CLINICAL ASPECTS

ULTRASOUND DIAGNOSIS CRITERIA IN PSEUDOGLIOMA

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Keywords: pseudoglioma, ultrasonography

Abstract: The differential diagnosis in pseudoglioma is a priority indication of the ultrasound investigation in ocular pediatric pathology manifested through leukocoria. The evaluation of the ultrasonographic aspects in conjunction with the clinical context is a defining element in the differential diagnosis of ocular diseases manifested by leukocoria pseudogliom and grouped under the name: the persistence of the primitive vitreous hyperplasia, retinopathy of prematurity, inflammatory pathology and Toxocara caused disease and Coats disease. There are shown the ultrasound criteria of positive and differential diagnosis, underlining the importance of ultrasonography in the clinical context.

Cuvinte cheie: pseudogliom, ultrasonografie

Rezumat: Explorarea ultrasonică în pseudogliom reprezintă o indicație priorită în investigația ecografică la copii cu patologie oculară manifestată prin leukocorie. Evaluarea aspectelor ecografice în corelație cu contextul clinic constituie un element definitiv în diagnosticul diferențial al afecțiunilor oculare manifestate prin leukocorie și grupele sub numele de pseudogliom: persistența vitrosului primitiv hiperplazic, retinopatia de prematuritate, patologia inflamatorie determinată de toxocara și boala Coats. Scopul lucrării este de a defini criteriile de diagnostic pozitiv și diferențial, subliniind aporțul ultrasonografiei în completarea sau suplirea datelor clinice.

• Persistence of Hyperplastic Primary Vitreous (Phpv)-ultrasound profile:
  - medium reflectivity mass, placed behind the crystalline having a triangular shape with its base in the retrolental space and the vertex towards the optic nerve (Fig.1) or its base towards the optic nerve and the vertex towards the crystalline[1];

Figure no. 1. Persistence of hyperplastic primary vitreous

- absence of calcifications;
- possible association of the persistence of the hyaloidian canal [2] (Fig.2);
- reduced axial length of the eyeball.

• Retinopathy of Prematurity (ROP) - ultrasound characteristics:
  - echoes placed behind the crystalline, with variable amplitude and reduced reflectivity;
  - echoes placed up to the periphery, emphasised through lateral echography[3] (Fig.3);
  - mild echogenous mass covering the entire retro-crystalline space[4] (Fig.4);
  - reduced axial length of the eyeball (Fig.4);
  - absence or presence of the chorioclerial/intraocular dystrophic calcifications[5].

Figure no. 2. Persistence of hyperplastic primary vitreous

• Coats’ Disease

  Stadialization ultrasonographic criteria (table I)

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Articol received on 27.07.2010 and accepted for publication on 28.09.2010
ACTA MEDICA TRANSILVANICA December 2010; 2(4) 219-220

AMT, vol II, nr. 4, 2010, pag. 219
Figure no. 3. Prematurity Retinopathy

Figure no. 4. Prematurity Retinopathy

Table no. 1. Stadialization of the ultrasonographic criteria (table I)

<table>
<thead>
<tr>
<th>Stadialization</th>
<th>Ultrasonographic Criteria</th>
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<tbody>
<tr>
<td>Stage 1</td>
<td>- Retinal membrane with high reflectivity detached from the ocular wall, with insertion at the level of the optical disc and ora serrata; - Sonotransparent subretinal space; - Axial length according to age.</td>
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<tr>
<td>Stage 2</td>
<td>- Plicated retinal membrane with reduced mobility; - Subretinal space with multiple punctiform echoes with reduced/medium reflectivity (cholesterol crystals).</td>
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<tr>
<td>Stage 3</td>
<td>- Funnel-shaped retinal detachment; - T-shaped immobile retinal detachment; - Reduced axial length.</td>
</tr>
<tr>
<td>Stage 4</td>
<td>- Flattened calcifications, at scleral, choroidal level and in the final intra-crystalline stage.</td>
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Echographic elements with unfavourable prognostic:
- Funnel-shaped retinal detachment[6];
- Reduced axial length of the eyeball;
- Progression of the dystrophic calcifications.

• Toxocara

Echographic aspects in relation with the clinical manifestation form:
- Chronic uveitis: - Dispersed vitreous opacities with variable mobility and reduced/medium reflectivity (Fig. 5);
- Recent granuloma: “Dome” shaped prominence with reduced reflectivity; +/- posterior vitreous detachment.
- Granuloma in evolution: - Reduced prominence and increased reflectivity;
  - Fixed/reduced mobility vitreous membrane.
- Chronic granuloma:
  - Tractional retinal detachment[7].
  - Focal calcification.

Differential diagnosis of the pseudoglioma with retinoblastoma is a major indication of the ultrasound investigation in children with leukocoria, with a decisive role in vital and functional ocular prognosis evaluation.

Main echographic criteria in the differential diagnosis are:
- General form and lesion topography;
- Absence of calcifications; exceptionally, these can be observed in certain cases of pseudoglioma;
- The size of the eyeball; classically, it is acknowledged that there is no retinoblastoma in microphthalmia, but the statement should be stressed. The biometric argument still remains valid, in 62% of pseudoglioma cases, the axial length is reduced[8].

Figure no. 5. Chronic uveitis

BIBLIOGRAPHIC REFERENCES