A 31 years old male. Married and father to 2 girls.

Recurrent sore throat from May 2016
Anal Fistula January 2016
Anxiety treated with Viepax (Venlapaxine) April 2016
Topamax (Topiramate) May 2016

July 2015 - Normal CBC
June 2016 - WBC-2,210 Neut-250, Hb- 11.47, PLT- 155,000
Topamax and later on also Viepax stopped.

In BMA

Dysplastic changes –**Micromega, Bi- nucleuted RBC, hypogranulaton in myelo series.**

In BMB

The red cells are mostly **normoblastic with a few immature and megaloblastoid forms**. The white cells show complete maturation. **The neutrophils are slightly atypical**. The megakaryocytes are slightly increased in number, forming an occasional cluster. **Many of them (more than 10%), seem to be micromegakaryocytes.** There is mild increase of the **reticulin fibers (1/3).**

Conclusion

Almost normocellular for age bone marrow with **megakaryocytic atypia**, the significance of which is not clear. **Clinical crrelation to exclude monolinear, low grade myelodysplasia is indicated**. There is no increase of blasts.

Chromosomes **- 46XY,del (20)(q13.3)(12),46xy(8)**

FISH for -7,-5,+8, 5q31,7q31, **20q12** - normal

NPM1 gene mutation A283P in 14% of readings, unknown mutation

NPM1 is a ubiquitously expressed nucleolar protein that shuttles between the nucleus and cytoplasm. It is implicated in multiple functions, including ribosomal protein assembly and transport, control of centrosome duplication, and regulation of the tumor suppressor ARF. NPM1 mutations that **relocalize NPM1 from the nucleus into the cytoplas.**

KDM6A gene mutation T1002A in 11% of readings, unknown mutation

The KDM6A gene provides instructions for making an enzyme called lysine-specific demethylase 6A that is found in many organs and tissues of the body. Lysine-specific demethylase 6A functions as a **histone demethylase – tumor suppressor**.

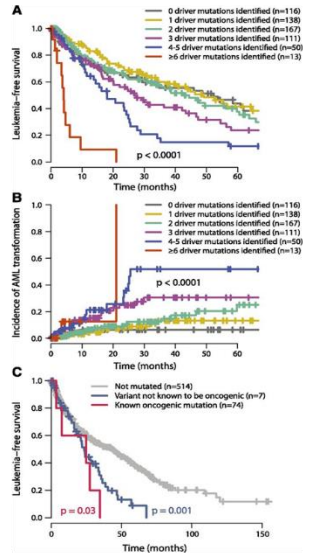
RAD21 gene mutation S138C in 18% of readings, unknown mutation

The RAD21 protein is part of a protein group called the **cohesin complex that holds the sister chromatids together**.

Summary:
A young patient with recurrent infections new neutropenia and anemia with mild dysplastic changes, 20q- and 3 unknown mutations.
The patient have a matched unrelated donor.

MDS or not MDS?

Relationship between number of oncogenic mutations and outcome.



Elli Papaemmanuil et al. Blood 2013;122:3616-3627

blood

Epilogue

Three years later

WBC- 4760, **Neut – 2900**, **Hb-15** with reticulocytosis PLT- 153,000
In three BMA+BMB – Mild dysplastic changes
46XY with no mutations.

MDS or not MDS?