Comunicações Curtas e Casos Clínicos

Combined hamartoma of the retina and retinal pigment epithelium: a case report

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RESUMO

Introdução: O hamartoma combinado da retina e epitélio pigmentado da retina (HCR-EPR) é uma malformação congénita rara constituída por uma mistura de tecido glial, vasos retinianos, retina e EPR, que se caracteriza por distúrbios ao nível da interface vítreo-retiniana. Embora os seus achados fundoscópicos sejam considerados típicos, o seu diagnóstico é frequentemente desconhecido ou incorreto.
Métodos: Relato de um caso clínico.
Resultados: Um menino de 7 anos foi referenciado à consulta de oftalmologia por estrabismo divergente e hipovisão do olho direito (OD). A acuidade visual era de 1/10 no OD e 10/10 no olho esquerdo. O estudo do alinhamento ocular revelou uma exotropia do OD. A oftalmoscopia do OD mostrou uma lesão centrada no disco ótico e com extensão para além do pólo posterior, discretamente elevada, acinzentada, com marcada tortuosidade vascular e quase totalmente recoberta por tecido fibroglial a condicionar distorção macular. A angiografia fluoresceínica, a tomografia de coerência ótica (OCT) e a ecografia oftálmica corroboraram o diagnóstico de um HCR-EPR. O estudo sistémico, que incluiu ressonância magnética cerebral, foi normal. A lesão mantém-se inalterada após 1 ano de seguimento.
Conclusões: Relatamos um caso raro de HCR-EPR, com diagnóstico relativamente tardio, atendendo ao atingimento foveal e às dimensões significativas da lesão. Embora o diagnóstico seja essencialmente clínico, o estudo com angiografia, OCT e ecografia oftálmica são fundamentais para o diagnóstico definitivo, prognóstico e seguimento.

Palavras-chave
Hamartoma combinado, Retina, Epitélio pigmentado da retina, Neoplasia ocular.

ABSTRACT

Introduction: The combined hamartoma of the retina and retinal pigment epithelium (CHR-RPE) is a rare congenital malformation consisting of a mixture of glial tissue, retinal vessels, retina and RPE, which is characterized by vitreoretinal interface disturbances. Although its fundoscopic findings are considered typical, its diagnosis is often unknown or incorrect.
Methods: Case report.
Results: A 7 year-old-boy was referred to our department due to divergent strabismus and vision loss in right eye (OD). Visual acuity was 1/10 in OD and 10/10 in left eye (OS). The study of ocular alignment revealed an exotropia in OD. Ophthalmoscopy of OD showed a slightly

elevated gray lesion centered on the optic disc and extending beyond the posterior pole, with marked vascular tortuosity and almost completely covered by fibroglial tissue with macular distortion. Fluorescein angiography (FA), optical coherence tomography (OCT) and ophthalmic ultrasound (OUS) corroborated the diagnosis of a CHR-RPE. The systemic study was normal. The lesion is stable after 1 year of follow-up.

Conclusions: We report a case of a large CHR-RPE, with relatively late diagnosis, given the grade of foveal commitment and the lesion's dimension. Although the diagnosis is essentially clinical, a multimodal imaging approach with FA, OCT and OUS is important both in diagnosis, prognosis and follow-up.

Keywords
Combined hamartoma, Retina, Retinal Pigmented Epithelium, Ocular tumour.

INTRODUCTION

The combined hamartoma of the retina and retinal pigment epithelium (CHR-RPE) is a rare ocular tumour, described by Gass in 1973[6]. It represents a congenital malformation consisting of a mixture of glial tissue, retinal vessels, retina and RPE with a variable degree of disturbance at the level of the vitreoretinal interface[7,13,16]. The initial diagnosis is often unknown or incorrect[16]. Given the fact that it can mimic neoplastic pathology of the retina or choroid, its early and correct diagnosis is crucial. We report a case of a CHR-RPE, remarkable for its size and presentation. Although fundoscopy is typical, definitive diagnosis is based on ancillary diagnostic exams. The utility of a multimodal imaging is emphasized, both in the diagnosis and follow-up of CHR-RPE.

CLINICAL CASE

A 7 year-old boy was referred to our department due to a divergent strabismus and decreased vision in his right eye (OD). His gestation and delivery were uneventful and he had no personal or family history.

The ophthalmological examination showed visual acuities of 1/10 in OD and 10/10 in the left eye (OS. Ocular movements were preserved and an exotropia of variable magnitude was present in OD. Biomicroscopy was normal and the intraocular pressures were 13mmHg bilaterally. While the OS fundoscopy was normal, OD revealed a slightly elevated lesion with approximately 12x11mm, centered on the optic disc and extending to the mid-periphery, with a blue-gray hue and almost completely covered by fibroglial tissue. The central vessels were tortuous while the peripherals were straight. The macula had a fibrotic pucker with nasal dragging of approximately 700µm and macular edema. The limits of the lesion were elevated, however no apparent tractional detachment was present in the transition to the surrounding retina (Fig. 1).

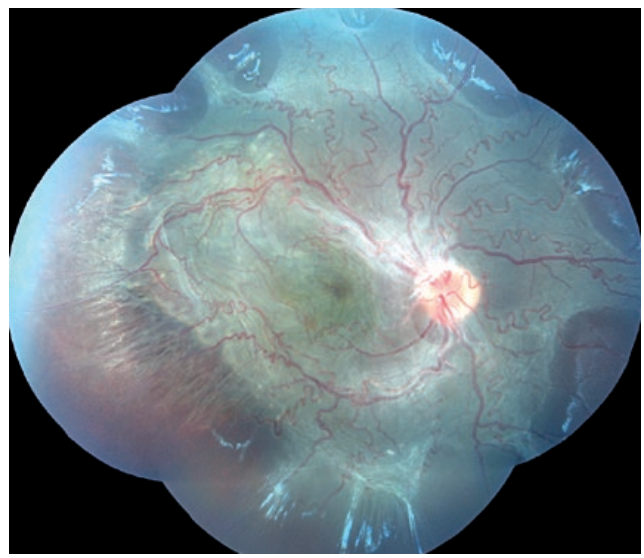

Fig. 1 | Color fundus photograph of the OD showing a tractional retinal mass with marked gliosis and vascular tortuosity that extends beyond the boundaries of the posterior pole.

The lesion was studied with fluorescein angiography (FA), optical coherence tomography (OCT) and ophthalmic ultrasound (OUS), whose results revealed changes in the OD.

FA showed initial blocking of the choroidal fluorescence, vascular tortuosity, macular leakage in intermediate/ late stages, late staining and also moderate peripheral ischemia (Fig. 2A and 2B).

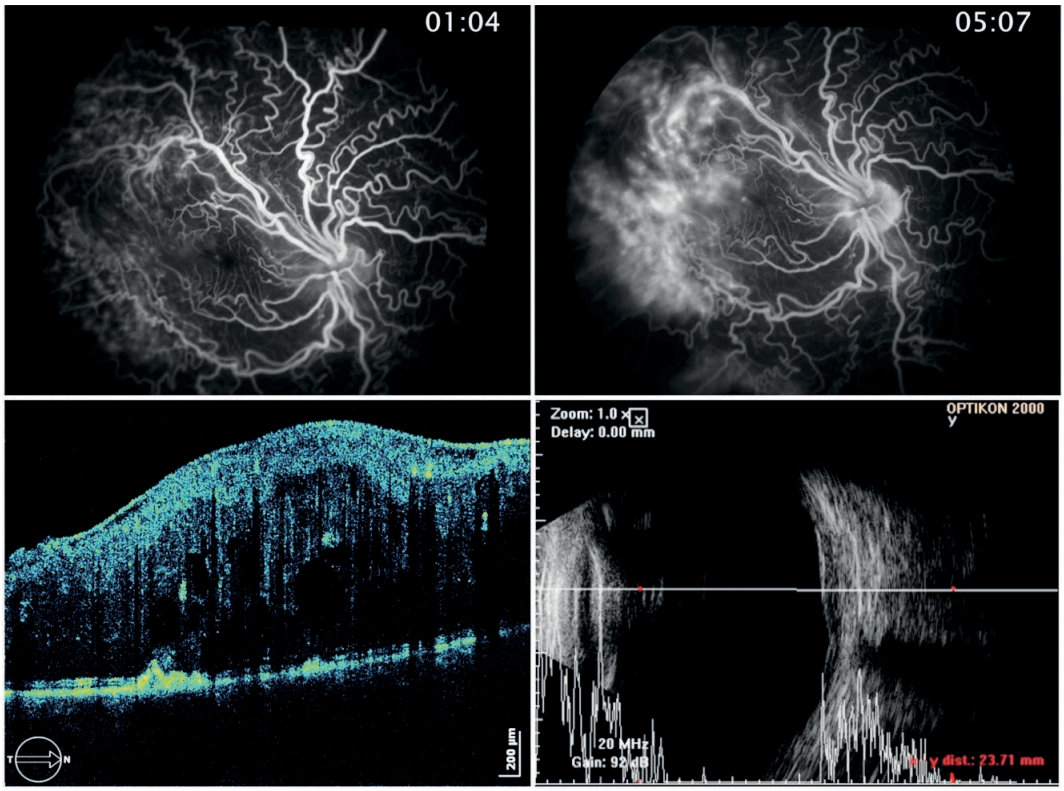

Fig. 2 | Ancillary diagnostic exams of the OD: **A and B** - Fluorescein angiography; **B** - OCT (Copernicus, SD-OCT); **D** - Ophthalmic ultrasound mode A+B.

OCT (Copernicus, SD-OCT) revealed an epiretinal membrane (ERM) with macular traction conditioning folds and retinal striae, hiperreflectivity of the inner retina with posterior shadowing effect, important cytoarchitectural distortion, macular thickening of 605µm centrally and more than 1000µm next to the arcades and atrophy/irregularity of both RPE and ellipsoid line (Fig. 2C).

OUS revealed, in A-mode, a lesion with a hyperreflective retinal peak separated from the scleral peak by an internal space of irregular low to moderate hypereflectivity; and, in B-mode, a retinal homogeneous lesion with a thicker and a highly reflective inner surface, with absence of choroidal thickening or elevation (Fig.2D).

Based on the described findings the diagnosis of a CHR-RPE was established and other tumours were excluded. The investigation was further completed with a brain magnetic resonance imaging (MRI) that was normal except for a hypoplastic A1 segment of the right middle cerebral artery, with the A2 segment to be filled through the anterior communicating artery.

One year later, the injury and the visual acuity remains stable. The child maintains regular follow-up every 6 months in retina consultation.

DISCUSSION

We present a clinical case of a large unilateral and isolated CHR-RPE diagnosed in a healthy 7 year-old boy. Although macular involvement determines an earlier diagnosis[13,16], a wide range in the mean age of diagnosis is present in the literature in macular cases, from 9,5[16] months to 15 years[13]. The differences in the age of diagnosis might be explained by the growing collaboration between the Ophthalmology, Primary care and Paediatric departments, which enables screening programs, being the earlier the diagnosis if the department collaborates with paediatric screening programs. Nowadays, a tumour as this one presented in this clinical case, with 12x11mm and extending beyond the posterior pole, can be considered unusual. Moreover, although decreased visual acuity and strabismus, are the predominant symptoms associated with a CHR-RPE, its simultaneous presence is rare and is found only in 4% of the patients[16].

CHR-RPE diagnosis is often unknown or incorrect in about 75% of cases, being the most common misdiagnosis, in descending order of frequency, the following: melanoma and nevi of the choroid, retinoblastoma, retinal

hemangioma, astrocytoma and toxocariasis16. Its histopathologic analysis was possible based on the enucleation of some of the first reported cases[4,10,18,19]. The most common findings were: retina and optic nerve thickening, superficial retinal gliosis, dysplastic glial vascular tissue, RPE thickening or atrophy and, in cases involving the optic disc, invasion of the inner retina by strings of RPE bands[4,10,18,19].

The fundus features of this CHR-RPE are marked by a disturbance of the vitreoretinal interface. Although they can be considered typical, definitive diagnosis and follow-up depend on ancillary diagnostic tests such as colour fundus photography, FA, OCT and OUS.

Colour fundus photography is valuable for documenting the appearance of the CHR-RPE, with particular emphasis on its colour and basal size. As a stable and benign tumour, evident changes in these parameters are not expected to occur. Because the CHR-RPE may present with a variable degree of pigmentation it is often misdiagnosed as a flat melanoma or a nevi of the choroid[13,16]. It is believed that pigmentation, which in this case is mild, may represent a reactive hyperplasia to retinal traction[20].

FA characterizes the vascular component of the tumour and allows differentiation of the CHR-RPE from primary angiomatous retinal tumours. FA typically shows vascular tortuosity but absence of alterations in the arteriovenous transit period. In complicated cases, impregnation, delayed leakage, ischemia and eventually neovascularization may occur[20].

OCT, particularly Spectral-Domain (SD) OCT, is an important tool both for diagnosis and prognosis[14]. It usually shows a thick and irregular ERM with variable traction and an outer hyperreflective surface with a posterior shadow effect[2,5,15]. Retinal cytoarchitectural disorganization, increased thickness and cystoid macular edema are not uncommon[5,15,20] as well as loss of RPE and ellipsoid line integrity[2,5,15]. Enhanced depth imaging (EDI) technology is an important tool available in new SD-OCT devices that can rule out choroidal and scleral involvement in CHR-RPE[17]. Although classically regarded as not to be involved, Arepalli et al. found the underlying choroidal thickness to be slightly reduced in relation the corresponding area in the fellow eye in patients with CHR-RPE (210 µm vs. 328µm.; n=8; p=0,009)[1].

OUS is not essential for CHR-RPE diagnosis. Besides the presence of a highly reflective inner surface corresponding to a thick ERM, there is not any characteristic pattern[3]. OUS allows to study a tumour internal structure and vascularity, size and its choroidal, scleral or even extra-ocular involvement, both in eyes with either clear or opaque media, being important to rule out malignant retinal and choroid tumours. Although there may exist adjacent vitreous changes in a CHR-RPE, its extension to the choroid or sclera never occurs[8]. Absence of mushroom/dome-shaped elevation, vascular pulsations and choroidal excavation helps to rule out a choroidal melanoma. Calcifications are not common in a CHR-RPE, but represent a typical feature of retinoblastoma[9].

Although Gass[6] in its initial description of this disease, with 7 cases, established the absence of tractional detachment, haemorrhage and exudation as diagnostic criteria, these complications can occur[7,13,10]. Rare cases with associated choroidal neovascularization and macular holes were reported[16]. Although the typical lesion is stable, continuous loss of vision is common in the context of macular complications such as macular edema, tractional detachment and macular dragging[7,16]. FA and, manly, OCT are important tools in the evaluation of these complications.

The CHR-EPR is typically an unilateral and isolated finding[6,16]. Since some cases have associated systemic diseases, most frequently Neurofibromatosis type 1 and 2, the systemic study with brain imaging should be carried out[16]. In this case, the brain MRI was negative for hamartomas and gliomas. The hypoplastic A1 segment of the anterior cerebral artery represents an incidental finding found in 10% of all post-mortem autopsies and in 3% of the studies with MR angiography[11].

Apart from the treatment of amblyopia, surgical treatment of the CHR-RPE was rarely performed and is not consensual. Functional success rates of ERM peeling range from 0/2 of McDonald et al. and 4/4 Brué et al.[2,12,13,16,21]. In the last paper, preservation of the retina cytoarchiteture, the existence of a good cleavage plane between the ERM and the retina in OCT and a better microperimetric preoperative retinal sensitivity were proposed as predictors of good prognosis[2].

In this particular case, given the severe amblyopia and the cytoarchitectural disorganization, the follow-up period of 6 months was set by our department.

In conclusion, the CHR-RPE is a rare tumour in which a timely and correct diagnosis is essential to avoid unnecessary anxiety and stigma. A multimodal imaging approach is important both in its diagnosis and follow-up.

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