Natural Course of Hematoma in Lateral Rectus Muscle Followed by Magnetic Resonance Imaging

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ONAMI, H., KUNIKATA, H., HOJO, M., NAKAGAWA, Y. and TAMAI, M. Natural Course of Hematoma in Lateral Rectus Muscle Followed by Magnetic Resonance Imaging. Tohoku J. Exp. Med., 2005, 206 (4), 361-364 —— We report a patient with a spontaneous intramuscular hematoma in the lateral rectus muscle of the eye that resolved without medication with maintenance of good vision. A 40-year-old woman presented with ocular pain and exophthalmos in her right eye. She had no history of trauma or surgery. Exophthalmos and limitation of abduction and supraduction of her right eye were present at the initial examination. Magnetic resonance (MR) images showed an intramuscular hematoma in the right lateral rectus muscle. Her other ocular findings were within normal limits. Five months later without any treatments, the MR images were within normal limits, and her ocular signs and symptoms were completely resolved. Careful observations including MR imaging is sufficient for patients with a spontaneous intramuscular hemorrhage in the extraocular muscle, and the visual prognosis is good. —— lateral rectus muscle; spontaneous orbital hemorrhage; intramuscular hematoma; exophthalmos; magnetic resonance imaging
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Various diseases including nerve palsies, hemorrhages, tumors, and infections cause eye movement disturbances (EMD). Severe orbital apex syndrome with EMD and reduced vision caused by aspergillosis might need emergency treatments of antifungal therapy, steroid, and surgical decompression (Yamanoi et al. 2004). On the other hand, a spontaneous orbital hemorrhage is a rare condition that causes acute ocular pain, exophthalmos, EMD, diplopia, and reduced vision (Shimura et al. 1992). Most of the hemorrhages disperse without any treatment, and the symptoms improve in several months (Takahashi et al. 1988; Moorthy et al. 1992; Griffeth et al. 1997; Doan et al. 2004). A spontaneous hemorrhage within an extraocular muscle is very rare, but has been re-
ported in three adults with good prognosis (Hakin et al. 1994).

We report a patient with a spontaneous intramuscular hematoma in the lateral rectus muscle without any apparent underlying cause. Magnetic resonance (MR) imaging was used to follow the natural course of the hematoma.

**CASE REPORT**

A 40-year-old woman reported diplopia and persistent exophthalmos in her right eye, although she had the same condition transiently one week earlier. At her first ophthalmologic examination on September 13th, 2004, her best-corrected visual acuity was 1.5 in both eyes. The intraocular pressure (IOP) was 19 mmHg in the right eye and 15 mmHg in the left. Intraocular inflammation was not detected in both eyes, and anisocoria and rubeosis irides were not present. Although her eye position was orthophoric, Hertel exophthalmometry measured 24 mm in the right eye and 16 mm in the left, an exophthalmos of 8 mm. A subconjunctival hemorrhage was present in the right eye. Severe limitation of abduction and mild limitation of supraduction of the right eye were detected (Hess chart, Fig. 1 Upper). Both fundi were normal, and indentation of the orbit was not seen as seen in eyes from an orbital mass. Static

![Fig. 1. Hess chart of the both eyes.](image)

Severe limitation of abduction and mild limitation of supraduction of the right eye can be seen on the first ophthalmologic examination (Upper). No limitation of right ocular movement was detected after two months (Lower).
perimetry showed that her visual fields were full in both eyes.

MR imaging showed an intramuscular hematoma in the right lateral rectus muscle. The signal intensity of the hematoma appeared in the middle range in axial slices of T1-enhanced images (Figs. 2A and 2B), and the signals were marginally enhanced by gadolinium in coronal slices of T1 images (Figs. 2D and 2E). The right lateral rectus muscle appeared divided in two in the T1 images (Figs. 2A and 2B). She was diagnosed with an intramuscular hematoma in the right lateral rectus muscle. Her other ocular findings were unremarkable.

Physical examinations showed that she did not have heart or thyroid disease. Laboratory tests showed no coagulation abnormalities and only mild anemia; hemoglobin was 11.6 g/100 ml (normal, 11.7 – 14.8 g/100 ml) and the hematocrit was 34.8% (normal, 36.5 – 45.6%). The results of other examinations including chest x-ray and electrocardiography were within normal limits.

The patient was not treated, and an examination on September 28th, 2004 showed that the exophthalmos was reduced to 4 mm, and the frequency of diplopia had decreased but the ocular pain remained. On October 1st, 2004, MR images showed that the hematoma was somewhat smaller (Figs. 2B and 2E), and on November 18th, 2004, the exophthalmos and limitation of right ocular movements were not observed (Hess chart, Fig. 1 Lower). She was free of diplopia but a mild ocular pain remained. On February 14th, 2004, MR images of the orbit were almost within normal limits, and her ocular pain had completely disappeared (Figs. 2C and 2F).

**COMMENTS**

The intramuscular mass in the extraocular muscle is suspected to be an old hematoma that leads to the transient exophthalmos and limitation of abduction and supraduction. Our patient had no history of trauma, and no systemic diseases such as leukemia, hemophilia, or other blood dyscrasias that often cause orbital hemorrhages. The hemorrhage might have occurred by disruption of an aneurysm in the lacrimal gland artery that generally feeds the extraocular muscles,
or disruption of a hemangioma, or a tearing of the microvessels in the muscle. A case with orbital hemorrhage has been reported in which the recovery of vision was poor (Petrelli et al. 1980). However, when an intramuscular hemorrhage in an extraocular muscle occurs without high intraocular tension and a decrease of visual acuity, careful observation with MR imaging is sufficient and the visual prognosis might be good without any treatments.

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References


