Atrophic Forms (Dry AMD)

Clinical Features and OCT Follow-Up

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Introduction

Definitions

Atrophic form or “Dry AMD” is defined by areas of RPE atrophy, often resulting from regression of confluent soft drusen.

These areas of atrophy, usually perifoveal, gradually spread to become confluent, forming a partial, then complete ring, and finally involving the center of the macula.

At this stage, the visual symptoms, initially moderate and related to a paracentral scotoma, suddenly deteriorate with marked loss of visual acuity because the fovea is no longer spared.

The primary RPE lesion is associated with alteration, then obliteration of the underlying choriocapillaris, and death of photoreceptors in the zones of RPE atrophy.

These areas of atrophy generally present with clearly demarcated, irregularly shaped margins (“geographic atrophy”). They are frequently highlighted by a hyperpigmented border in the junctional zone. Accumulation of lipofuscin in this area results in accentuated autofluorescence.

Histologically, RPE atrophy is accompanied by a loss of the outer nuclear layer, and the outer plexiform layer becomes in direct contact with basal laminar deposits.

Complications

Atrophy therefore constitutes one of the major complications of age-related maculopathy (ARM or precursor stage) which progresses to age-related macular degeneration.

Dry AMD is characterized by the absence of an exudative reaction.

However, choroidal neovascularization can occur at any time during the course, usually on the foveal margin of an area of atrophy.

Deterioration of visual impairment therefore may not only be directly correlated with extension of atrophy but also to CNV proliferation.

This justifies a complete imaging assessment whenever a patient with already diagnosed dry AMD experiences a deterioration of visual acuity.

There are several possible causes of atrophy.

- Geographic atrophy is the most common form. This term refers to all types of RPE atrophy, which extend and progressively coalesce and cause degeneration of overlying photoreceptors.

These lesions are well-delineated and sometimes present with irregular "geographical" contours.

Atrophic areas, derived from degeneration of drusen, are initially isolated and perifoveal. They then gradually enlarge to form areas measuring 1/4 to 1/2 DD with retinal pigment migrations.

Areas of atrophy slowly become organized all around the fovea, initially with central sparing. Slow involvement of the central fovea follows, which results in severe loss of visual acuity. These lesions are often bilateral and symmetrical but not necessarily simultaneous.

- RPE tears can lead to the formation of an atrophic area in the zone exposed by retraction of the retinal pigment epithelium.

- Loss of vitelliform material, replaced by a zone of macular atrophy, is another way dry AMD may develop. There is sometimes residual vitelliform material around the edges associated with this type of atrophy.

Frequency

The frequency of dry AMD is much higher than suggested by the first studies, which were conducted in tertiary care centers.

General population studies tend to show that dry AMD is just as frequent as wet AMD.