Case report

Foville’s syndrome with ipsilateral internuclear ophthalmoplegia due to spontaneous pontine hemorrhage

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A 30-year-old male presented to the emergency department with a complaint of acute headache with pain in the right eye and simultaneous weakness and numbness on his left side. Results of ophthalmic examinations showed limited abduction and adduction only in the right eye, while the vertical movement was normal. Mild ptosis with concurrent miosis OD was also found. A neurological examination revealed left hemiplegia, left hemiparesis, left-side sensory ataxia, right facial palsy, and right facial analgesia. Computer tomography revealed a 2.4-cm high-density hemorrhage in the bilateral dorsal aspect of pons, more at the right side. Foville’s syndrome with ipsilateral internuclear ophthalmoplegia was diagnosed and the patient received supportive treatment. The patient later complained of left hearing loss and the brainstem auditory evoked potential study suggested a peripheral lesion. Follow-up magnetic resonance imaging studies at the 3rd and 10th months showed old pontine hemorrhage with right hypertrophic olivary degeneration (HOD). We reported a rare case of Foville’s syndrome with ipsilateral internuclear ophthalmoplegia due to spontaneous pontine hemorrhage. The clinical manifestations correlated well with anatomical involvement. The sequela of HOD after pontine hemorrhage should be monitored for the possible late-onset movement disorder.

1. Introduction

Foville’s syndrome was first described by Achille-Louis François Foville (1831–1887), a French anatomist and psychiatrist, who is also called Defoville.\textsuperscript{1–3} It is characterized by ipsilateral sixth nerve palsy, facial palsy, facial hypoesthesia, peripheral deafness, Horner’s syndrome, contralateral hemiparesis, ataxia, pain, and thermal hypoesthesia, with lesions in the pontine tegmentum.\textsuperscript{4} The aim of this study was to report a rare case of Foville’s syndrome with ipsilateral internuclear ophthalmoplegia due to spontaneous pontine hemorrhage.

2. Case report

A 30-year-old well-nourished male presented to the emergency department with a complaint of acute headache with pain in the right eye and simultaneous weakness and numbness on his left side. He denied any history of systemic disease, trauma, or alcohol consumption. Results of ophthalmic examinations showed that his best-corrected visual acuity was 6/10 in the right eye (oculus dexter or OD) and 6/6 in the left eye (oculus sinister). Limited abduction and adduction was noted only in the right eye, and the vertical movement was normal. Mild ptosis with concurrent miosis OD was also found (Fig. 1). Slit-lamp examination showed normal anterior segment in both eyes (oculus unitas or OU) with prompt pupillary reaction without relative afferent pupillary defect. An ophthalmoscopy revealed clear disc margin and normal retina OU. Visual field (Humphrey central 30-2, SITA Fast) was within the normal limit OU with low-test reliability. A neurological examination revealed left hemiplegia, left hemiparesis, left-side sensory ataxia, right facial palsy, and right facial analgesia. The blood pressure was 149/96 mmHg. A computer tomography scan showed a 2.4-cm high-density hemorrhage in the bilateral dorsal aspect of pons, more at the right side. According to the clinical manifestations and neuroimaging findings, Foville’s syndrome with ipsilateral internuclear ophthalmoplegia resulting from the dorsal pontine hemorrhage was diagnosed. The patient was admitted and received supportive treatment. Serial laboratory tests including complete blood count, electrolyte, prothrombin time, activated
partial thrombin time, protein C, protein S, urine catecholamine, antinuclear antibody, antiphospholipid antibody, cardiolipin antibody, and thyroid function were conducted and their results were within the normal limit except for mildly elevated erythrocyte sedimentation rate (87 mm/hour). The patient later complained of left hearing loss. The pure tone audiometry showed left high tone loss and the brainstem auditory evoked potential study suggested a peripheral lesion.

Magnetic resonance imaging (MRI) 1 month later revealed a 3-cm hemorrhage involving bilateral dorsal aspects of the pons, mainly on the right side. No other significant vascular lesions can be identified on an MR angiogram (Fig. 2). Ophthalmic examinations at the 2nd month showed residual limitation of abduction and adduction OD. Follow-up MRI studies at the 3rd and 10th months showed old pontine hemorrhage with right hypertrophic olivary degeneration (HOD). The patient underwent a rehabilitation program during the follow-up period of 22 months.

3. Discussion

Foville’s syndrome, also known as Defoville’s syndrome, was first described by the French anatomist and psychiatrist Achille-Louis François Foville (1831–1887) in 1858.1-3 It is characterized by ipsilateral sixth nerve palsy, facial palsy, facial hypoesthesia, peripheral deafness, Horner’s syndrome and contralateral hemiparesis, ataxia, pain, and thermal hypoesthesia. The syndrome

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**Fig. 1.** Gross appearance and extraocular muscle motility in the patient with Foville’s syndrome associated with ipsilateral internuclear ophthalmoplegia. Limited abduction and adduction of the right eye (oculus dexter or OD) was noted. Mild ptosis with concurrent miosis OD was also found.

**Fig. 2.** Magnetic resonance imaging (MRI) study 1 month later and associated anatomical location in the patient with Foville’s syndrome associated with ipsilateral internuclear ophthalmoplegia. (A and B) T1-weighted MRI showed hemorrhage involving bilateral dorsal aspects of the pons, mainly on the right side. No other significant vascular lesions can be identified on an MR angiogram (Fig. 2). Ophthalmic examinations at the 2nd month showed residual limitation of abduction and adduction OD. Follow-up MRI studies at the 3rd and 10th months showed old pontine hemorrhage with right hypertrophic olivary degeneration (HOD). The patient underwent a rehabilitation program during the follow-up period of 22 months.

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suggested a lesion in lower pontine tegmentum.\(^4\) It has been reported in association with pontine infarction, hemorrhage, tuberculoma, and cerebellar tumors.\(^5\-ip\) Another clinical variant of Foville's syndrome, superior pons type of Foville's syndrome, had also been proposed and reported in association with the upper pons.\(^9\-10\) The clinical features of this variant included ipsilateral cerebellar ataxia, Horner's syndrome, paresis of conjugate gaze and contralateral hemiparesis, facial palsy, pain, and thermal hypoaesthesia. It usually occurs in association with the upper pons and is caused by aneurysm of basilar artery.\(^9\-10\)

In our patient, limited abduction and adduction in the right eye, with all directions of extraocular muscle motility preserved in the left eye, suggested involvement of the right abducens fascicle and medial longitudinal fasciculus, which were different from the classical Foville's syndrome. The patient also presented with right Horner's syndrome, right facial palsy, right facial anaesthesia, left hemiplegia, and left hemiparesis, which represented the involved areas of right sympathetic fibers, facial nerve fascicle, trigeminal tract, uncrossed corticospinal tract, and uncrossed spinothalamic tract. In classic Foville's syndrome, ipsilateral peripheral deafness due to the involvement of the superior olivary nucleus was noted.\(^4\) However, contralateral peripheral deafness due to the involvement of the superior olivary nucleus was noted.\(^4\) It has been reported in association with anatomical involvement. The sequela of HOD after pontine hemorrhage should be monitored for the possible late-onset movement disorder.

In conclusion, we reported a rare case of Foville's syndrome with ipsilateral internuclear ophthalmoplegia due to spontaneous pontine hemorrhage. The clinical manifestations were well correlated with anatomical involvement. The sequela of HOD after pontine hemorrhage should be monitored for the possible late-onset movement disorder.

References