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Short communication

Scheie's line as a first sign of pigment dispersion syndrome ☆,☆☆

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ABSTRACT

A 50 year old woman was diagnosed with pigment dispersion syndrome (PDS) in the right eye and pigmentary glaucoma in the left eye in a routine medical examination. A line of pigment was observed in the vitreo-lenticular interface (Scheie's line) of the left eye and with an intraocular pressure of 26 mmHg. The Scheie's line (SL) develops by the accumulation of detached iris pigment in PDS and accumulated in the ligament of Wieger that forms the vitreo-lenticular union. The SL is considered a pathognomonic sign of PDS.

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Línea de Scheie como primer signo de síndrome de dispersión pigmentaria

RESUMEN

Mujer de 50 años que en una revisión de rutina fue diagnosticada de síndrome de dispersión pigmentaria (SDP) en el ojo derecho y glaucoma pigmentario en el ojo izquierdo. Presentaba una línea de pigmento en la unión vítreo-lenticular (línea de Scheie [LS]), así como la presión intraocular de 26 mmHg. La LS se desarrolla por el acúmulo de pigmento desprendido del iris en el SDP y acumulado en el ligamento de Wieger que constituye la unión vítreo-lenticular. La LS está considerada signo patognomónico de SDP.

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Introduction

Scheie's line (SL) was described in 1958 by Harold Scheie and Hans Fleischhauer¹ as a linear accumulation of pigment on the posterior surface of the lens, and was considered to be a characteristic of the pigment dispersion syndrome (PDS), the presence of which is regarded as pathognomic for said syndrome. Earlier, in 1938, William Zentmayer² described a circular segment accumulation in the vitreous-lenticular join (VLJ) or Wieger's ligament (WL) which can occur in PDS, known as the Zentmayer ring (ZR).

WL constitutes the circular join which joins the vitreous and the posterior surface of the lens. The central circular surface is known as Berger space and the anterior vitreous constitutes the Erggelet vitreous space. In these structures, the pigment detached due to iris-lens friction can accumulate, passing through the zonule^{3,4} and forming the ZR — when accumulating as a circle around the WL — or linear SL lineal as in the case described herein in a given sector of the WL.

The case of a patient is presented who, in a routine checkup, was diagnosed with PDS in the right eye (RE) and pigmented glaucoma (PG) in the left eye (LE) when exhibiting SL in the nasal septum of the VLJ, without Krukenberg spindle (KS) or iris transillumination, and higher intraocular pressure (IOP) in the LE.

Clinic case report

A 50-year-old patient who visited for routine checkup due to presbyopia. No other symptom was referred and the patient did not have any relevant personal or familial antecedent, or known allergies to medicaments. Examination showed visual acuity of 1 in both eyes (BE). Biomicroscopy showed abnormality in BE although, when dilating the pupil, a strip of pigment was observed in the nasal sector of the posterior LE lens surface (Fig. 1). IOP was 16 mmHg in the RE and 26 mmHg in the LE, with ocular fundus normal in BE. Gonioscopy showed abundant pigment in the trabeculum of BE (Fig. 2). Campimetry OCTOPUS 1–2–3 (Interzeag AG, Switzerland) was normal and optical coherence tomography (Heidelberg Engineering Inc, Heidelberg, Germany) showed peripapillary nerve fiber layers within normal ranges. No transillumination or KS were shown in BE.

The patient was diagnosed with PDS in RE and PG in LE due to IOP (16 vs. 26 mmHg), as well as trabecular pigmentation in BE and presence of SL in LE. Iridotomies were taken in BE, which showed rectification of the initial iridian concavity through optical coherence tomography (Heidelberg Engineering Inc, Heidelberg, Germany) (Fig. 3). At present the patient is in treatment with topical betablockers (Timofol[®] al 0.5%, Merck Sharp & Dohme, División Chibret, Madrid) in the LE and in regular follow-up at the glaucoma unit, with IOP of 16 mmHg in RE and 18 mmHg in LE at the most recent IOP checkup.

Discussion

In 1958, Scheie and Fleischhauer¹ described 5 characteristics of PDS: KS, mottled anterior iris, pigmentation of

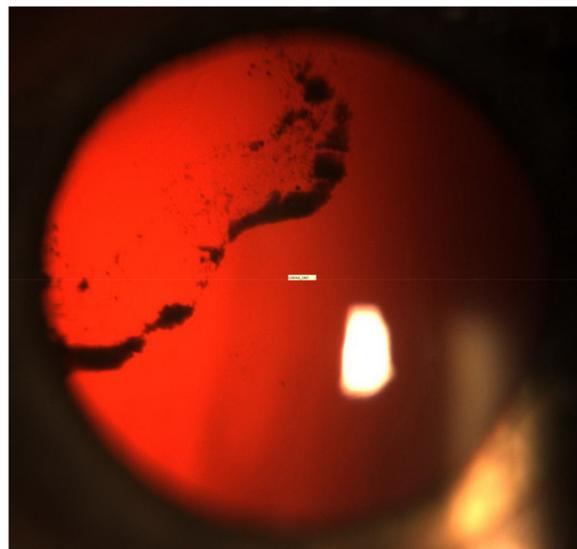


Fig. 1 – Anterior biomicroscopy with accumulation of pigment in the vitreous-lens join, or Wieger ligament, of the left eye, known as Scheie's line.

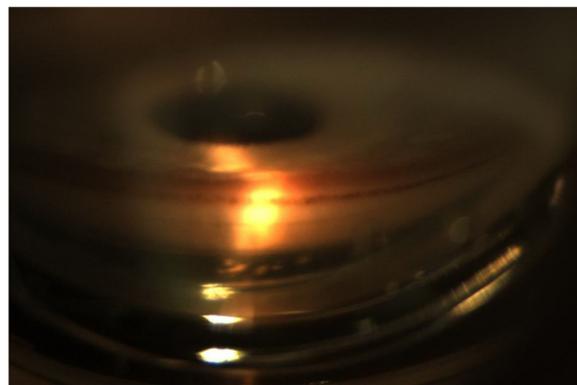


Fig. 2 – Gonioscopy with pigment accumulation in the trabeculum.

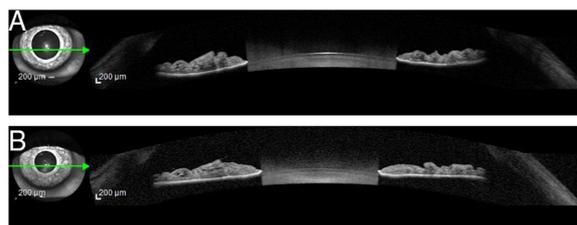


Fig. 3 – Left eye anterior chamber optical coherence tomography before (A) and after (B) iridotomy with rectification of the iridian concavity.

the trabeculum and posterior lens surface. Subsequently, in 1979 Campbell⁵ proposed the theory of mechanical friction between the lens and the iridian periphery in predisposed eyes as the cause for pigmented dispersion in the PDS and pigment glaucoma.

The case discussed herein exhibits SL in the nasal sector of the LE without KS in BE. The special morphology of the LE iris,⁶ despite an apparently small concavity (Fig. 3), would facilitate the passage of aqueous humor into the anterior chamber (AC) preventing its return to the posterior chamber, as indicated by the higher IOP in the LE (16 vs. 26 mmHg). Increased IOP in AC could increase the iridian concavity and could even be the cause thereof.⁷ The pigmented detached from the iris-lens friction would pass between the zonule toward the VLJ, progressively sedimenting in the form of a SL, with the flow of pigment and aqueous humor toward the AC being impeded as indicated by the absence of KS and higher IOP. It is classically described and accepted that YAG laser iridectomy is able to rectify the iridian concavity which is characteristic of PDS as well as to diminish intraocular pressures — albeit not in all cases —, diminishing the number of medicaments for controlling it.⁷

By way of conclusion, an in-depth knowledge of the lens posterior capsule anatomy and the vitreous-lens join, with the Wieger ligament, the Berger space and the Erggelet vitreous space, as well as the Zentmayer ring and Scheie's line is of crucial importance for diagnosing the pigmented dispersion syndrome.

Conflict of interests

No conflict of interests was declared by the authors.

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