Drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis: a review

Depósitos retinianos como drusas na glomerulonefrite tipo II mesangiocapilar: uma revisão

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ABSTRACT

The aim of this paper is to do a review of Drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis. Drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis appear to develop at an early age, often second decade of life different of drusen from age-related macular degeneration (AMD). Long term follow-up of the cases in this disease shows in the most of them, no progression of the of drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis, the most of subjects retain good visual acuity and no specific treatment is indicated.

Keywords: Retinal drusen; Glomerulonephritis, membranoproliferative

RESUMO

O objetivo deste artigo é fazer uma revisão dos trabalhos publicados sobre depósitos que se assemelham a drusas, na retina de pacientes com a glomerulonefrite mesangiocapilar tipo 2. Um trabalho da Universidade de Iowa sobre as características destes depósitos foi incapaz de diferenciá-lo das drusas retinianas. O acompanhamento a longo prazo destes depósitos parecem demonstrar que não há grande tendência a modificação e a maioria dos pacientes mantém boa visão.

Descritores: Drusas retinianas; Glomerulonefrite membranoproliferativa

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INTRODUCTION

The presence of drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis (MCGN) was first described in 1989 by Duvall-Young et al.(2) at the Manchester Royal Infirmary Renal Unit analyzing subjects with biopsy proved glomerular disease.

They demonstrated the occurrence of deposits in the choriocapillaris and Bruch’s membrane which have the clinical appearance of retinal drusen but the histopathological characteristics of deposits in the glomerulus.

Hageman’s team(3) at the University of Iowa analyzing eyes obtained from two human donors concluded that subretinal pigment epithelial deposits found are numerous and indistinguishable, both structurally and compositionally, from drusen in donors with AMD and exhibit sudanophilia, bind filipin, and react with antibodies directed against vitronectin, complement C5 and C5b-9 complexes, TIMP-3 and amyloid P component. Reacted too with peanut agglutinin and antibodies directed against MHC class II antigens and IgG. They concluded that the ultrastructural characteristics of these deposits were also identical with those of AMD associated Drusen.

Type II mesangiocapillary glomerulonephritis is descriptively known as dense deposits disease(4).

Patients have C3 nephritic factor resulting in a loss of complement regulation systemically, characteristic histologically by the development histologically by development of electron dense material diffusely within the glomerular basement membrane accompanied by subendotelial and a subepithelial deposits.

Subjects with type II mesangiocapillary glomerulonephritis may present nephrotic syndrome or hematuria or proteinuria in the non-nephrotic range.

Spontaneous remission are rare, most of them developing chronic renal failure within 10 years of initial symptoms of the disease(5).

Type II mesangiocapillary glomerulonephritis may be associated with partial lipodystrophy (PLD).

Drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis appear to develop at an early age, often second decade of life different of drusen from age-related macular degeneration (AMD)(6,7).

Drusen can appear in younger age in individuals with other retinopathies, including, for example: individuals with pattern macular dystrophy(6,7), dominant drusen (Malattia Leventinese or Doyne’s honeycomb retinal dystrophy)(8,9).

Recent genetic studies in patients with Drusen have found heterozygous Tyr402His AMD risk variant of Complement Factor H (CFH) in five families of 30 probands. The association of the same variant in type II membranoproliferative glomerulonephritis, which also has drusen-like deposits as a feature(9).

Clinical data accumulated from a number of investigations(10-16) have revealed that patients with MPGN-II frequently also develop drusen-like deposits beneath the RPE.

The aim of this paper is to do a review, to show the 2 years follow up of drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis and to describe a multimodal analyses of a case.

In the Duvall-Young cases and others, none of patients had ocular symptoms. All the anterior segments appeared normal and no hypertensive retinopathy was detected.

Fluorescein angiography shows hyperfluorescent spots corresponding to scattered deposits posteriorly in the ocular fundus.

A clinical case of extensive drusen in type II mesangiocapillary glomerulonephritis was published and the optical coherence tomography (OCT) shows focal retinal pigment epithelial elevation(17).

Other report(18) a case of patient that had lost vision after renal transplant from a possible occult choroidal neovascular membrane or posterior choriotreinopathy associated with organ transplantation as was described by Gass(19). Subretinal fluid(20) and central serous chorioretinopathy(21) were related associated with MPG type II.

For the researchers(17) who related the case, the extent of ocular involvement did not consistently appear to be related to the renal involvement but was a relationship between the presence of ocular lesions and the duration of the disease. For the same authors(22) the fundus changes range from scattered “small basal laminar drusen” to more extensive “soft” drusen involving the posterior pole that spread up to and beyond the equator often associated with pigmented changes.

We described one case with scattered drusen-like deposits beneath the retina in posterior pole of the eye (unpublished report). The presentation of our case is similar a figure 2 page 902 case 18 as published by Duvall–Young et al.(17).

Our case show drusen-like deposits beneath retina, in the posterior pole, in both eyes, on colors photos and red-free 2 years ago.

Figure 1: Colors photos of drusen-like beneath retinal deposits in right eye, 2 years ago

Figure 2: Color photos of drusen-like beneath retinal deposits in left eye, 2 years ago

Figure 3: Red-free photos showing drusen-like beneath retinal deposits in both eyes, 2 years ago

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early (figure 1-3), no in peripheric retina but it was related\(^\text{(1,22)}\) in the follow-up 2 years later, colors photos (figures 4,5); fundus autofluorescence (figures 6,7), and spectral-domain OCT (figures 8,9) with no abnormalities.

In conclusion, long term follow-up of the cases in this disease shows in the most of them, no progression of the of Drusen-like beneath retinal deposits in type II mesangiocapillary glomerulonephritis\(^\text{(23)}\), the most of subjects retain good visual acuity and no specific treatment is indicated.

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REFERENCES


Figure 4: Colors photos of drusen-like beneath retinal deposits in right eye, 2 years later

Figure 5: Color photos of drusen-like beneath retinal deposits in left eye, 2 years later

Figure 6: Fundus autofluorescence with no abnormalities in left eye, 2 years later

Figure 7: Fundus Autofluorescence with no abnormalities in right eye, 2 years later

Figure 8: SD-OCT with no abnormalities in right eye, 2 years later

Figure 9: SD-OCT with no abnormalities in left eye, 2 years later


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