Pseudotumour cerebri occurring before treatment of acute promyelocytic leukaemia with all-trans-retinoic acid (ATRA)

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INTRODUCTION

Treatment of acute promyelocytic leukaemia (APL) with all-trans-retinoic acid (ATRA) is now well established [1]. ATRA has several inherent advantages over conventional cytotoxic chemotherapy, but it can produce a number of side effects, including the retinoic acid syndrome [2] and pseudotumour cerebri [3–7]. This case report is the first in which a young female patient with APL presented with severe bilateral papilloedema and elevated cerebrospinal fluid (CSF) pressure prior to the institution of treatment with ATRA.

CASE REPORT

This 16-year-old Omani schoolgirl was referred for evaluation of low-grade fever and recurrent episodes of bleeding gums, epistaxis, easy bruisability and fatiguability of three weeks duration. For ten years prior to the onset of her acute illness, she experienced intermittent attacks of headache which became worse five days prior to her hospital admission. There was no previous or family history of a neurological or ophthalmic disorder nor of any drug or vitamin therapy except paracetamol. Physical examination revealed fever, ecchymoses on both upper arms, legs and back, hepatomegaly but no lymphadenopathy or splenomegaly. Ophthalmic

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evaluation revealed a visual acuity of 6/60 in both eyes, severe bilateral papilloedema and fundal haemorrhages (Fig. 1). Results of pertinent investigations were as follows: Hb 5.4 g/dl, WBC $14.1 \times 10^9$/litre, neutrophils $0.99 \times 10^9$/litre, bands $0.14 \times 10^9$/litre, lymphocytes $2.40 \times 10^9$/litre, myelocytes $0.14 \times 10^9$/litre, promyelocytes $7.76 \times 10^9$/litre, blasts $2.68 \times 10^9$/litre, platelets $10 \times 10^9$/litre. Bone marrow aspiration and biopsy confirmed the diagnosis of APL while the t(15;17) chromosome translocation was demonstrated in 100% of cultured marrow cells. Her coagulation profile suggestive of an incipient coagulopathy was as follows: prothrombin time (PT) 15 seconds (normal 10–13 s), activated partial thromboplastin time (APTT) 32 s (normal 29–40 s), fibrinogen 4.0 g/l (normal 1.5–4.5 g/l), D-dimer 8.0 μg/ml (normal < 0.5 μg/ml). Chest X-ray was normal and a computerised tomographic (CT) scan of the brain and both orbits showed cerebral ventricles of normal sizes, no space-occupying lesion and no intra-orbital or intracranial bleeding. The diagnosis of pseudotumour cerebri was made on the basis of her symptoms, ophthalmic evaluation and CT scan and confirmed by the following CSF findings: an elevated CSF opening pressure of 420 mm H$_2$O, normal protein and glucose concentration and no cells.

Specific therapy of her acute leukaemia was commenced with ATRA (Tretinoin) and Daunorubicin. Forty-eight hours later, she developed features of the retinoic acid syndrome with an elevated WBC count of $22 \times 10^9$/litre. ATRA was withdrawn...