

Tadpole Pupil: A Very Rare Entity

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ABSTRACT

Tadpole Pupil is a very rare clinical entity. Only few cases have been reported to date in the literature. This is the first case reported in Pakistan to the best of our knowledge. A 19-year old female came with the complaint of repeated episodes of 2 to 3 times per week of irregular shaped pupil with blurry vision that subsided itself in few minutes within an hour. At presentation, her examination showed normal VA of 6/6 in both eyes with normal pupillary reactions in light and dark. Color vision, contrast, visual fields by confrontation, extraocular movements were all normal. Ophthalmic and neurologic examination was also unremarkable. Her condition was not associated with Horner syndrome, Adies or Migraine which were excluded after examination. She was counseled about the benign nature of her condition and advised for regular follow up or report in case of new appearance of symptoms.

Key Words: Tadpole pupil, Horner syndrome, Adies Pupil.

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INTRODUCTION

First described in 1912 by Erlenmeyer¹, the term “tadpole pupil” was coined by Thompson in 1983. It is characterized by spontaneous intermittent segmental dilation of the pupil². Thompson presented the largest number of these cases. Only few cases have been described in literature to date²⁻⁴. It most commonly occurs in young healthy females but 2 pediatric cases have been found recently^{5,6}. Usually it is unilateral and any segment of the iris can be involved and appears as tadpole. The cause for this condition is unknown but some associations are found with Horner syndrome, Adie’s pupil and migraine². Patient can present with only pupil distortion to blurry vision, headache, peculiar sensation and dizziness.

CASE REPORT

A 19 – year old female came with the complaint of painless irregular shape of her left pupil that became tear-shaped or pear shaped for few minutes within an hour for 2 to 3 times per week. She had this complaint for the previous 2 years. The pupil returned to its normal shape with regain of normal vision. The patient complained of recurrent mild blurry vision during this period. Her episodes remitted itself and reappeared after every 3 to 4 weeks. It was not associated with haloes, headache, syncope, drooping of eyelids or loss of sweating. There were no relieving or aggravating factors for the episodes.

The patient herself took the pictures during her episodes. Her examination showed normal VA of 6/6

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Fig. 1: Tadpole pupil left eye after 35 min during the episode.



Fig. 2: Normal Shape of Left Pupil after an Episode.

in both eyes with normal pupillary reactions in light and dark. Color vision, contrast, visual fields by confrontation, extraocular movements were all normal. Ophthalmic and neurologic examination was also unremarkable.

10% Phenylephrine did not show any change in pupil size. A diagnosis of left tadpole pupil was made and patient was reassured about the benign nature of her condition that was not associated with Horner's syndrome.

DISCUSSION

Most of the data available by Thompson, who described 26 cases, reveals that tadpole pupil is usually a spontaneous unilateral condition and the side and the peaked iris segment of the pupil involvement can be different at different times of episodes. Although most cases have been found in young females for few minutes and mostly without any systemic association but Aggarwal et al described 2 year old girl with tadpole pupil associated with congenital Horner syndrome⁵. Similarly, Weir et al described 2 year old boy with this pupillary abnormality during uncomplicated strabismus surgery⁶. Hansen et al. presented atypical case of a 12 year old girl who developed tadpole pupil after physical exercise⁷. Vijayaraghavan et al presented a case of 19-year old boy who had bilateral tadpole pupil with reference to seizures associated with hyponatremia⁸. The reason of the tadpole pupil is not known but these atypical cases suggest the presence of different pathophysiology. Since tadpole pupil is frequently seen with Horner syndrome³ as compared to the general population, it may be because of denervation hypersensitivity of iris dilator muscle. Lee et al⁹ excluded it by doing Horner Syndrome by using phenylephrine test. We did the same in our patient. Tadpole pupil is also found to be associated with migraine and Adies pupil but that was not the case with our patient. The iris dilator muscle is the muscle that shows segmental spasm¹⁰ in tadpole

pupil. Since its not known whether the tadpole pupil or Horner syndrome precedes, the importance is to diagnose such a rare case and exclude its associations like Horner that can be life threatening. It points to the significance of this case. As our patient had no associations till now, we counseled her for the benign nature with reinforcement of the regular follow-up.

CONCLUSION

Since tadpole pupil itself is a benign condition but all patients should be checked for Horner syndrome because of its high association with it. This can save the patient from life threatening condition associated with Horner's syndrome.

Conflict of Interest

Authors declared no conflict of interest.

Author's Designation and Contribution

Royala Zaka; Ophthalmologist: *Study design, manuscript writing, literature review, critical review.*

Muhammad Moez Uddin; Ophthalmologist: *Study design, literature review, critical review.*

Zaki Uddin Ahmed Sabri; Ophthalmologist: *Study design, literature review, critical review.*

Zunair Aziz; Ophthalmologist: *Study design, literature review, critical review.*

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