, treatment might be difficult. Understanding the upper eyelid anatomy and procedures is essential to prevent eyelid damage.

Abstract

Ptosis is a prevalent condition in cosmetic surgery that occurs due to malfunction of the levator palpebrae superioris or insufficient Müller muscle action. It is characterized by the upper eyelid edge appearing lower than usual when seen at eye level. Ptosis may be categorized into congenital and acquired forms. The primary cause of congenital ptosis is attributed to abnormalities of the levator palpebrae superioris muscle or the motor nerve innervation that controls it. The condition arises from atypical development and malfunction of the oculomotor system. Acquired ptosis may be classified into many categories including traumatic, neurogenic, myogenic, senile, mechanical, and fake ptosis. Currently, there is little documentation of ptosis resulting from the degeneration of the aponeurosis of the muscle in the upper eyelid. We received a case of ptosis caused by fibrosis of the levator palpebrae superioris aponeurotic membrane. We used the technique of levator palpebrae superioris great advancement. The levator palpebrae superioris—Müller muscle was folded to create a stable composite construction via the levator palpebrae superioris high progress.

KEYWORDS

blepharoptosis, etiology, fibrosis, levator aponeurosis, ptosis

1 | INTRODUCTION

Ptosis is a prevalent ophthalmologic disorder characterized by the sagging of either one or both eyelids. Ptosis may result from the debilitation of the levator palpebrae superioris and Muller's muscle, which are accountable for elevating the eyelid, or from abnormalities affecting the nerves that supply these muscles. Ptosis is a condition that affects people of all ages and it is crucial to recognize, as it may cause adults to have temporary loss of vision on the sides and youngsters to develop amblyopia. At times, ptosis may also serve as a discreet clinical

indication of sickness in other parts of the body. Ptosis may be classified based on age (congenital or acquired) and cause (aponeurotic, neurological, mechanical, traumatic, or pseudoptosis).[1] Congenital ptosis, which refers to the drooping of the upper eyelid, is the prevailing reason for ptosis throughout infancy. It is characterized by the presence of ptosis either at birth or during the first year of life. Congenital ptosis, sometimes referred to as dysmyogenic ptosis, is caused by developing dystrophy of the levator muscle. Idiopathic is the most frequent cause of congenital ptosis; however, it may also be familial and inherited in an autosomal-dominant manner. Around 75% of congenital ptosis cases are unilateral, resulting in amblyopia in 20% of instances. This may occur either by pupil occlusion or by inducing amblyogenic astigmatism in the afflicted eye.[2] The most common kind of ptosis is acquired ptosis, which may be categorized based on its cause. Cases are usually classed as aponeurotic, myogenic, neurogenic, mechanical, or traumatic in nature. Aponeurotic ptosis is the most prevalent kind of acquired ptosis,[3] is caused by stretching, dehiscence, or detachment of the levator aponeurosis from its insertion on the tarsus, and is typically associated with aging.[4] Currently, there is a scarcity of reports on ptosis caused by the degeneration of the aponeurosis of the muscle in the upper eyelid. We reported an instance of ptosis resulting from fibrosis of the aponeurotic membrane of the levator palpebrae superioris.

2 | CASE REPORTS

A 61-year-old female patient was hospitalized to the plastic surgery department at Daping Hospital, Army Medical University, for the condition of "ptosis and upper eyelid depression" (Figure 1). The patient and his family denied family history. Three years ago, the patient had several injections of unidentified chemicals into the eye socket as a result of orbital depression. Half a year ago, the patient reported experiencing drooping of both eyelids, restricted vision, and a steady deterioration of symptoms. Upon physical examination, it was seen that the patient's left upper eyelid had a noticeable depression, and foreign objects were found in various locations. The signs of ptosis were more localized on the left side compared to the right side. The right levator eyelid muscle had a muscular strength of 9 mm, whereas the left levator eyelid muscle had a muscular strength of 6 mm. The Helsinki Declaration was mentioned, and patients provided their informed permission by signing a form, therefore consenting to the use of their information for this research.

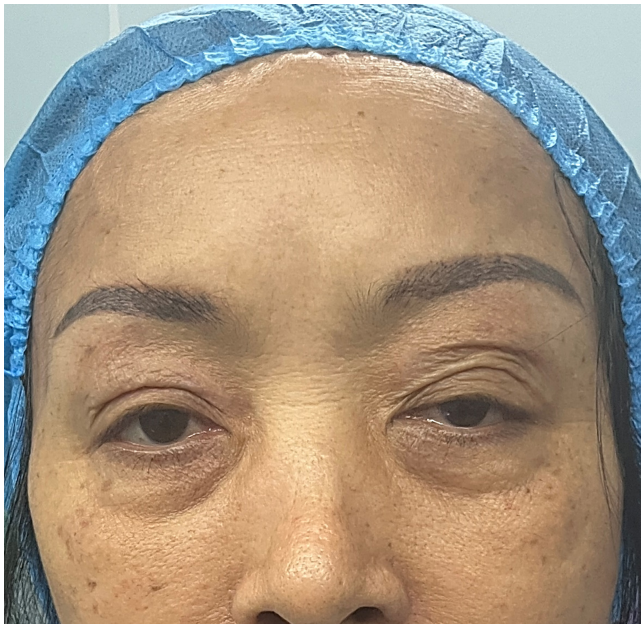

FIGURE 1 A 49-year-old female with severe left-sided ptosis.

3 | METHODS

Surgical procedures: The patient is positioned on their back, and after standard face sterilization, the surgical cut is planned along the double eyelid crease, often measuring 5–7 mm. A solution containing 2% lidocaine in a volume of 5 mL was prepared, following a ratio of 1:20 million. After mixing, 0.2 mL of epinephrine hydrochloride was added to the solution for local anesthetic. An incision along the designated line was made on the skin, removing a portion of the orbicularis oculi muscle before reaching the meibomian gland, and eliminating any surplus tissue.

4 | RESULTS

It was observed that there was obvious "abnormal hyperplasia tissue" located underneath the orbicularis muscle (Figure 2A,B). The atypical tissue was surgically removed, and histopathological examination revealed a significant presence of megakaryocytes infiltrated with collagen hyperplasia and fibrosis, as well as foreign body granuloma (Figure 2C). Following the exposure of the tarsal plate, proceed to incise the orbital septum in the superior region, excise any surplus adipose tissue prior to the aponeurosis, and completely reveal the upper tarsal tendon membrane. Proceed by carefully detaching the anterior section, ensuring the preservation of the tendon membranes, and effectively controlling the hemorrhage. The separation persists between the posterior wall of the orbital septum and the lax connective

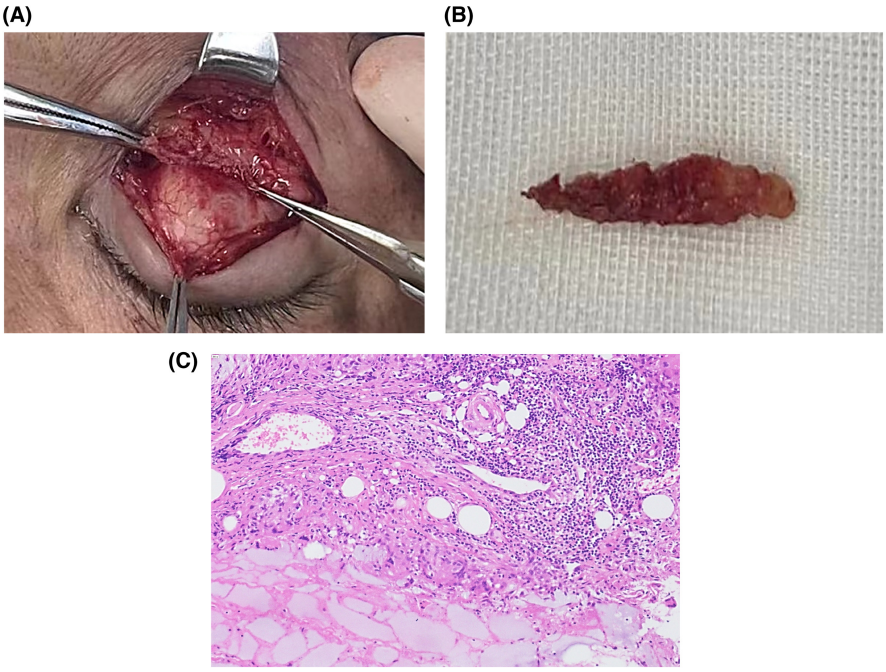

FIGURE 2 (A) Abnormal tissue below the orbicularis muscle. (B) Excised abnormal tissue. (C) Histopathological examination results showed that the tissue contained a large number of megakaryocyte infiltration with collagen hyperplasia and fibrosis and foreign body granuloma.

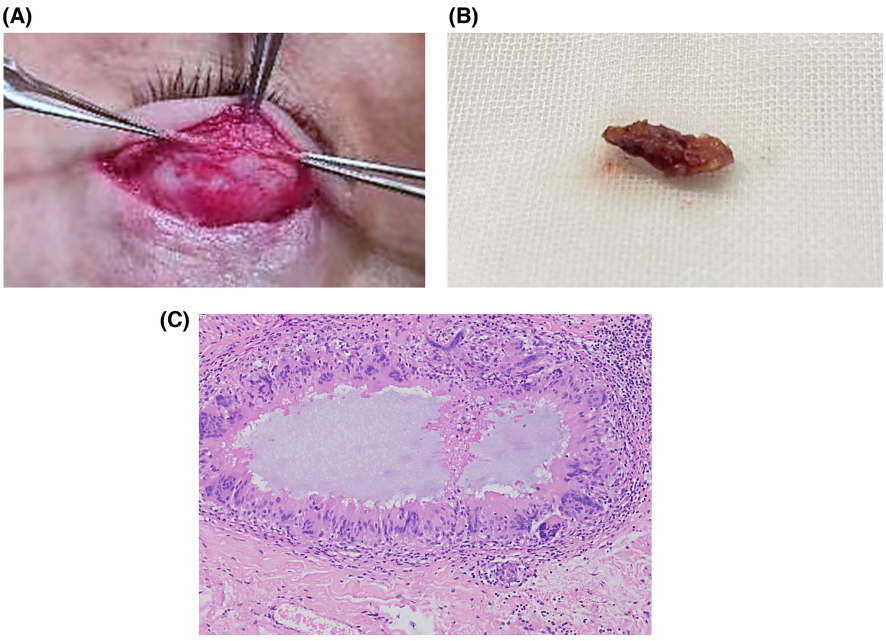

FIGURE 3 (A) Degenerative levator palpebral muscle. (B) Excised degenerative levator palpebral muscle. (C) Histopathological examination results showed that there were a large number of megakaryocytes and inflammatory cells infiltrated in the levator palpebralis muscle, the fiber arrangement was disordered, and fibrosis hyperplasia and numerous foreign body granulomas.

tissue among the tendons of the levator palpebrae superioris till reaching the transverse ligament of Whitnall's. Figure 3A,B shows the presence of degeneration and thickening of the levator palpebral muscle. The findings revealed a significant presence of megakaryocytes and inflammatory cells inside the levator palpebralis muscle. Additionally, there was evidence of disorganized fiber organization, fibrosis, hyperplasia, and the formation of many foreign body granulomas (Figure 3C).

5 | DISCUSSION

Eye care practitioners must prioritize the quick and correct identification and treatment of acquired ptosis due to its high prevalence and significant clinical and functional consequences. Acquired ptosis is primarily caused by age-related alterations in the upper eyelid retractor muscles.[3,5] However, there are diverse underlying factors, and several eye care practices and interventions, such as wearing

contact lenses and undergoing cataract and glaucoma procedures, can potentially lead to the occurrence of temporary or long-lasting forms of ptosis.[6–9]

Concave, wrinkled, and devoid eyelids are indicative of the aging process. The aging of the eyelids is influenced by several variables, such as the force of gravity, depletion of adipose tissue, and damage caused by exposure to sunlight. Adipose tissue loss may result in a concave distortion in the upper eyelids. In addition, the ablation of excess fat during blepharoplasty might result in the development of eyelid hollowness.[10–13] To enhance the appearance of young eyelids, many types of fillers have been developed, such as autologous fat, hyaluronic acid, and autologous tissue. Nevertheless, several risks linked to the administration of orbital fillers have been documented, including sudden loss of eyesight, paralysis on one side of the body caused by a blood clot in the brain, severe and potentially deadly stroke, localized swelling of blood, fatty tissue or scar tissue, uneven appearance, blood poisoning, and inflammation of the skin and underlying tissue. There is a lack of detailed information about the occurrence of ptosis, a separate problem, in the existing literature. In addition to the causes mentioned in this article, all of them need thorough investigation and assessment of treatment options.

Surgery is a very successful therapy for ptosis, but nonsurgical methods have been quite restricted in terms of both quantity and efficacy. Due to the restricted availability of surgical therapy, it is important to explore the integration of new nonsurgical therapies in order to expand the treatment choices for a broader patient population. The available information on a recently licensed pharmacologic medication for treating acquired ptosis is promising and indicates the potential to provide an efficient nonsurgical therapy.[14] Eye care practitioners, as well as other health care professionals, may benefit from the availability of an authorized pharmaceutical alternative. This might facilitate a transition from a "detection and referral" strategy to a "diagnosis and treatment" approach, with surgery being recommended when necessary. Moreover, the availability of a wider range of therapeutic choices might enhance the patient-centered approach to therapy by enabling the use of both surgical and nonsurgical methods, depending on the underlying causes, severity, and the patient's personal preference.

Although there have been positive developments in the treatment of ptosis, it is important to note that these advancements are only one aspect of the whole clinical situation. An expedient and precise diagnosis is crucial for the efficient treatment of ptosis. Specifically, a thorough clinical examination and differential diagnosis are crucial for determining whether a patient's ptosis is caused by the primary pathology of the upper eyelid retractor muscles, which can be effectively treated with surgery or medication targeting the upper eyelid, or if it is a symptom of a more severe neurological condition that requires a different approach. Typically, ptosis is only assessed and addressed promptly if it appears suddenly or is severe. However, it is possible to include an examination of the upper eyelid for mild-to-moderate or gradually worsening instances as part of a thorough eye examination without much difficulty. By prioritizing awareness and diagnosis, and implementing targeted surgical or nonsurgical interventions supported by clinical data, the potential for enhanced ptosis therapy is extended to a larger number of patients.

6 | CONCLUSIONS

Ptosis may occur as a result of filler injections for upper eyelid augmentation, and it is important to give careful consideration to this potential consequence. Correcting and achieving favorable results for ptosis becomes tough once it is present. Proficiency with the anatomy of the upper eyelid and skilled technique is essential in order to prevent harm to the structure of the eyelid.

AUTHOR CONTRIBUTIONS

Hongqing Zhao: Conceptualization. **Yuanyuan Wang:** Formal analysis. **Yuan Ren:** Data curation; writing – original draft. **Zhanhua Yang:** Data curation. **Junbo Zhang:** Supervision; validation.

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None.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

ETHICS STATEMENT

Written informed consent was obtained from the patients for the publication of this case report and any accompanying images. We confirm that explicit written consent to publish the results has been received from the described patient.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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REFERENCES

1. Patel K, Carballo S, Thompson L. Ptosis. *Dis Mon*. 2017;63(3):74-79. doi:10.1016/j.disamonth.2016.10.004
2. Reid RR, Said HK, Yu M, Haines GK 3rd, Few JW. Revisiting upper eyelid anatomy: introduction of the septal extension. *Plast Reconstr Surg*. 2006;117(1):65-66; discussion 71–72. doi:10.1097/01.prs.0000194923.99879.90
3. Lim JM, Hou JH, Singa RM, Aakalu VK, Setabutr P. Relative incidence of blepharoptosis subtypes in an oculoplastics practice at a tertiary care center. *Orbit*. 2013;32(4):231-234. doi:10.3109/01676830.2013.788673
4. Bacharach J, Lee WW, Harrison AR, Freddo TF. A review of acquired blepharoptosis: prevalence, diagnosis, and current treatment options. *Eye (Lond)*. 2021;35(9):2468-2481. doi:10.1038/s41433-021-01547-5
5. Thean JH, McNab AA. Blepharoptosis in RGP and PMMA hard contact lens wearers. *Clin Exp Optom*. 2004;87(1):11-14. doi:10.1111/j.1444-0938.2004.tb03139.x
6. Hwang K, Kim JH. The risk of blepharoptosis in contact lens wearers. *J Craniofac Surg*. 2015;26(5):e373-e374. doi:10.1097/SCS.0000000000001876
7. Satariano N, Brown MS, Zwiebel S, Guyuron B. Environmental factors that contribute to upper eyelid ptosis: a study of identical twins. *Aesthet Surg J*. 2015;35(3):235-241. doi:10.1093/asj/sju070
8. Wang Y, Lou L, Liu Z, Ye J. Incidence and risk of ptosis following ocular surgery: a systematic review and meta-analysis. *Graefes Arch Clin Exp Ophthalmol*. 2019;257(2):397-404. doi:10.1007/s00417-018-4130-6
9. Godfrey KJ, Korn BS, Kikkawa DO. Blepharoptosis following ocular surgery: identifying risk factors. *Curr Opin Ophthalmol*. 2016;27(1):31-37. doi:10.1097/ICU.0000000000000218
10. Ciuci PM, Obagi S. Rejuvenation of the periorbital complex with autologous fat transfer: current therapy. *J Oral Maxillofac Surg*. 2008;66(8):1686-1693. doi:10.1016/j.joms.2006.06.274
11. Tonnard PL, Verpaele AM, Zeltzer AA. Augmentation blepharoplasty: a review of 500 consecutive patients. *Aesthet Surg J*. 2013;33(3):341-352. doi:10.1177/1090820X13478966
12. Berman M. Rejuvenation of the upper eyelid complex with autologous fat transplantation. *Dermatologic Surg*. 2000;26(12):1113-1116.
13. Massry GG, Azizzadeh B. Periorbital fat grafting. *Facial Plast Surg*. 2013;29(1):46-57. doi:10.1055/s-0033-1333842
14. Slonim CB, Foster S, Jaros M, et al. Association of oxymetazoline hydrochloride, 0.1%, solution administration with visual field in acquired ptosis: a pooled analysis of 2 randomized clinical trials. *JAMA Ophthalmol*. 2020;138(11):1168-1175. doi:10.1001/jamaophthalmol.2020.3812

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