

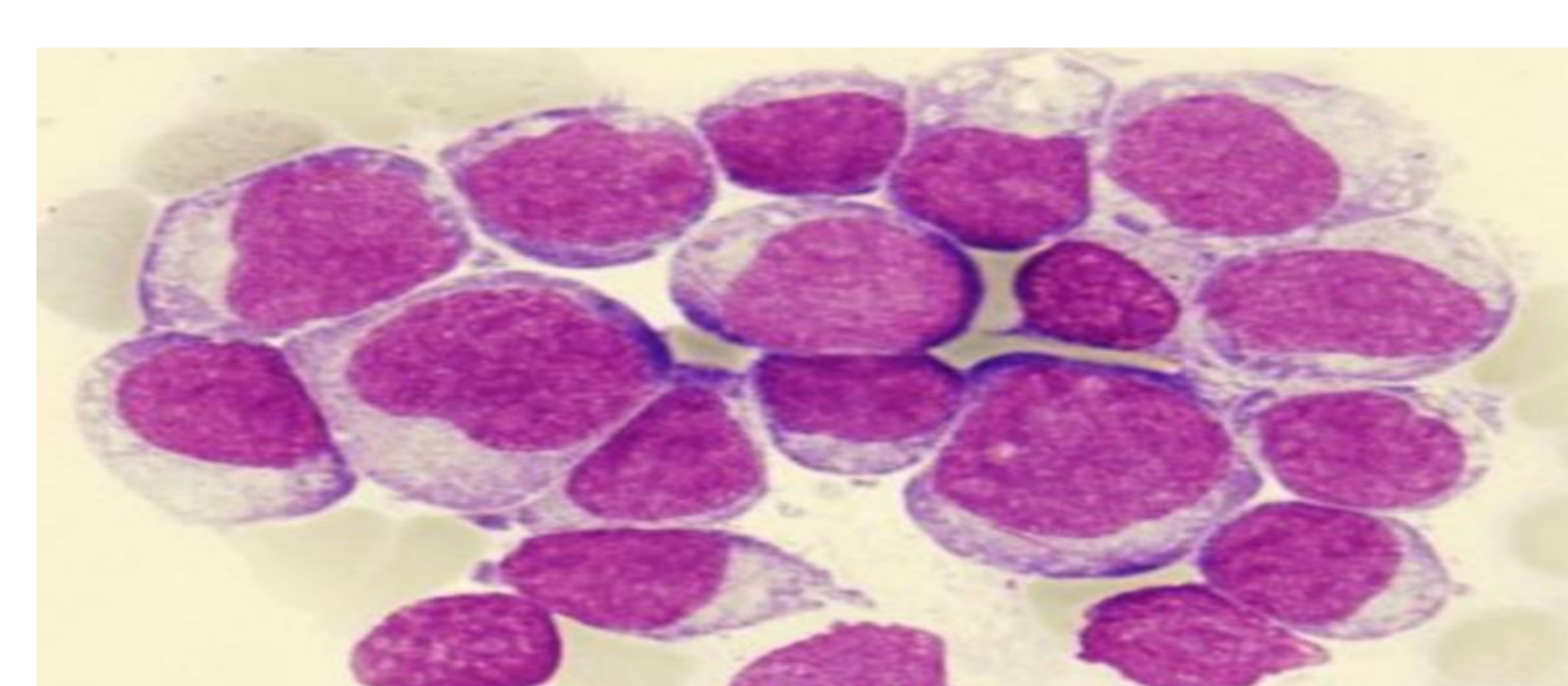
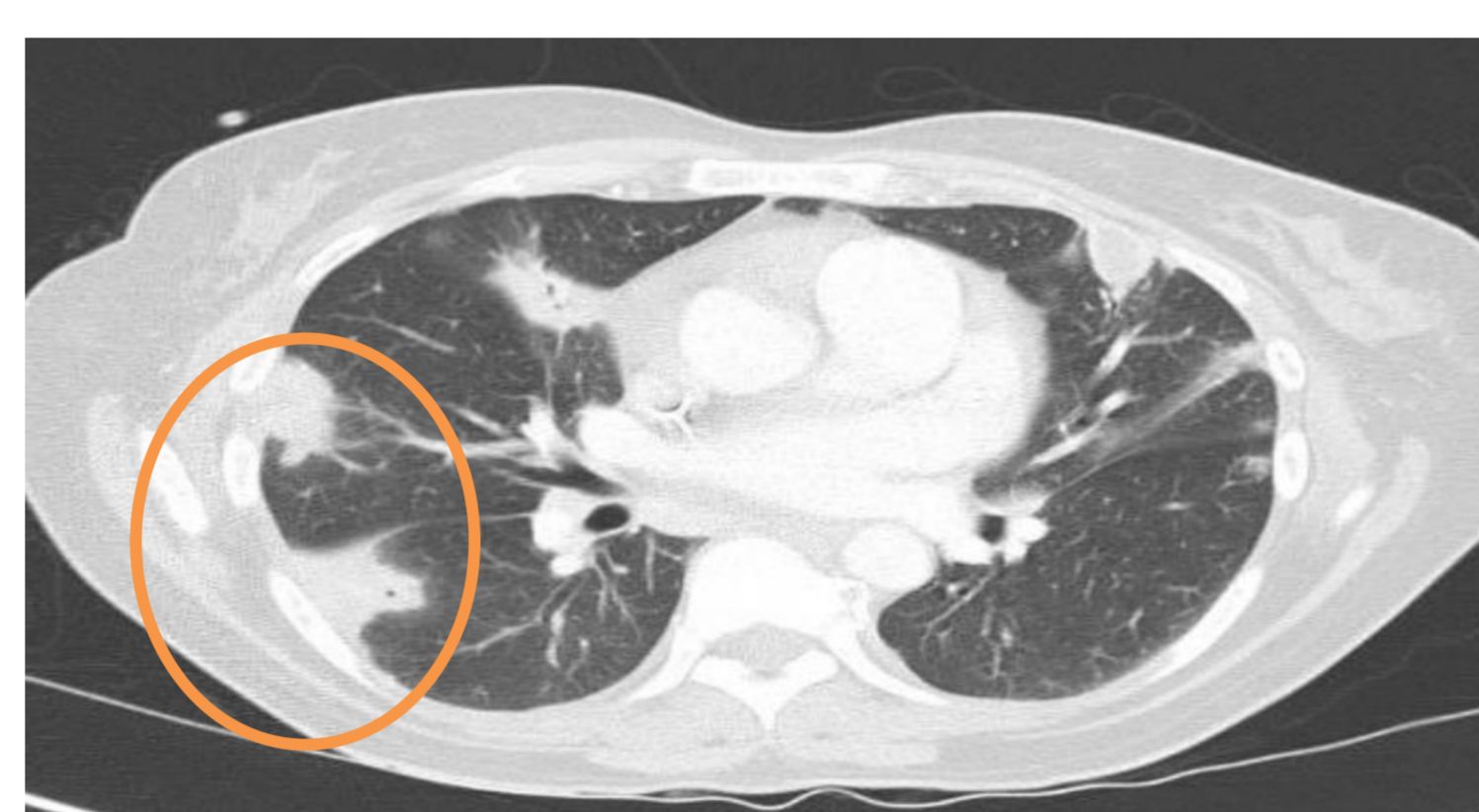
### INTRODUCTION

Spontaneous Remission (SR) is a rare phenomenon in Acute Myeloblastic Leukemia (AML). There are few cases described being 91.3% of them infection-related (54% pneumonia). We report a 53-year-old patient diagnosed with AML NOS with minimal differentiation according to the World Health Organization (WHO) 2016 after being admitted for fungal bilateral pneumonia and pancytopenia.

Methods. Retrospective description of a single case: characteristics of disease at diagnosis (D), at the time of SR and at relapse (RL) according to cytological, immunophenotypic, cytogenetic and molecular techniques following the WHO 2016 classification.



Cavitary pulmonary lesion associated with *Aspergillus* at diagnosis.



Bone Marrow Myeloid blasts at diagnosis.

### RESULTS

. Here we present Leukemia cytology, cytometry, cytogenetic and DNA analysis at diagnosis. DNA analysis revealed FLT3-TK2 mutation (PCR) besides 5 mutation in 3 out of 40 studied genes by next generation sequencing (NGS).

| Citology/Citometry   | Cytogenetic  | DNA Analysis (PCR/NGS)   |
|--|--|--|
| <p><b>Citology</b><br/>66.75% of bone marrow (BM) myeloid blasts; 91% of them were positive for MPO.</p> <p><b>Citometry</b><br/>26% of BM myeloid blasts; CD34+, CD117+/-, CD45+, CyMPO+ together with an aberrant population of monocytes (13.7%).</p> | <p>CEP 8. Positive 25%</p> <p>Inv (16) CBF8 (16q22). Negative</p> <p>MLL (11q23). Negative</p> <p>Del (7q)/CEP7. Negative</p> <p>P53 del. Negative</p> | <p>FLT3. c.2508_2510delCAT (20 exon). 8.74%</p> <p>FLT3. c.1988A&gt;G (16 exon). 5.69%</p> <p>RUNX1. c.837G&gt;A (8 exon). 21.75%</p> <p>WT1. c.1385G&gt;T (9 exon). 26.71%</p> <p>WT1. c.1104_1105insGG (7 exon). 7.22%</p> |

Considering patient's poor performance status, we decided to withhold the initiation of chemotherapy. Our patient experienced a great improvement after antifungal treatment so second BM aspirate was repeated after a month. Cytometry showed a decrease in the blast count (1%) but cytogenetic and NGS were not performed at this time. We decided a watchful waiting approach and five months later relapse (RL) was verified; 31.9% of BM identical blasts were revealed with exactly alike cytogenetic and molecular characteristics.

### CONCLUSION

Interestingly, we found without any specific treatment a dramatic decrease in blast percentage. We were not able to correlate the SR with cytogenetic and molecular evolution but it seems to be a tight relationship between systemic infection and the immune system eliminating the AML clone. Also, the majority of described SRs are disappointingly transient. Nevertheless, mechanisms of fever or infection-induced immune stimulation against AML may be mimicked to develop novel immunotherapeutic approaches.

### REFERENCES

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