Less than 1% of total haemoglobin was fetal. A bone marrow aspirate showed 90% blast cells. Dyslastic erythropoiesis with irregular or lobulated nuclei and an open chromatin pattern was found. The blasts were Sudan black B negative and did not contain granules or Auer rods. They were classified as L1. Immunophenotyping showed the following: Tdt, 2% of blasts; CD10, < 1%; CD20, 2%; CD2, 15%; CD7, 71%; CD13, 14, 33, < 1%. No reactivity was found with monoclonal antibodies AN51 or Plt 1 which detect megakaryocyte-associated antigens. ALL with early T cell features was diagnosed. He was treated with the Medical Research Council UKALL X protocol. Four weeks after diagnosis he had entered remission. He remained well in first remission till 16 months after diagnosis when relapse occurred. Immunophenotyping of the blasts remained unchanged, except that 45% were CD 2 positive. At diagnosis 14 of 18 metaphases contained trisomy 11; the remainder were normal. At relapse, of 30 metaphases, 15 had trisomy 11 as the only abnormality and five had, in addition, a translocation between chromosomes 1 and 3. A karyotype from a representative metaphase is shown in the figure.

This case represents the rare association of ALL with trisomy 11, but there are some unusual features. Severe dyserythropoiesis, manifest by poikilocytosis, macrocytosis, and dysplastic erythroblasts is unusual in childhood ALL. A diagnosis of early T cell leukaemia was based on the CD7 positivity of the blasts and further supported by the CD2 positivity at relapse. Because of the dyserythropoiesis, evidence of non-lymphoid origin was sought but not found. The response to treatment suggested a lymphoid origin. At both diagnosis and relapse trisomy 11 was the sole cytogenetic abnormality in one cell line.

This case illustrates the point that although a specific cytogenetic abnormality might seem to be a consistent abnormality in one group of leukaemias, further experience may show that it is not restricted to that group. Whether trisomy 11 can occur in typical childhood ALL remains as yet unknown.

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References


Non-secretory lambda multiple myeloma

Non-secretory myeloma refers to otherwise typical multiple myeloma with no paraprotein detectable in blood or urine; this accounts for about 0.38–5% of patients with myeloma.1 2 Recently we studied a patient with a rare lambda chain non-secretory myeloma.

A 72 year old woman was admitted to our hospital because of abdominal and lumbar pain. On physical examination pressure of lumbar spine was tender. Hepatosplenomegaly or lymphadenopathy were not observed. Her haemoglobin concentration was 7 g/dl and white cell count 5.5 × 10^9/l with 18% granulocytes, 32% lymphocytes, 7% plasma cells and 43% lymphoplasmocytic cells, nearly all atypical. The platelet count was 118 × 10^9/l and erythrocyte sedimentation rate/first hour 8 mm. Protein electrophoresis showed the albumin concentration to be 38.6 g/l; alpha 1, 1.84 g/l; alpha 2, 5.79 g/l; beta 5.85 g/l; and gamma 3.62 g/l. There was no proteinuria. Calcium and urate concentrations and liver and renal function tests were normal, except that GGT was 138 U/l. Skeletal x-ray studies showed diffuse osteoporosis with lytic bone images and multiple vertebral crushing. Immunoelectrophoresis showed decreased concentrations of IgG, IgM, and IgA with absence of IgD and paraprotein. Test for Bence-Jones protein and immunoelectrophoresis of urine were negative. Bone marrow aspirate contained 80% atypical plasma cells. The patient did not respond to treatment with melphalan and prednison and died 10 months later because of infection. Periodic blood and urine immunoelectrophoresis failed to show paraprotein.

Intracytoplasmic immunoglobulins studied with fluorescein-conjugated rabbit F(ab)2, anti-human immunoglobulins showed only the presence of lambda light chains in the cytoplasm of bone marrow plasma cells: μ, α, τ, δ and κ chains were negative. For molecular analysis DNA was prepared from bone marrow using standard procedures. DNA was digested with Eco RI, electrophoresed on 0.8% agarose gels, trans-
Letters to the Editor

ferred to nitrocellulose filters and hybridised with a nick-translated Jh probe, which was kindly provided by Dr TH Rabbitts (Cambridge). A unique rearranged band could be detected on autoradiography.

Immunofluorescence studies in our patient indicated that lambda light chains were produced. Because monoclonal immunoglobulin seems to be present in the cytoplasm of plasma cells in nearly all patients studied by immunocytochemical methods, the most likely mechanisms to explain non-secretory myeloma could be a defective secretory system of the cell, or an abnormal immunoglobulin structure which is not capable of being transmitted further along the secretory pathway.

In our patient detection of heavy gene rearrangement suggests that the failure of heavy chain expression could result from dysfunctionally rearranged genes, or because of the presence of an abnormal mRNA.

Among light chains producing non-secretory myeloma, a preponderance of kappa type has been pointed out, so the lambda type is rare and to the best of our knowledge only two such patients have been described previously.

Although it has been reported that non-secretory myeloma has a better prognosis than secretory myeloma, our patient died quickly. We attribute the poor response to chemotherapy and short survival to diagnosis at an advanced stage, even in an initial leukaemic phase which is very unusual.

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References


Matters arising

Screening for bacteriuria

Doran and Kensit recently reported the results of a study on screening for bacteriuria using a dipstick read by Clinitek 200.

We recently conducted a similar study on 1000 consecutive urine specimens randomly submitted to this laboratory. The same four tests—namely, leucocyte esterase, nitrite test, blood, and protein on the Ames 10SG strips—were used and read by Clinitek 200. All urines were tested in parallel with the methods normally used for enumeration of leucocytes by microscopical examination and quantitative culture for bacteria. At this time Kova slides with grids (ICL Scientific) were used to detect pyuria defined as the presence of at least 10 white cells per cubic mm. Semiquantitative bacterial counts were made by impression of bacteriuritest strips (MAST Laboratories) on to MacConkey agar, and inoculation of urine using a 0.05 ml calibrated loop on to horse blood agar and incubated for 18–24 hours at 37°C before examination for discrete colonies.

Culture was defined as negative if less than 10³ organisms/ml and positive if 10⁵ organisms/ml or greater, in either pure or mixed cultures. Urines with borderline counts of 10⁴–10⁵ organisms/ml were not assessed.

A positive dipstick result was defined as one or more positive reactions with tests for leucocyte esterase, nitrite, blood and protein. A negative result was one in which all four tests were negative.

We used the formulae of Galen and Gambino to obtain statistical results.

For the dipstick screening method, sensitivity was 80.4% and specificity 97.8%. Predictive values for a positive result were 83.7% and for a negative result 97.2% when all four tests were used in combination. The overall false negative rate was 1%.

For our largely asymptomatic population, these figures suggest that the method could be used as a routine screen, and we suggest that those urines that prove negative for the four dipstick tests need not be examined further for leucocytes and bacteria unless specifically requested by the clinician in the case of problem patients. Consequently our workload would be reduced by 36%. Similar conclusions were reached by Boreland and Stoker and Lowe.

We found that the urine screening procedure was not applicable to all patients. The level of bacteriuria must be modified in some cases as small numbers of bacteria can be associated with urinary tract infection and have been reported. Therefore, all urines from symptomatic patients and specimens of suprapubic aspiration and catheter urine would be cultured and microscopy performed without screening.

We agree with the comments made by the authors that, used as a screening method, the dipstick is more expensive than microscopy and culture (£0.14 as opposed to about £0.90 per specimen) and we found no savings in technician time.

We found that the incorporation of 10 biochemical tests in the one dipstick was excessive for investigations in this department and feel that a strip adapted to bacteriological screening using the four variables of leucocyte esterase, nitrate, blood and protein read by Clinitek 200 would be more cost effective as a urine screening procedure.

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References


False negative results with benzodiazepine screening test

The recently updated ACP Broadsheet by Widdop is an excellent commentary on a range of simple tests to detect poisoning. The author mentions benzodiazepines as currently the most common cause of drug induced coma and names immunoassay and TLC, following hydrolysis with acid and heat, as routine screening procedures. For completeness, we would like to emphasise that, while indeed, 1,4-benzodiazepines are detectable using either assay procedure, the
Non-secretory lambda multiple myeloma.

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