European Journal of Ophthalmology / Vol. 13 no. 5, 2003 / pp. 486-490

SHORT COMMUNICATION

Case report

Bilateral detachment of the macular neuroepithelium in a patient with Klinefelter syndrome

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PURPOSE. To describe the occurrence of atypical, bilateral detachment of the macular neuroepithelium and Klinefelter syndrome in a young patient.
METHODS. Case report.
RESULTS. A 20-year-old male of Chinese origin with karyotype 47,XXY presented with bilateral central neurosensory retinal detachment. There was spontaneous improvement.
CONCLUSIONS. An atypical form of detachment of the macular neuroepithelium was seen in a young patient with Klinefelter syndrome. The pathophysiological mechanism is not clear. The possibility of a hormonal imbalance is discussed. A differential diagnostic consideration is central serous chorioretinopathy and a mild form of Vogt-Koyanagi-Harada syndrome. This case is of interest because of the rarity of association between Klinefelter syndrome and chorioretinal abnormalities. (Eur J Ophthalmol 2003; 13: 486-90)

KEY WORDS. Klinefelter syndrome, Central serous chorioretinopathy, Vogt-Koyanagi-Harada syndrome

Accepted: May 21, 2003

INTRODUCTION

Klinefelter syndrome was first described in 1942 as a disorder with unknown aetiology in males with gynaecomasty, azoospermia, and elevated urinary gonadotrophins (1). Subsequent chromosome counts showed that these phenotypic males did have an extra chromosome, giving them a 47, XXY chromosomal complement (2). The incidence of Klinefelter syndrome is approximately 1/1000 new-born males. Clinical manifestations include mild mental retardation, antisocial behaviour, delayed secondary sex development, tall habitus, hypogonadism, and infertility. Klinefelter patients do not have elevated natural steroid blood levels (3).

Ocular abnormalities, especially retinal disorders, are uncommon in Klinefelter syndrome (4). However, ocular malformations associated with Klinefelter syndrome are described in the literature, including bilateral anophthalmos (5), aniridia (6), iris coloboma (7, 8), Peters anomaly (9), choroidal coloboma (6), hereditary retinoblastoma (10) and incontinentia pigmenti (11). Chorioretinal findings associated with Klinefelter syndrome are diffuse choroidal atrophy (12) and degeneration of the retinal pigment epithelium (13).

We present herein a case of atypical central serous chorioretinopathy associated with Klinefelter syndrome.

1120-6721/486-05$02.50/0

METHODS

A 20-year-old male of Chinese origin with Klinefelter syndrome (karyotype 47,XXY) visited our department, after a fall off a bicycle. He complained of diminished vision, micropsia and metamorphopsia in the right eye. He had no complaints about the left eye. Beta-thalassaemia minor was diagnosed recently (Hb 7,2 mmol/L). He had not used any medication, in particular no testosterone substitution or gonadotropins. He did not have type A personality. His past medical and ocular history was negative and his family medical history was also negative for ocular diseases.

With ocular examination, best corrected visual acuity of the right eye was 0.5 (20/40) (emmetropia) with metamorphopsia and micropsia. Visual acuity of the

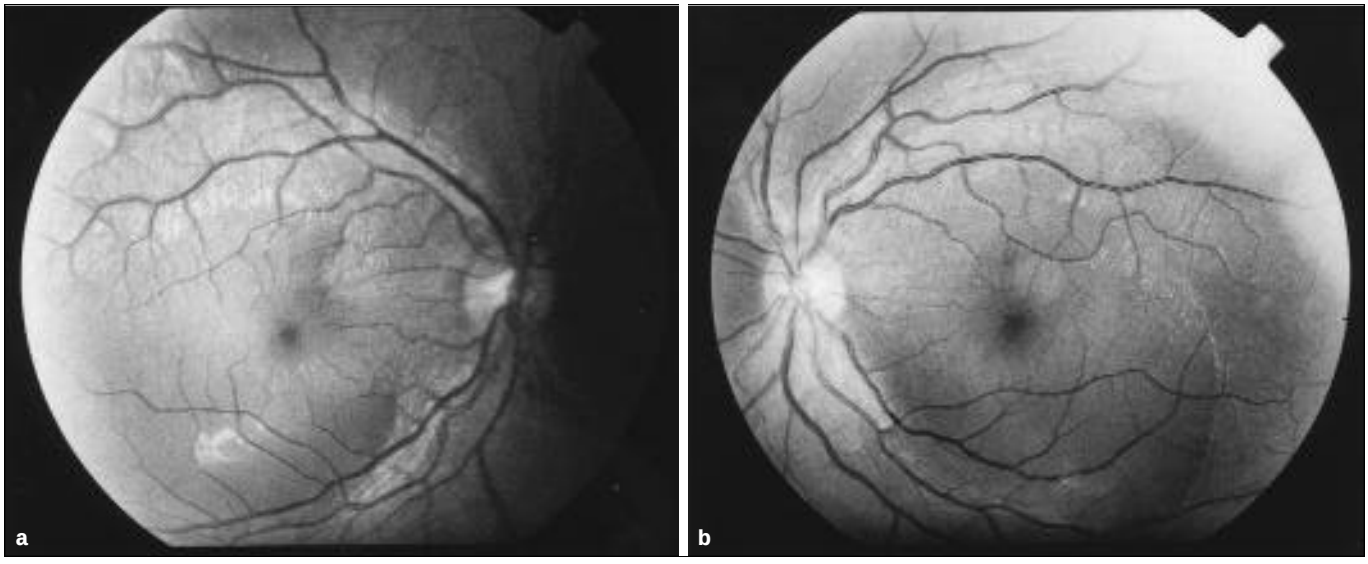

Fig. 1 - Red free picture before injection of fluorescein, at presentation, of the right eye **a)** and of left eye **b)**: central serous detachment of neurosensory retina of both eyes.

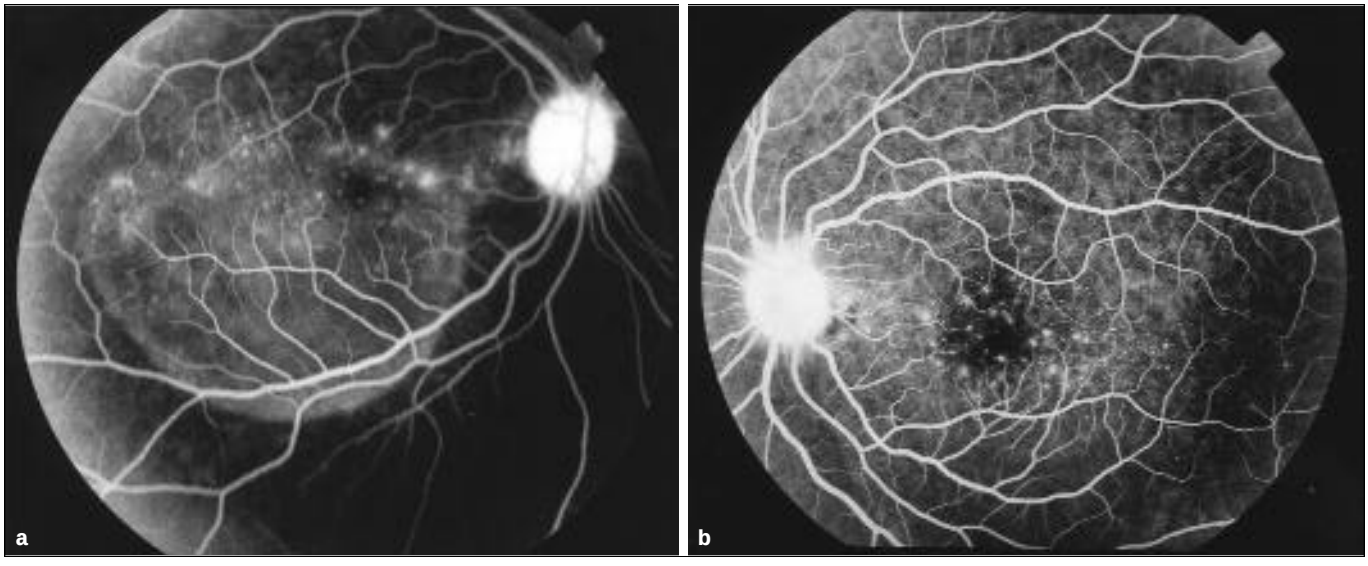

Fig. 2 - Fluorescein angiogram, at presentation, of the right eye **a)** and of the left eye **b)**: posterior pole staining, due to leakage from several focal lesions. Note there is also some leakage of the disk ("hot disk").

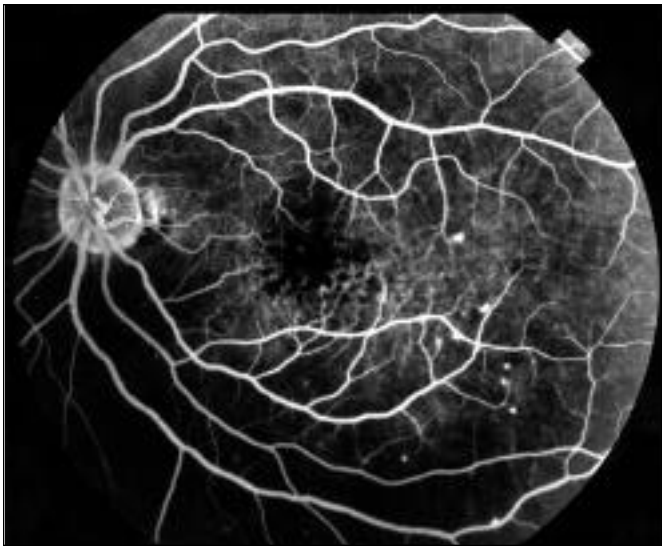

Fig. 3 - Fluorescein angiogram, two months after the initial complaints, of the left eye: less leakage at the site of the lesions compared to Figure 2.

left eye was 1.0 (20/20) without metamorphopsia. Intraocular pressures were normal (18 mmHg). The media in both eyes were clear, without cells in aqueous and vitreous. The fundus in both eyes showed a central serous detachment of the neurosensory retina (red free picture before injection of fluorescein, Fig. 1 a, b); the fundus periphery, retinal vessels and optic discs did not show any abnormalities.

The early phases of the fluorescein angiogram showed only little background fluorescence and uniform accumulation of fluorescein dye (hyperfluorescence) in several sharply defined focal lesions in both eyes. This resulted in posterior pole staining due to leakage from these lesions in the later phases in both eyes (Fig. 2 a, b). There was also some indication of a hot disc. Since an atypical central serous chorioretinopathy was suspected, no treatment was started, but the patient was closely followed. After two months a spontaneous improvement was noticed. Visual acuity was RE 0.8 (20/25) with only minor metamorphopsia and LE 1.0 (20/20) without metamorphopsia. The new fluorescein angiogram showed much less leakage at the site of the lesions (Fig. 3) and less staining of the optic disk than in the previous angiogram.

Electrophysiological investigations showed normal electro-oculograms (Arden ratio: 2.5). The scotopic as well as the photopic electroretinogram (ERG) for both eyes were normal. In the multifocal ERG subnormal amplitudes were seen centrally for both eyes.

Ultrasonography disclosed no detectable abnormalities. The sclera was not thickened, and there was no episcleral or periscleral edema (no T-sign). Otological findings were normal (no tinnitus, normal audiogram). Endocrinological and internal investigations revealed a normal, stable testosteron blood level (no fluctuations were measured over the years) and increased LH and FSH bloodlevels (which is normal for Klinefelter syndrome). Minor osteoporosis was diagnosed in the vertebrae. We did not perform HLA typing.

DISCUSSION

We describe a case of a 20-year-old male with Klinefelter syndrome with a central serous detachment of the neuro-retina in both eyes. Well-known causes of central serous chorioretinopathy (CSCR) were not present in this patient, including corticosteroid medication (14-16), endogenous hypercortisolism (17), and stress in type A personality (18). Hormonal imbalance, as described in pregnancy (19), may cause CSCR.

Because of the typical fundus and fluorescein angiography appearance, we considered CSCR as the ocular diagnosis (20). The spontaneous improvement also fits with this diagnosis (20-22). The subnormal amplitudes found in the multifocal ERG have been described in CSCR (23). Typical CSCR cases however are usually older, 30 – 50 year-old males (20, 22), with a type A personality (18), while sometimes corticosteroid medication is used (14, 15). Our patient was only 20 years of age and definitely not a type A personality and he did not use corticosteroid medication. His cortison and testosteron blood levels were stable and not too high.

We cannot explain the coincidence of serous detachment of the neurosensory retina and Klinefelter syndrome. However, since Klinefelter syndrome is characterised by hypergonadotropic hypogonadism, we consider a hormonal imbalance as a remote but possible hypothesis for the pathophysiological mechanism of the CSCR in this patient. It is not clear which hormones or precursors could be responsible.

The differential diagnosis of CSCR includes definitely a subclinical form of the Vogt-Koyanagi-Hara-

da (VKH) syndrome. The Asian origin of the patient and the bilateral manifestation of the eye symptoms fit with VKH. The dark choroid in the early phases of the fluorescein angiogram and the slightly hot disc in the angiogram may support this diagnosis. In VKH syndrome there can be hypoperfusion of the choriocapillaris, which may lead to a dark choroid. On the other hand the darker complexion of this Asian patient may lead to a darker retinal pigment epithelium and to less abundant fluorescence. The VKH syndrome has been described in patients 9 and 12 year of age (24). Therefore VKH is a definite possibility. Not completely in agreement with the VKH diagnosis are the following findings: no inflammatory signs, no cells in aqueous or vitreous, no hearing problem, no tinnitus, no pigmentary changes in the skin (vitiligo) or hair (poliosis). We did not perform HLA typing. DR4/Dw53 is associated with VKH.

The patient was furthermore diagnosed with beta-thalassaemia minor. Some papers describe ocular abnormalities associated with beta-thalassaemia (25, 26), including degeneration of the retinal pigment epithelium, but no choriocapillaris perfusion disturbances (27) and neurosensory retinal detachment. Therefore we do not suspect an association of the ocular findings and the beta-thalassaemia minor.

In summary, we describe a 20-year-old man of Chinese origin with Klinefelter syndrome with an atypical, bilateral detachment of the macular neuroepithelium. As the pathophysiological mechanism we considered among others a hormonal imbalance. Differential diagnostically one should also think of a mild form of the Vogt-Koyanagi-Harada syndrome. This case is of interest because of the rarity of an association between Klinefelter syndrome and chorioretinal abnormalities.

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