Crossed Wires:
The Important Intersection between Vision Therapy and Neurological Disease

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Course Description:
Many optometrists are uncomfortable treating amblyopia, strabismus, and other disorders of binocular vision because they may indicate occult neurological disorders. This course will clearly define how to differentiate neurological disease from much more common visual disorders that are routinely treated with vision therapy. We will also discuss signs and symptoms active vision therapy patients will show if they have an underlying neurological disease. A balanced blend of ocular disease and traditional optometry that should keep everyone engaged.

Course Learning Objectives
At the conclusion of this course, the attendee will be able to:
1. Take a strong case history that will identify the symptoms of occult neurological disorders;
2. have skills of observation to identify the clinical signs of occult neurological disorders.
3. know when to keep a patient under observation, when to refer out, and, most importantly, who to refer to;
4. know the signs of neurological disorder that may occur during the course of optometric vision therapy;
5. discuss the keys to differentiating amblyopia from more dangerous causes of decreased VA;
6. discuss the keys to differentiating infantile esotropia and intermittent exotropia from more dangerous causes of acquired strabismus.

Outline
I. The case history: the first line of defense
   A. Onset
   B. Duration
   C. Modifiers
   D. The company it keeps

II. What to watch
   A. Demeanor
   B. Locomotion
C. Hand movements
D. Speech

III. Neurological conditions that look like binocular or accommodative dysfunctions

A. The midbrain syndromes (pineal tumors in young, MS in women in third decade)
   1. **Sx & signs**: difficult with upgaze, accommodative insufficiency, saccadic dysmetria
   2. **management**: refer to neurology

B. craniopharyngioma and other parasellar tumors
   1. **Sx & signs**: CI, occasionally CE, saccadic dysmetria, frontal headache, diplopia, clumsiness, bitemporal hemianopsia
   2. **management**: refer to neurology

C. Adie’s syndrome
   1. **Sx & signs**: photophobia, headache especially on one side of forehead, accommodative insufficiency and blur at near on one side, unilateral pupillary mydriasis in bright ambient light, reduced deep tendon reflexes
   2. **management**: manage accommodative disorder, refer to primary care physician

D. Visual pathway disorders (visual field and corollary symptoms such as olfactory hallucinations in temporal lobe lesions)

E. Cortical disorders
F. Cerebellar and vestibular disorders

IV. Amblyopia: A special case?

A. A better working definition of amblyopia: a reduction in visual functioning, typically unequal between the two eyes, in the presence of a history of an amblyogenic factor: refractive, strabismic, or occlusive.

B. Amblyogenic factors
   1. Refractive
      1. Hyperopia
      2. Myopia
      3. Anisometropia
      4. Astigmatism
   2. Strabismic
3. Occlusive
   C. None of the above? NOT amblyopia!
   D. How to avoid a $9.2M mistake

V. Strabismus: Not that special
   A. X(T) is very common and rarely accompanies neurological disease
   B. XT is not common and often accompanies neurological disease, especially in the afferent pathway
   C. ET: make sure to check for comitance!

VI. Getting the referral right
   A. If you suspect a space-occupying lesion, send to neurology
   B. If you suspect a stroke, send for an ambulance and give ASA
   C. If you suspect a blood disorder, send to PCP for multi-disciplinary management
   D. Don’t forget the most important part — recovery of quality of life!