

ULTRASOUND DIAGNOSIS CRITERIA IN PSEUDOGLIOMA

CORINA TUDOR¹, ANDA SIRETEANU²

¹ Emergency Clinical Hospital of Sibiu, ²University of Medicine and Pharmacy of Târgu Mureş

Keywords:
pseudoglioma,
ultrasonography

Cuvinte cheie:
pseudogliom,
ultrasonografie

Abstract: The differential diagnosis in pseudoglioma is a priority indication of the ultrasound investigation in ocular pediatric pathology manifested through leucocoria. 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 leucocoria pseudoglioma 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.

Rezumat: Explorarea ultrasonică în pseudogliom reprezintă o indicație prioritară a investigației ecografice la copii cu patologie oculară manifestată prin leucocorie. Evaluarea aspectelor ecografice în corelație cu contextul clinic constituie un element definitoriu în diagnosticul diferențial al afecțiunilor oculare manifestate prin leucocorie și grupate 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 aportul ultrasonografiei în completarea sau suplینirea datelor clinice.

SCIENTIFIC ARTICLE OF BIBLIOGRAPHIC SYNTHESIS

Ultrasonography is a major investigation in pseudoglioma. The ultrasound examination is compulsory in children with leucocoria.

Ultrasonography contribution is emphasized in the differential diagnosis of the affections manifested through leucocoria, grouped under the name of pseudoglioma: persistence of hyperplastic primary vitreous, retinopathy of prematurity, Coats' disease and Toxocara.

- 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 choriocleral/intraocular dystrophic calcifications[5].

Figure no. 2. Persistence of hyperplastic primary vitreous



- Coats' Disease
Stadialization ultrasonographic criteria (table I)

¹Corresponding Author: Corina Tudor, Emergency Clinical Hospital of Sibiu, Ophthalmology Clinic, 2-4Bulevardul Corneliu Coposu street, Sibiu, România; e-mail: corinateye@yahoo.com; tel +40-0 722453618

Articol received on 27.07.2010 and accepted for publication on 28.09.2010

ACTA MEDICA TRANSILVANICA December 2010; 2(4) 219-220

CLINICAL ASPECTS

Figure no. 3. Prematurity Retinopathy



Figure no. 4. Prematurity Retinopathy

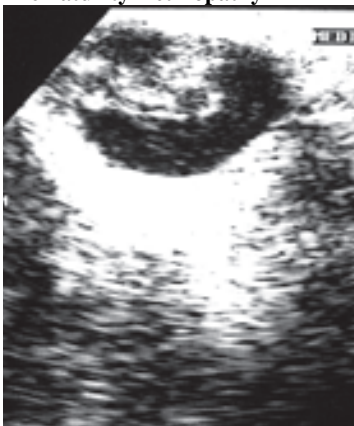


Table no. 1. Stadialization of the ultrasonographic criteria (table I)

Stadialization	Ultrasonographic Criteria
Stage 1	<ul style="list-style-type: none"> - 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.
Stage 2	<ul style="list-style-type: none"> - plicated retinal membrane with reduced mobility; - subretinal space with multiple punctiform echoes with reduced/medium reflectivity (cholesterol crystals).
Stage 3	<ul style="list-style-type: none"> - funnel-shaped retinal detachment; - T-shaped immobile retinal detachment; - reduced axial length.
Stage 4	<ul style="list-style-type: none"> - flattened calcifications, at scleral, choroidian level and in the final intra-crystalline stage.

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.

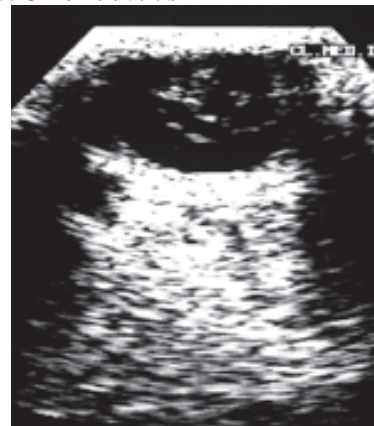
- Granuloma in evolution: - reduced prominence and increased reflectivity;
§ fixed/reduced mobility vitreous membrane.
- Chronic granuloma:
§ tractional retinal detachment[7].
§ focal calcification.

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

1. Atta R.H. Ophthalmic ultrasound a practical guide. Ed. Churchill, Livingstone, 1996.
2. Panarello S.M., Priolo E., Vittone P. Pediatric ultrasound: a personal experience during the period 1991-1994, Ophthalmologica (Switzerland), 1998, 212: 115-7.
3. Koos Marie Jeanne Ecografia în oftalmologie, Ed. Solness, 1998.
4. Balmer A., Munier F. Leucocorie chez l'enfant: une urgence et un defi, Klin Monatsbl Augenheilkd (Germany), 1999, 214: 332-5.
5. Tamburrelli C., Ricci B., Dicembrino M., Santo A. □An ultrasonographic study of stage 5 retinopathy of prematurity, Ophthalmologica (Switzerland), 1998, 212: 381-8.
6. Sireteanu Liana și colab. Atlas de ecografie oculară, Ed. Tipomur, 1998.
7. Berrocal T., de Orbe A., Prieto C., al-Assir I., Izquierdo C., Pastor I., Abelairas J. Us and color Doppler imaging of ocular and orbital disease in the pediatric age group, Radiographic (United States), 1996, 16: 251-72.
8. Tudor Corina. Ecografia bidimensională în diagnosticul afecțiunilor oculo-orbitare. Teză de doctorat, U.M.F. Craiova, 2000:76-87.