



The Medical **Bulletin**

In Syndrome

Definition:

- It describes small bilateral pupils that do not constrict when exposed to bright light but do constrict when focused on a near by object

Etiology:

- It is found in late – stage syphilis, a disease caused by the spirochete *Treponema pallidum*.
- Neuro syphilis occurs due to an invasion of the cerebrospinal fluid (CSF) by the spirochete which likely occurs soon after the initial acquisition of the disease.
- The exact pathophysiology leading to the AR pupil, however, remains unknown.

Clinical Features:

- Pupil will show small, irregular pupils with light-near dissociation: absent light reflex, prompt constriction with near accommodation. Usually bilateral and have a gradual onset of months to years.
- The pupils will initially have a sluggish response to light, progressing eventually to a complete absence of the light reflex.
- Close examination may show an atrophied iris with loss of the radial folds and crypts.
- Other findings to correlate the diagnosis of AR pupil are those suggestive of late-stage syphilis, such as:
 - Tabes dorsalis: The posterior columns of the spinal cord and its dorsal root become affected in this stage of syphilis.
 - These patients suffer from sensory ataxia – lack of coordination due to a loss of sensory input into the control of movement (not from cerebellar pathology) and lancinating pains – the sensation of sudden, brief, severe pains over the face, back, limbs that can last from minutes to days.
 - Those patients afflicted with tabes dorsalis often have pupil irregularities, 50% of which will be the distinctive AR pupil.

Diagnosis:

- Various tests can diagnose syphilis.
- The gold standard remains visualization of spirochetes on dark field microscopy.
- Lumbar puncture can be useful in the diagnosis of neurosyphilis.
- CSF findings indicative of neurosyphilis will show greater than 20 WBC/microL, and return positive for VDRL and intrathecal pallidum antibody index.



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Treatment:

- There is no treatment for AR pupil, however; the progression can be controlled with the treatment of the underlying disease, syphilis.
- Treatment is with penicillin G benzathine (124 Mu intramuscularly [IM]). Alternatively, doxycycline (100 mg orally [PO]) can be used for those with a penicillin allergy. Ceftriaxone has also been used.

Prognosis;

- The sooner the diagnosis is made and acted upon, the better the prognosis for the patient.

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