

CASE REPORT

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Levator palpebrae superioris myositis as an unusual cause of unilateral ptosis—case report

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Abstract

Background: Ptosis can be a manifestation of a more serious situation. Hence, the analysis of the complaint and the search for etiology are crucial in such cases. Ptosis has many causes; some of them lead to unilateral ptosis while others cause bilateral ptosis. For instance, myasthenia gravis is a cause of bilateral ptosis while oculomotor nerve palsy induces unilateral disease. Proper evaluation of the patient and identification of the cause are important to achieve accurate management and good prognosis.

Case presentation: A 47-year-old male patient attended the ER complaining of dropping the right eye lid of 2 days' duration. There was no associated pain or diplopia. On examination, the extraocular muscles' (EOM) motility was intact, normal pupil and corneal reflexes, and there was swelling of the upper eyelid. Ophthalmological examination revealed normal anterior and posterior chambers as well as the vitreous and retina. The patient had a previous history of traumatic intracranial hemorrhage that was resolved without surgical intervention. He also had diabetes mellitus and hypertension. The patient was transferred to the MRI unit to perform MRI study of the brain and orbit with MRA and IV contrast administration. MRI findings confirmed the diagnosis of LPS myositis, and the patient received medical treatment and improved.

Conclusion: Proper radiological diagnosis leads to accurate management and achieves rapid recovery and optimal patient care.

Keywords: LPS, Orbit, Ptosis, Myositis

Background

Ptosis can be a manifestation of a more serious situation. Hence, the analysis of the complaint and the search for etiology are crucial in such cases. Ptosis has many causes; some of them lead to unilateral ptosis while others cause bilateral ptosis. Myopathies, like myasthenia gravis, causes weakness of extraocular muscles and subsequently bilateral ptosis while selective oculomotor nerve injury leads to unilateral eye drop. Proper evaluation of the patient and identification of the cause are important to achieve accurate management and good prognosis.

Case presentation

Patient information

A 47-year-old male patient attended the ER complaining of dropping the right upper eyelid for the past 2 days. There was no associated pain or diplopia. The patient had a previous history of intracranial hemorrhage that was resolved without surgical intervention. He also had diabetes mellitus and hypertension.

Clinical findings

On examination, the extraocular muscles' (EOM) motility was intact, normal pupil and corneal reflexes, and there was swelling of the upper eyelid. Ophthalmological examination revealed normal anterior and posterior chambers as well as the vitreous and retina.

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Diagnostic assessment

The patient was transferred to the MRI unit to perform MRI study of the brain and orbit with MRA and IV contrast administration.

The study showed diffuse enlargement of the levator palpebrae superioris (LPS) muscle with increased signal intensity on T2-WI (Fig. 1) and significant enhancement on post-contrast T1 fat-suppressed images (Fig. 2). The edema and enhancement involved the muscle belly and tendinous attachment. The superior rectus muscle could be seen normally beneath the swollen muscle. The diagnosis of isolated LPS myositis was established on a radiological basis.

Therapeutic intervention

Following the diagnosis, the patient started oral steroid therapy (prednisolone) and improved dramatically after 4 days. Follow-up visit in the neurology clinic after 2 weeks revealed complete recovery.

Discussion

Levator palpebrae superioris (LPS) muscle is the main muscle that retracts the upper eyelid and keeps the eye open. It arises from the annulus of Zinn, like most of the extraocular muscles, and courses above the superior rectus muscle. It has a triangular shape with its apex directed posteriorly and fans anteriorly toward its insertion into the tarsal plate of the upper eyelid as well as the skin of the upper eye lid. Its innervation comes from the oculomotor nerve (CN III), and hence, it can be affected in CN III injury [1–3].

The etiology of ptosis has a wide differential diagnosis. They can be classified into neurogenic and myogenic causes. Examples of neurogenic causes include CN III palsy which can be partial or complete and usually affects more than a single muscle. It can be a result of PCOM aneurysm which compresses the nerve at its cisternal segment or due to microvascular disease, e.g., in DM and hypertension which cause partial CN III palsy. Other neurogenic causes include Horner's and Guillain-Barre syndromes. Myasthenia gravis, on the other hand, is an example of myogenic causes which causes muscle weakness and bilateral ptosis [4].

Orbital myositis is a subtype of an idiopathic orbital inflammatory syndrome (IOIS) which affects the extraocular muscles causing ophthalmoplegia, ptosis, and pain [2]. It can affect single or multiple muscles and can occur with other inflammatory diseases, e.g., rheumatoid arthritis, systemic lupus erythematosus (SLE), sarcoidosis, and IgG4-related diseases [5, 6]. Isolated myositis of the LPS is rare and few cases were described in the literature [4].

In cases of ptosis, MRI study with intravenous contrast administration is the imaging modality of choice

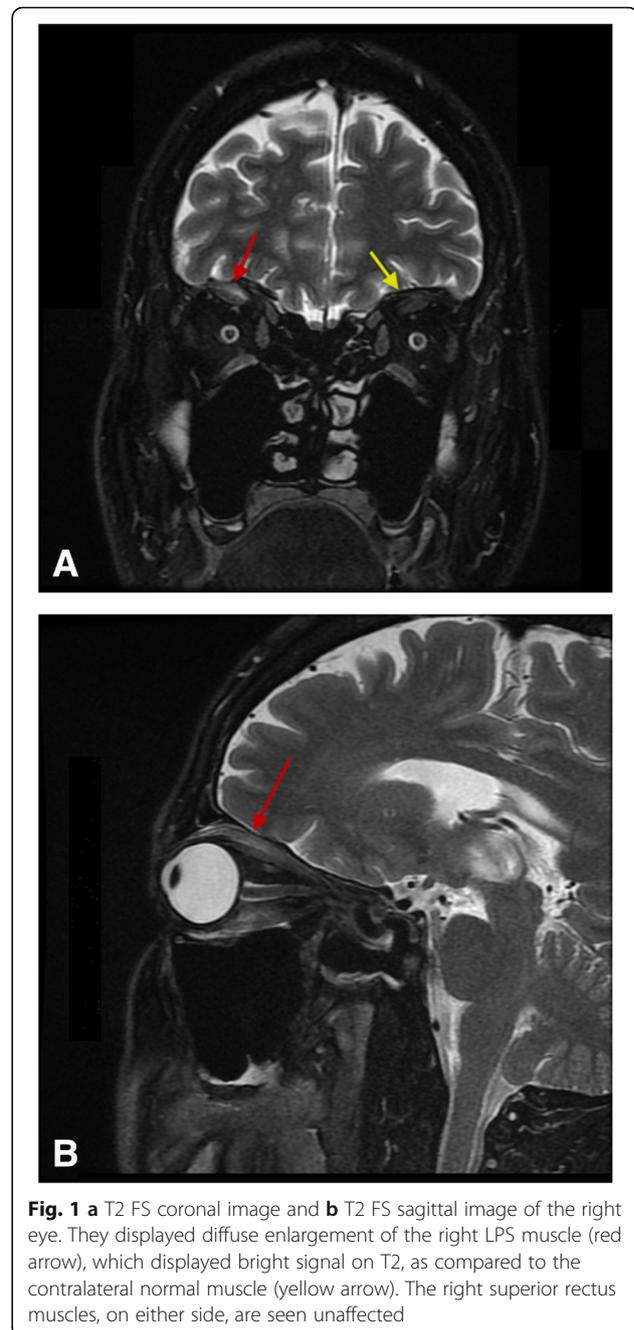


Fig. 1 a T2 FS coronal image and b T2 FS sagittal image of the right eye. They displayed diffuse enlargement of the right LPS muscle (red arrow), which displayed bright signal on T2, as compared to the contralateral normal muscle (yellow arrow). The right superior rectus muscles, on either side, are seen unaffected

[5]. Imaging findings of orbital myositis include diffuse enlargement and abnormal enhancement of the affected muscle, which involve the muscle belly and tendinous attachment. In systemic disease, e.g., sarcoidosis, other findings can be also seen, for example, lacrimal gland infiltration and dural enhancement of the optic nerve sheath [5, 7]. It is worth to mention that, in our case, the laboratory tests for rheumatology factor, e.g., SLE, and anti-nuclear antibody (ANA) were negative.

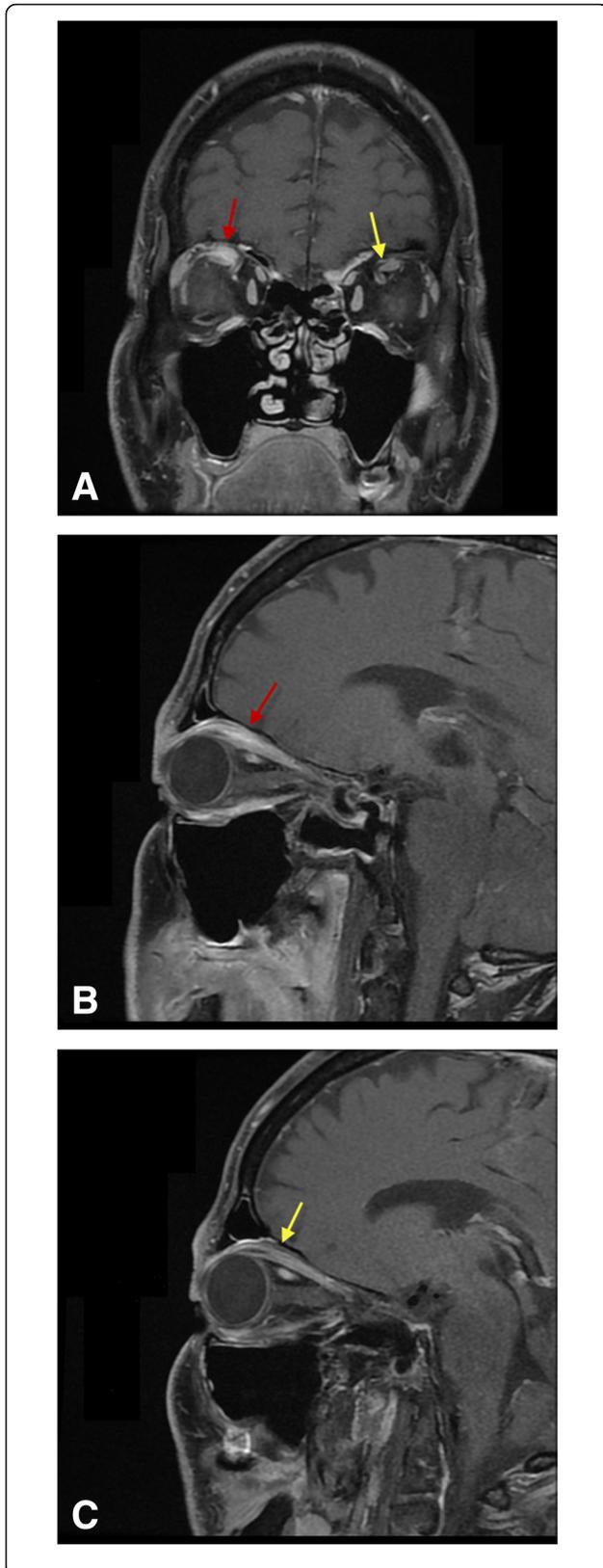


Fig. 2 a T1 FS coronal image with IV contrast, b T1 FS sagittal image with IV contrast of the right eye, and c of the left eye. They displayed diffuse enhancement of the swollen LPS on the right side (red arrow) which involved the tendinous insertion as well. Note the normal appearance of the superior rectus muscle on the right side. On the left side, the LPS (yellow arrow) showed normal size and enhancement as the rest of the extraocular muscles

Patent perspective and informed consent

The patient was satisfied with the rapid recovery; he handed out a thank-you letter for the author and agreed to sign a consent to publish this case report.

Conclusion

Proper radiological diagnosis achieves accurate management which leads to rapid recovery and optimal patient care.

Abbreviations

LPS: Levator palpebrae superioris; EOM: Extraocular muscles; DM: Diabetes mellitus; PCOM: Posterior communicating artery; CN: Cranial nerve; IOIS: Idiopathic orbital inflammatory syndrome; SLE: Systemic lupus erythromatosis; ANA: Anti-nuclear antibody; IgG4: Immunoglobulin G4

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None

Author's contributions

AMA did the data collection, analysis, and interpretation; also he writes the manuscript and approves the submission. The author(s) read and approved the final manuscript.

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Availability of data and materials

The original, PACS generated, study images are available to the reviewers upon request.

Declarations

Ethics approval and consent to participate

Ethical approval is not required for the publication of isolated case reports. The patient was informed about the procedure, and a written informed consent was obtained.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images and is available upon request.

Competing interests

The author declares no competing interests.

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