THE SWOLLEN OPTIC DISC IN CHILDHOOD Differencial Diagnosis

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The Swollen Optic Disc in Childhood

• “Optic disc swelling“ and “optic disc edema” are used interchangeably

• Papilledema means optic disc swelling due to elevated intracranial pressure
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• “Optic disc elevation” is a common referral

• The nature of the underlying disorder can often be predicted from the wording of the referring physician’s phone call
  - bil., with headaches and normal vision?
  - optic disc swelling and acute visual loss?
  - Blurring of the nasal disc margins noted as an incidental finding in an otherwise healthy child?
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I. INCREASED INTRACRANIAL PRESSURE
II. OPTIC NEURITIS
III. OPTIC NERVE TUMORS
IV. PRIMARY OCULAR DISEASES
V. SYSTEMIC DISORDERS
VI. PSEUDOPAPILLEDEMA
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I. INCREASED INTRACRANIAL PRESSURE

1. INTRACRANIAL MASS LESION

2. PSEUDOTUMOR CEREBRI (IDIOPATHIC INTRACRANIAL HYPERTENSION)

Papilledema
The Swollen Optic Disc in Childhood - papilledema

I. INCREASED INTRACRANIAL PRESSURE

Papilledema

• Normal vision
• Headaches (frequently present upon awakening)
• Transient visual obscurations
• Nausea, vomiting
• Diplopia, when present, is usually due to a 6th CN palsy
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I. INCREASED INTRACRANIAL PRESSURE

Papilledema

- Bil. optic disc edema
- Venous distension
- Partial obscuration of the major retinal vessels
- Hyperemia of the disc
- Partial or complete obliteration of the cup
- Absent venous pulsations
- Flame-shaped hemes
- Cotton wool spots
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I. INCREASED INTRACRANIAL PRESSURE

Papilledema

w/up

MRI (not a CT!!)
CSF opening pressure/analysis
MR Venogram
Other
I. INCREASED INTRACRANIAL PRESSURE

Pseudotumor cerebri (Idiopathic Intracranial Hypertension)

1. Primary (no recognized cause)

2. Secondary, associated with:
   - Neurological disease (dural venous sinus thrombosis) Hx of trauma?
   - Systemic diseases (severe anemia)
   - Medications (corticosteroids, tetracycllin, Vitamin A intoxication)
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I. INCREASED INTRACRANIAL PRESSURE

Pseudotumor cerebri (Idiopathic Intracranial Hypertension)

1. Sex ratio in children 1:1
2. Obesity not a factor under age 10 yrs
3. Headaches not always present
1. Spontaneous remission common
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II. OPTIC NEURITIS (post-infectious, MS, ADEM)

- Bil. or unilateral
- Decreased vision
- Optic nerve swelling
- Discomfort / pain with extraocular movements
- Decreased color perception
- Visual fields scotomas
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II. OPTIC NEURITIS
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**NEURORETINITIS**

- Slight to moderate decrease of vision
- Macular star
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III. OPTIC NERVE TUMORS

Optic nerve gliomas

- decreased vision
- proptosis
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IV. PRIMARY OCULAR DISEASES

• **Intraocular inflammation and hypotony**
  - juvenile rheumatoid arthritis
  - sarcoidosis
  - pars planitis

• **Traumatic optic neuropathy**
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V. SYSTEMIC DISORDERS

• Diabetic papillopathy

• Malignant Hyrertension

• Sarcoidosis

• Leukemia

• Other
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VI. PSEUDOPAPIILLEDEMA

- Optic Nerve Drusen
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VI. PSEUDOPAPILLEDEMA

Optic Nerve Drusen

*Drusen*: German word, originally meant tumor or swelling

- Elevated disc (in children primarily buried drusen)
- Scalloped margins
- Elimination of the cup
- Anomalous disc vasculature
- Less commonly a peripapillary heme
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VI. PSEUDOPAPILLEDEMA

Optic Nerve Drusen
The Swollen Optic Disc in Childhood

VI. PSEUDOPAPILEDEMA
Optic Nerve Drusen
The Swollen Optic Disc in Childhood

- Papilledema
- Optic nerve drusen
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VI. PSEUDOPAPILLEDEMA
THANK YOU!
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VI. PSEUDOPAPILLEDEMA

“Nasal blurring”

What should you do?
- Nothing ?
- ultrasound ?
- MRI ?
- LP ?
Figure Legend:

Line scan images with a 4.0-mm diameter (radius, 2.0 mm) that were obtained from the fast optic disc scans on optical coherence tomography. The images represent a normal optic nerve (A), optic nerve head drusen with moderate (B) and marked (C) elevation, and optic disc edema with mild (D), moderate (E), and marked (F) elevation, based on the papilledema grading scale of Johnson et al. The “lumpy-bumpy” internal contour of the optic nerve head in optic nerve head drusen (B), the recumbent “lazy V” pattern of the subretinal hyporeflective space in optic disc edema (D), and the subretinal hyporeflective space measurement at radii 0.75 mm, 1.5 mm, and 2.0 mm from the optic disc center (E) are depicted.
12. In a patient with visible optic disc drusen, disc topography (left) shows an elevated optic nerve head with a lumpy internal contour and abrupt end to the hyporeflective space. Compare this with the smooth internal contour and V-shaped hyporeflective space between the retinal pigment epithelial and photoreceptor layers in a patient with optic disc edema (right).
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VI. PSEUDOPAPILLEDEMA

• Optic Nerve Drusen
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I. INCREASED INTRACRANIAL PRESSURE

Pseudotumor cerebri (Idiopathic Intracranial Hypertension)