Acute myeloid leukaemia with trisomy 14 as a sole cytogenetic abnormality

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DESCRIPTION

Trisomy 14 as a sole cytogenetic abnormality is a rare non-random recurrent change that has been reported in myeloid neoplasms. We report a case of an elderly patient with medical history of coronary artery disease who presented to the emergency department with a history of several weeks of progressively worsening and debilitating fatigue. Complete blood count revealed severe anaemia (haemoglobin, 4.9 g/dL) with macrocytosis (mean corpuscular volume, 113.3 fL), reticulocytosis (3.1%) and leucopaenia (700/ μ L). Peripheral blood smear showed myeloid blasts with few mature neutrophils, erythrocyte macrocytosis with anisocytosis, and normal platelet morphology. A bone marrow biopsy was subsequently performed exhibiting 50% cellularity with a 20:1 myeloid to erythroid ratio, predominantly consisting of myeloblasts (figures 1 and 2). Normal erythroid and megakaryocytic maturation was noted. A diagnosis of acute myeloid leukaemia (AML) was made, favouring M0 subtype. Cytogenetic analysis revealed isolated trisomy 14 (figure 3). The patient underwent induction chemotherapy with cytarabine and daunorubicin. Unfortunately, he suffered multiple infectious complications during consolidation chemotherapy,

Figure 2 Bone marrow biopsy at high magnification showing myeloblasts as the predominant cell population.

and relapsed, succumbing to the disease 4 months after diagnosis.

Few cases of isolated trisomy 14 in myeloid neoplasms have been reported in the literature, with most observed in myelodysplastic syndromes.¹ Given its normal erythroid and megakaryocytic maturation, we posit that the present case arose as a *de novo* AML, which has not been previously reported. Nevertheless, our case highlights important clinical and prognostic findings in previously

Figure 1 Bone marrow biopsy at low magnification showed 50% cellularity with a 20:1 myeloid to erythroid ratio.

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Figure 3 Karyotype analysis of tumour tissue revealed trisomy 14 (arrow) as a sole cytogenetic abnormality.

Learning points

- ▶ Trisomy 14 as an isolated chromosomal abnormality is a rare non-random cytogenetic aberration seen most commonly in myelodysplastic syndromes and rarely in cases of acute myeloid leukaemia.
- ▶ Although rare, acute myeloid leukaemia with trisomy 14 is often seen in elderly males and has been associated with a short median survival, ranging from 2 to 12 months.

reported cases of AML with isolated trisomy 14—elderly male predominance with aggressive disease course.

Competing interests None declared.

Patient consent Not obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCE

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