OPTIC DISC PIT
Pathogenesis and Management

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OPTIC DISC PIT

Congenital pit is an atypical coloboma usually located on the temporal edge of the disc, associated with irregular defects in the juxtapapillary choroid and pigment epithelium. Macular fibers passing through this area often are affected and corresponding changes in the retinal ganglion cell layer and in the visual field occur.
OPTIC DISC PIT

- First described 1882
- 1 in 10,000 eyes
- 85% unilateral
- 70% on the temporal side
- 20% centrally
- Few reports demonstrate autosomal dominant
OPTIC DISC PIT

- When the pit is located temporally on the edge of the disc it may become associated with abnormalities in the macula.
- In the vast majority of cases there is only one pit and is unilateral, varying in size between 150 to 500 μ in diam.
- Principal threat is sensory macular retinal detachment. The detachment always communicating with the disc unlike central serous choroidopathy.

![Image of an eye with an optic disc pit and associated retinoschisis and neurosensory detachment]
The macular elevation occurs later in life in 25 – 75 % of cases, and represents splitting of the retina (retinoschisis), and sub-retinal fluid accumulation.

OCT confirmed the two-layer structure of the serous detachment and the connection of the pit with retinoschisis and can be multi-layered.

OPTIC DISC PIT

Pathogenesis:

- Recent OCT studies seem to confirm that the pit is a cyst from which fluid passes into the sensory retina leading to retinoschisis. Fluid passing through outer leaf holes causes detachment of the neurosensory retina from the RPE.
- All OCT studies confirm the bilaminar structure of the neurosensory detachment.
- Vitrectomy procedures demonstrated the importance of vitreoretinal traction in the pathogenesis of the neurosensory detachment associated with optic disc pit.
OPTIC DISC PIT

Pathogenesis “cont.”:

- No connection was demonstrated between the vitreous cavity and the subretinal space.
- The prevailing theory was that the associated SRF derive from liquefied vitreous that passes through the optic disc pit.
- A grey fibroglial membrane of the pit which may not be intact.
- The serous detachment is continuous with the optic disc pit.
- The serous detachment is generally low and occasionally associated with lamellar macular hole retaining the internal retinal layers with an intact ILM.

Pathogenesis “cont.”

- Vitreous abnormalities: vitreo-macular adhesion.
- Vitreous traction on the pit could help the entrance of fluid from the pit into the retina.
- Long-standing serous detach. (more than 1 yr)
  - cystic degeneration of the macula.
- & RPE loss with poor vision.
The whole story of pathogenesis
From Retinoschisis to Central Serous Detachment

OLD (Outer Layer Detachment)
Retinoschisis and posterior leaf hole leading to serous macular detachment.

Retinoschisis and Serous Retinal Detachment.
Defect in the juxta-papillary choroid (white arrow); Pit, black arrow
Defect in the juxta-papillary choroid, white arrow; Pit, black arrow
Serous detachment & retinoschisis, cystic macula

**FLUOROGRAPHIC FEATURES**

- Early hypofluorescence
- Late hyperfluorescence due to **leakage at the margins of, or from the depth of the pit**
- RPE window defects are observed with RPE atrophy
DIFFERENTIAL DIAGNOSIS

- Central serous retinopathy
- Macular hole with surrounding detachment
- Coloboma of the optic disc

Central serous choroidopathy
The most recent treatment is by pars plana vitrectomy, posterior vitreous detach. & preferably with ILM peeling, laser on the temporal edge of the optic disc followed by fluid-gas exchange. This provides the best structural and functional results by relieving vitreoretinal interface traction & closing the connection with the pit.

Macular buckling was reported to give good anatomical and functional results.

Older techniques include photocoagulation on the temporal edge of the disc & scleral buckling procedures. Suggested prophylaxis for pits without detachment, is by laser treatment temporal to the edge of the optic disc.

Can recover vision with spontaneous resolution of the serous detach. within a relatively a short period of time.

Following surgical intervention resolution of the detachment may take 10-12 months.

Hirakata(2005) suggests that PVD without laser or gas injection may be sufficient since recovery may be long delayed.
A misdiagnosed case of optic disc pit with serous macular detachment as being a case of central ret. det due to a macular hole & treated as such !!
Schisis

Before Surgery
Delayed recovery

Other eye, peri papillary atrophy
A treatment to be condemned
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CONCLUSION:

• Peripapillary vitreous traction with the passage of fluid into the retina through the pit is the cause of the schisis-like separation seen in optic disc pit maculopathy.

• Vitrectomy even without laser or gas tamponade for macular detachment associated with optic disc pit is effective.