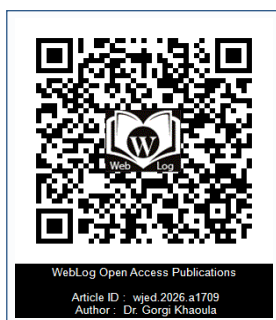




Oculomotor Palsy in Diabetic Patients: Think of Diabetic Neuropathy — A Series of 4 Cases and Review of the Literature



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Abstract

Introduction: Oculomotor palsies are a rare manifestation of focal diabetic neuropathies. Their clinical presentation may mimic serious neurological conditions, making diagnosis challenging. **Objective:** To report a series of four cases of oculomotor palsy in diabetic patients and to analyze their clinical, diagnostic, therapeutic, and evolutionary characteristics in light of the literature.

Patients and Methods: A retrospective descriptive study including four diabetic patients presenting with oculomotor palsy, managed in a university endocrinology department.

Results: All patients had long-standing, poorly controlled type 2 diabetes. The affected nerves were the abducens nerve (VI) in two cases and the oculomotor nerve (III) in two cases. Brain imaging was normal in all patients. Clinical evolution was favorable after optimization of glycemic control, with progressive recovery over several weeks to months.

Conclusion: Diabetic oculomotor palsy should be considered in any acute oculomotor disorder in diabetic patients. Neuroimaging is mandatory to exclude compressive causes. Prognosis is generally favorable with conservative management.

Keywords: Oculomotor Palsy; Diabetes; Diabetic Neuropathy; Diplopia; Mononeuritis

Introduction

Diabetic neuropathies represent a heterogeneous group of peripheral nervous system disorders, among which cranial mononeuropathies occupy a particular place [1]. Diabetic oculomotor palsies are rare and represent a microangiopathic complication of diabetes, preferentially affecting cranial nerves III, IV, and VI [2].

They usually occur in elderly diabetic patients with long disease duration and poor glycemic control. Their acute clinical presentation requires exclusion of neurosurgical or vascular causes as a priority [3].

We report a series of four cases illustrating different clinical presentations of this condition and discuss diagnostic and therapeutic particularities in comparison with the literature.

Patients and Methods

This was a retrospective descriptive study including four diabetic patients hospitalized for oculomotor palsy between 2019 and 2024.

Collected data included:

- Demographic characteristics,
- Type and duration of diabetes,
- Ophthalmological clinical presentation,
- Brain imaging findings (CT scan and/or MR angiography),
- Therapeutic management,
- Clinical outcome.

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Table 1: Clinical Characteristics of Patients.

| Patient | Age (years) | Duration of diabetes | Affected nerve | Imaging | Treatment | Outcome |
|---------|-------------|----------------------|----------------|---------|------------------------------------|-----------|
| 1 | 54 | 8 years | VI | Normal | Glycemic control | Favorable |
| 2 | 56 | 14 years | III | Normal | Glycemic control | Favorable |
| 3 | 52 | 16 years | VI | Normal | Eye patching + glycemic control | Favorable |
| 4 | 63 | 20 years | III | Normal | Corticosteroids + glycemic control | Favorable |

The diagnosis of diabetic neuropathy was retained after exclusion of compressive, vascular, infectious, and inflammatory causes.

Case Reports

Case 1

A 54-year-old man with type 2 diabetes for 8 years, poorly controlled on oral monotherapy, was admitted for sudden-onset strabismus of the right eye. Ophthalmological examination revealed abducens nerve (VI) palsy. Brain imaging was normal. Clinical outcome was favorable after improvement of glycemic control.

Case 2

A 56-year-old woman with type 2 diabetes for 14 years presented with severe headaches associated with intense right periorbital pain and sudden-onset ptosis. Examination confirmed oculomotor nerve (III) palsy. CT scan and cerebral MR angiography were normal. Progressive recovery occurred after metabolic control.

Case 3

A 52-year-old woman with type 2 diabetes for 16 years, complicated by diabetic retinopathy and nephropathy, was admitted for sudden-onset convergent strabismus of the left eye. Abducens nerve (VI) palsy was diagnosed. Favorable evolution followed eye patching and glycemic optimization.

Case 4

A 63-year-old woman with type 2 diabetes for 20 years, poorly controlled on insulin therapy and complicated by diabetic retinopathy, presented with left ocular pain followed by progressive ptosis with fixed dilated pupil. After exclusion of other causes, diabetic mononeuritis was diagnosed. Short-term corticosteroid therapy was initiated. Progressive recovery was observed after three months.

Results

See Table 1.

Discussion

Oculomotor palsies in diabetic patients represent a rare but well-recognized manifestation of focal diabetic neuropathies. In our series, all patients had long-standing type 2 diabetes, with disease duration ranging from 8 to 20 years, consistent with literature reports showing predominance in patients with longstanding diabetes [1, 4].

The mean age of our patients was 56.3 years, in agreement with published series reporting occurrence mainly after the age of 50 [5]. No young patients were observed, reinforcing the microangiopathic pathophysiological hypothesis.

The distribution of affected nerves in our series (cranial nerves III and VI) is comparable to published data, with the abducens nerve

being the most frequently affected, followed by the oculomotor nerve [6]. Ocular pain observed in some of our patients is classically described and reflects acute nerve ischemia [7].

Normal brain imaging in all patients was a key diagnostic element, allowing exclusion of compressive causes such as aneurysms or intracranial tumors [8]. The presence of mydriasis in one case did not exclude diabetic origin, as reported in recent series [9].

The favorable outcome observed in all our patients is consistent with the literature, with recovery generally occurring between 6 weeks and 3 months [10]. Corticosteroid therapy remains controversial and is not supported by strong evidence, explaining its limited use in our series [11].

Conclusion

Diabetic oculomotor palsy is a rare but characteristic complication of long-standing diabetes. It should be considered in any acute oculomotor disorder in diabetic patients after exclusion of serious causes. Prognosis is generally favorable with conservative management and optimization of glycemic control.

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