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SHORT COMMUNICATION

Bilateral serous macular detachment as a presenting feature of acute lymphoblastic leukemia

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PURPOSE. *To report a case of bilateral serous maculopathy as an initial sign of acute lymphoblastic leukaemia in children.*
METHODS/RESULTS. *A 13-year-old girl, who presented with symptoms of visual blurring, was found to have a bilateral serous maculopathy. Haematological abnormalities (thrombocytopenia with a mild lymphocytosis) prompted further investigation. A bone marrow aspirate revealed the presence of leukemic blasts and a diagnosis of acute lymphoblastic leukaemia was made. Her maculopathy completely resolved following systemic chemotherapy.*
CONCLUSIONS. *Prompt recognition of disease led to early systemic treatment and restoration of visual function. (Eur J Ophthalmol 2005; 15: 284-6)*

KEY WORDS. Serous maculopathy, Acute lymphoblastic leukemia

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INTRODUCTION

Ocular manifestations, including retinal involvement, in childhood leukemia is not uncommon. However, these patients are usually seen by ophthalmologists only after a diagnosis has already been established (1-5). Reports of patients with acute lymphoblastic leukemia presenting with visual symptoms are rare. We describe a case of a 13-year-old girl with visual impairment as an initial symptom caused by bilateral serous macular detachment that led to a diagnosis of leukaemia.

Case report

A 13-year old girl presented with a one-day history of "blurred vision" in the left eye. This was preceded by a two-week history of sore throat, night sweats and abdominal pain. Her visual acuities were 6/9 and 6/18 in the right and left eyes, respectively. She had bilateral central scotomata on amsler grid testing. Slit lamp biomicroscopy revealed no obvious inflammation. On examination of the fundus, bilateral serous macular effusions were present. Fluoroscein angiography revealed corresponding areas of fluoroscein leakage and pooling (Fig. 1). The presence of choroidal "flecks" within the area of serous retinopathy were noted. Blood tests revealed a thrombocytopenia (59 x 10^9/L), mild lymphocytosis (4.66 x 10^9/L with a normal total white cell count (7.23 x 10^9/L). All red blood cell indices were normal including haemoglobin (13.4 g/dl). Clotting screen was within normal limits and an autoantibody screen was negative. Serum urate (0.39 mmol/L) and C-Reactive Protein (12 mg/L) were elevated. Renal and liver function was normal. Given the constellation of ocular findings and haematological abnormalities, the patient was referred to a paediatric physician who performed a bone marrow aspirate and biopsy to elucidate whether the patient had an un-

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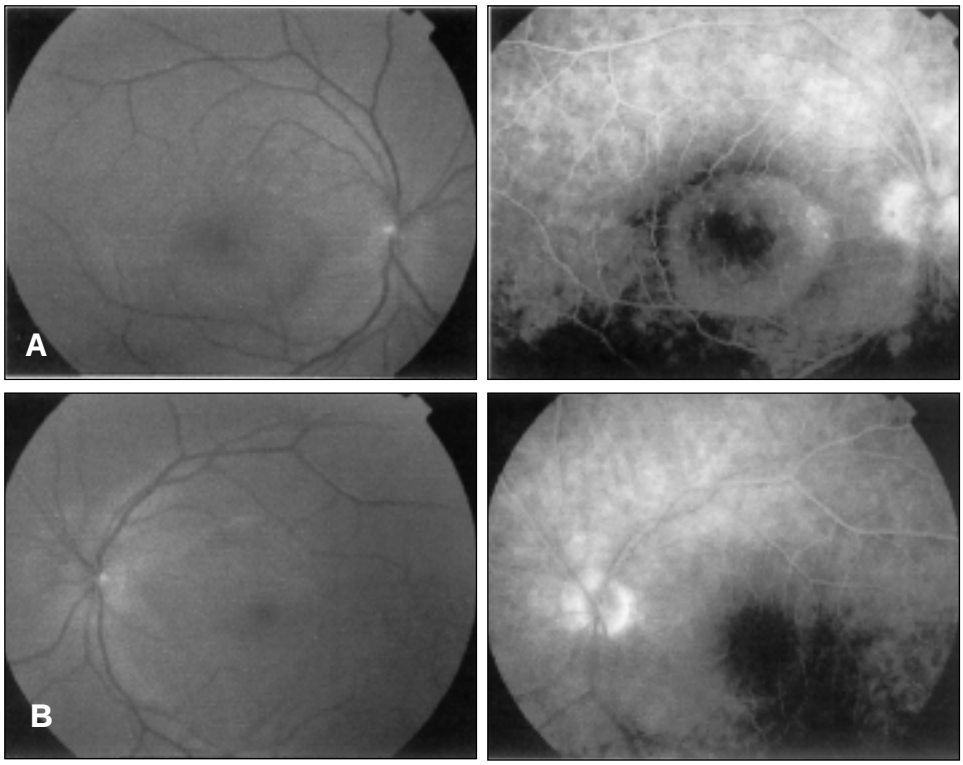

Fig. 1 - *Black and white images fundus and fluoroscein angio-graphs of* **(A)** *the right eye and* **(B)** *the left eye, showing a bilateral serous maculopathy. The choroidal flecks that can be seen within the area of serous elevation may represent the leukemic infiltrates within the choriocapillaris.*

derlying leukaemia. Analysis of the aspirate showed the presence of leukemic blasts and a diagnosis of acute lymphoblastic leukaemia was made. This was confirmed by immuno-phenotyping. She was started on a course of induction chemotherapy according to standard protocol comprising of intravenous Vincristine and Danorubicin, intrathecal Cytarabine, intramuscular Asparaginase and oral dexamethasone for a month. Thereafter, she was maintained on oral dexamethasone for 5 days every month and intrathecal methotrexate 3-monthly over a period of approximately 2 years. Three weeks after commencement of treatment, visual acuities had improved to 6/9+3 right and 6/12 left and the area of serous elevation of each macula reduced considerably. One year after presentation she is in complete remission with no eye symptoms and visual acuity is 6/9 in each eye.

DISCUSSION

Ocular changes in childhood leukaemia occur in up to 21% of patients (1) and in the majority of these, the eye disease is asymptomatic (2). This case describes a recognised yet rare retinal feature of leukemia in childhood and highlights two important features. Firstly, the recognition that bilateral serous detachments in children may represent a manifestation of leukemia requiring prompt referral and secondly, visual function can be fully restored following appropriate therapy. Most commonly in leukemia, blurring of vision is secondary to intraretinal haemorrhage or venous stasis retinopathy. Serous detachment of the macula has been well documented in lymphoproliferative disorders, but not as an initial symptom (3-5). In the majority of cases, the systemic disease has already been diagnosed prior to ocular symptoms. There have been previous reports of acute lymphoblastic leukemia presenting with unilateral central serous retinopathy as an initial symptom (6), where visual acuity returned to normal after therapy. Bilateral serous neuroretinal detachment has been reported in a 51-year old woman with acute monoblastic leukemia (7). Following treatment her vision also improved, although she died one month after the onset of visual complaints. To our knowledge, initial presentation with bilateral serous detachment has not been reported in children. Serous retinopathy in such patients may be

due to choroidal involvement by leukemic cells causing pigment epithelial dysfunction, or as a result of incompetence of the outer blood-retinal barrier inducing RPE changes (8,9). Postmortem histopathological examination of patients with leukaemia has revealed leukemic infiltrates in the choroid. Furthermore, as the mortality of children with ocular involvement in leukemia is higher than those without ocular involvement (1, 2) prompt recognition of disease is essential for early treatment and for the restoration of visual function.

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