ECHOGRAPHIC CHARACTERISTICS OF INTRAOCULAR RETINOBLASTOMA

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DISCUSSION

Retinoblastoma is the most common primary malignant intraocular tumor in children. The clinical features are leukocoria and/or strabismus. Ophthalmic diagnosis is uncomplicated in clear ocular media demonstrating a white-gray mass in the fundus. In opaque ocular media, however, diagnostic procedures such as ultrasonography and computerized tomography are important to verify the diagnosis. The echographic findings are those of a high reflective, solid, moderately vascularized lesion primarily in the posterior pole, with an irregular internal structure. Invariably, most retinoblastomas contain calcium deposits that cast a variable degree of shadowing.

Aside from retinoblastoma, the differential diagnosis of common intraocular tumors in children includes the following:

a. Metastatic lesions
b. Choroidal hemangioma
c. Congenital and acquired cystic lesions (cysticercosis, toxoplasmosis, etc.)
d. Organized subretinal hemorrhage
e. Tuberculoma

The differential diagnosis of leukocoria in children includes:

1. Retinoblastoma
2. Congenital cataract
3. Coats' disease
4. Persistent Hyperplastic Primary Vitreous (PHPV)
5. Retinopathy of prematurity

B-Scan		A-Scan	
Location:	Retinal tissue	Reflectivity:	Very high with marked shadowing
Shape:	1. Diffused circumferential 2. Dome-like	Internal Structure:	Slightly irregular
Consistency:	Solid, calcific foci with marked shadowing	Vascularity:	Minimal
Extent:	Diffused intraretinal, vitreous seeding, optic nerve involvement	Mobility:	Non-mobile

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Differential Diagnosis of Intraocular Retinoblastoma

Lesion	Location	Shape	Reflectivity	Internal Structure	Vascularity
Metastatic	Choroid	Diffused/irregular	Medium to High	Irregular	Not present
Choroidal hemangioma	Choroid	Dome/flat	Very High	Regular	Not present
Tuberculoma	Choroid	Irregular/dome	Low	Regular	Not present
Organized subretinal hemorrhage	Subretinal	Diffused/retinal layer elevation	Low internal structure	Regular	Not present/ stagnant blood

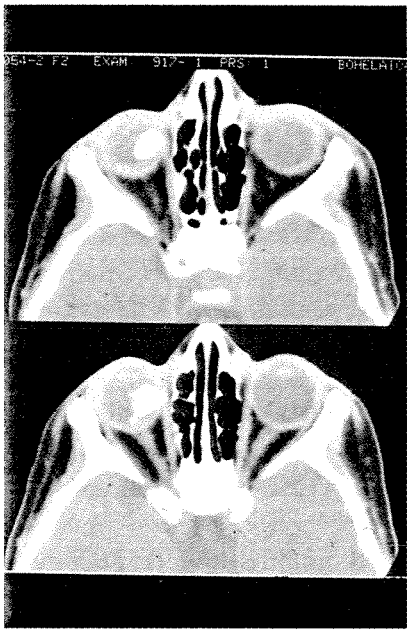

Fig. 1. (Nasr) CT-scan. Intraocular retinoblastoma with marked calcification.

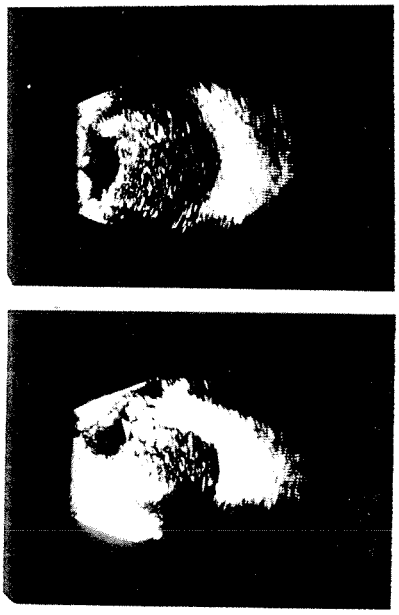

Fig. 2. (Nasr) B-scan. Diffused intraocular tumor with calcific areas and marked shadowing (inferior echogram).

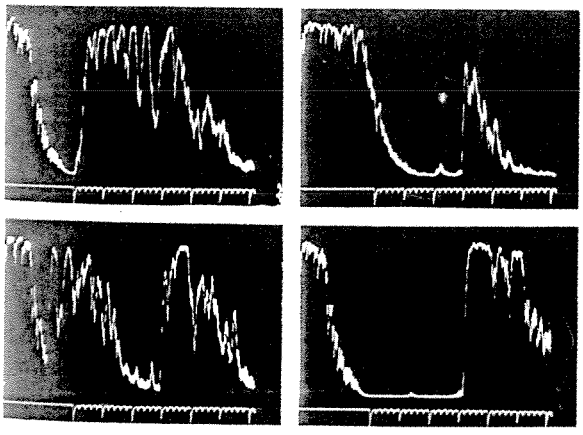

Fig. 3. (Nasr) A-scan. Very high reflective lesion with regular internal structure and marked orbital shadowing.

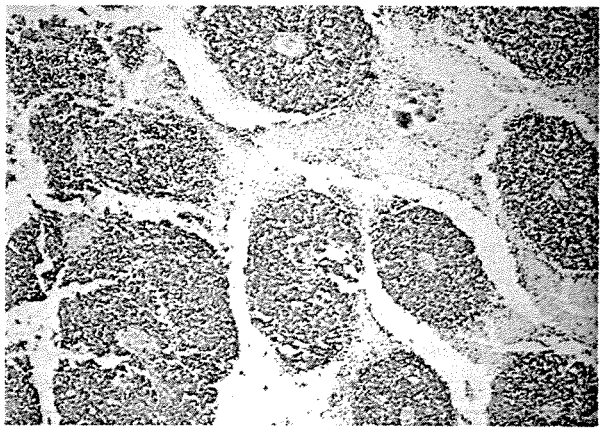

Fig. 4. (Nasr) Histopathologic section shows alternating clusters of viable cells around blood vessels with focal area of necrotic tumor tissue. Multiple pseudo-rosettes. A focus of calcification in the right upper quadrant is detected (H & E x 40).