

case report

**Title: Dendriform patterns associated with Herpes Zoster Ophthalmicus
Ophthalmoplegia**

Abstract:

We herein present a spectrum of dendriform patterns in a rare case of unilateral complete ophthalmoplegia following Herpes Zoster Ophthalmicus (HZO).

A 76-year-old Indian male developed unilateral complete ophthalmoplegia and ptosis 15 days after onset of HZO. Complete resolution of ophthalmoplegia and ptosis was achieved with intravenous acyclovir. Patient's clinical course was complicated by frequent recurrences of keratouveitis which was treated with topical acyclovir and steroids.

HZO-associated complete ophthalmoplegia is rare sequelae of HZO. Different dendriform patterns can occur in a same patient with recurrences of keratitis.

Keywords: Herpes zoster ophthalmicus; Complete ophthalmoplegia; Dendriform keratitis;

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25 **Introduction**

26 Complete unilateral ophthalmoplegia, following Herpes Zoster Ophthalmicus
27 (HZO) is a rare entity.¹

28 We report a patient with varying patterns of dendriform keratitis following
29 complete ophthalmoplegia associated with HZO.

30 **Case report**

31 A 76-year-old Indian male was diagnosed with unilateral complete
32 ophthalmoplegia following an episode of HZO.¹

33 Recurrence in our case was defined as a new dendriform corneal lesion after
34 resolution of previous lesions, with or without anterior chamber inflammation. Our
35 patient had frequent recurrences and remissions of epithelial/stromal keratitis
36 with or without anterior uveitis. Treatment involved topical steroid eye drops,
37 concurrently with acyclovir eye ointment and lubricant eye drops. Patient
38 subsequently after 4 months of initiation of treatment had persistent raised intra
39 ocular pressure with features of optic disc cupping. For the past one and half
40 years a period of waxing and waning episodes of keratouveitis was seen.

41 **Discussion**

42 To the best of our knowledge, this is the first case of HZO associated with
43 concurrent complete ophthalmoplegia and keratouveitis.

44 Anterior segment involvement has been documented in cases of HZO
45 ophthalmoplegia. These clinical features include conjunctivitis, corneal epithelial
46 defects, edema or keratitis and anterior uveitis. Corneal complications of HZO

tend to occur in a temporal course related to virus infection and immune reactions, vasculopathy and neuropathy.² Punctate epithelial keratitis and pseudodendrites are early and transient features. Keratouveitis/endotheliitis presents with localized stromal edema, keratic precipitates, anterior chamber cells and flare, and may represent direct viral infection or an immune reaction of the endothelium.³ The release of viral antigens in the iris and ciliary body initiates a mild uveitis often accompanied by temporary elevation of the intraocular pressure that may become chronic.³

Hu et al⁴ have described a spectrum of clinical features associated with the first-observed epithelial lesions. They had variable components, including a combination of dots, lines, and branching forms with blunt ends and could be discontinuous. The epithelium was often thickened and opaque, but linear portions of the lesions were generally delicate in appearance. Generally the lesions were irregular and appeared either coarser or more delicate than the discrete dendrites caused by herpes simplex virus. Our patient had corneal epithelial irregularities presenting as punctate epithelial erosions, pseudodendriform patterns, dendrites, heaped up epithelium, coarse nodular opacities, nummular keratitis, geographic patterns of radiating lines/dots and branches (Figure 1). He also had corneal stromal edema, descemet membrane folds and endothelial deposits, including pigmented keratic precipitates.

69 The pathogenic mechanism for recurrent keratouveitis could be due to
70 persistence of viral genomes, most likely accompanied by gene expression or
71 slow viral replication.

72 *Treatment for keratouveitis*

73 Our patient was treated with topical steroids, antiglaucoma medications,
74 lubricants and acyclovir eye ointment. Patient was also on oral acyclovir during a
75 severe attack of keratouveitis in addition to topical medications. We used these
76 medications individually or in combination at different stages in the clinical
77 course. Combined steroid and acyclovir is questionably better than steroid alone
78 and causes marginally fewer rebound inflammations.⁵

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80 Continuation of topical antiglaucoma medications and steroids was necessary in
81 our case due to recurrent anterior uveitis and raised intraocular pressure. At 5½
82 months the intraocular pressure had normalised, however the patient had
83 developed glaucomatous optic disc changes.

84 In conclusion, HZO ophthalmoplegia associated hypertensive keratouveitis is a
85 distinct possibility and the prognosis and treatment should be discussed with the
86 patient. Long term antiviral, anti-inflammatory and antiglaucoma medications are
87 necessary to prevent recurrences. We believe there is a role for both topical
88 acyclovir and steroid drops in managing this condition.

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90 **References**

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Legends for Figure 1

Figure 1. Slit-lamp biomicroscopic photographs of our patient with HZO keratitis patterns with fluorescein staining

- A- Paracentral nodular epithelial lesions with thickened epithelium
- B- Central multiple, lacy branches
- C- Inferior pseudodendriform lesions with peripheral bulbs
- D- Extensive superior and inferior dendriform lesions with punctate epithelial erosions
- E- View with cobalt blue filter of fluorescein stained dendriform lesions illustrated in D
- F- Slit view showing coarse punctate epithelial keratitis



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