Drug-induced reverse ocular dipping

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DESCRIPTION
A 19-year-old male patient, who had undergone laminectomy for lumbar disc herniation the previous day, reported involuntary upward movement of his eyes. The eyes exhibited conjugate upward movement, followed by a brief tonic phase, and rapid downward movement to the primary position. These cycles were repeated at irregular intervals (video 1). He was awake and could respond to simple commands and explain his symptoms in his own words. There were no neurological abnormalities except abnormal eye movement. After the surgery, droperidol and fentanyl had been administered by continuous infusion for pain relief. The abnormal eye movements resolved within 2–3 h after withdrawal of these drugs (video 1). Brain CT and blood examination revealed no abnormalities.

Ocular bobbing is the best known abnormal spontaneous eye movement, and several variants of these movements have been described according to the direction and speed of the drifts. Reverse ocular dipping is one of these variants, first described by Mehler.1 Abnormal spontaneous eye movements have been shown to be associated with various clinical settings and a few cases of drug-induced abnormal eye movement have been reported.1,4 It has been reported that fentanyl can cause transient disturbance of eye fixation with downbeat nystagmus in normal patients.5 Opioid receptors are located in the medial vestibular nucleus. The activation of opioid receptors in the medial vestibular nucleus inhibits the tonic discharge of these cells, which may cause eye fixation abnormalities.3 In our case, fentanyl may have induced reverse ocular dipping by a similar mechanism.

Learning points
▸ Reverse ocular dipping is a rare abnormal eye movement, which could be caused by some drugs.
▸ Opioid may cause eye fixation abnormalities and it could induce reverse ocular dipping.

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REFERENCES

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