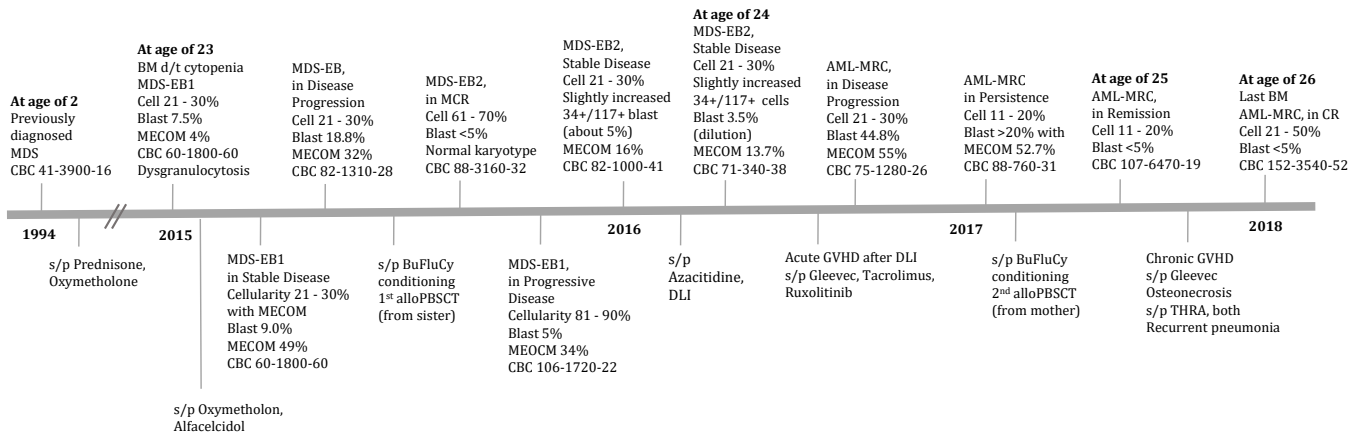
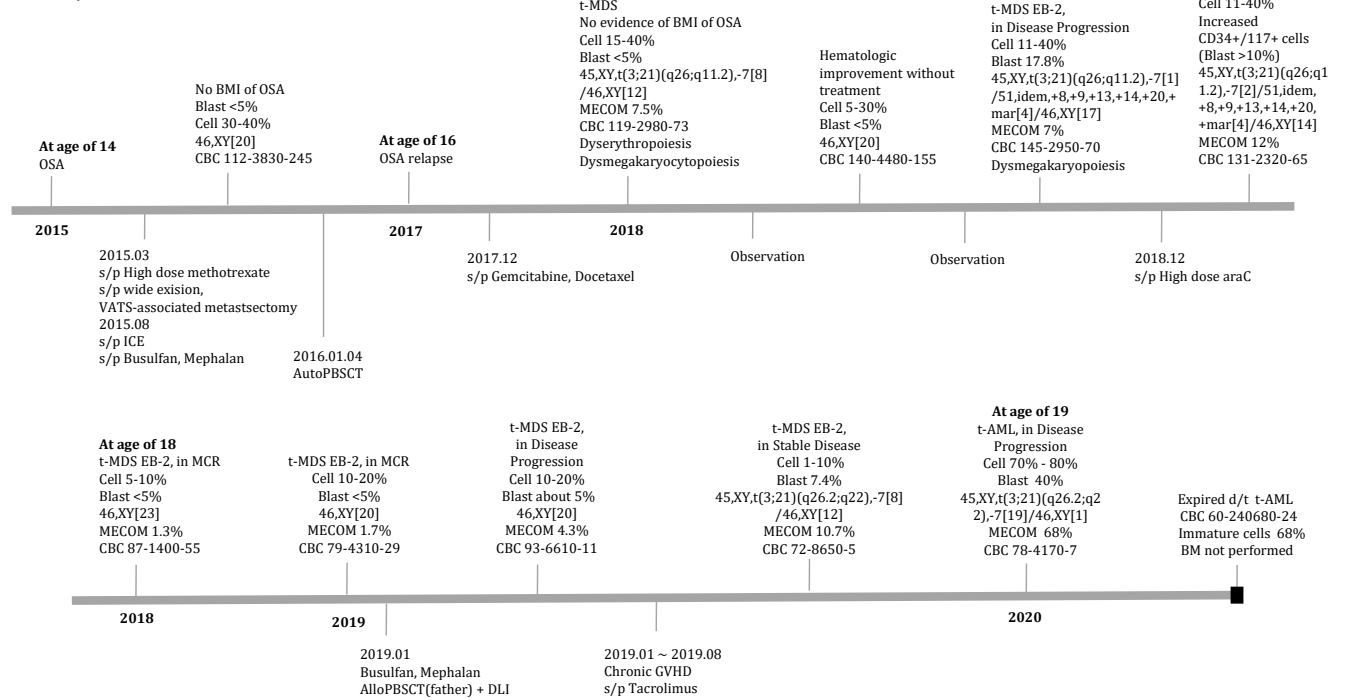


Case 1 (23 years/male)



Case 2 (17 years/male)

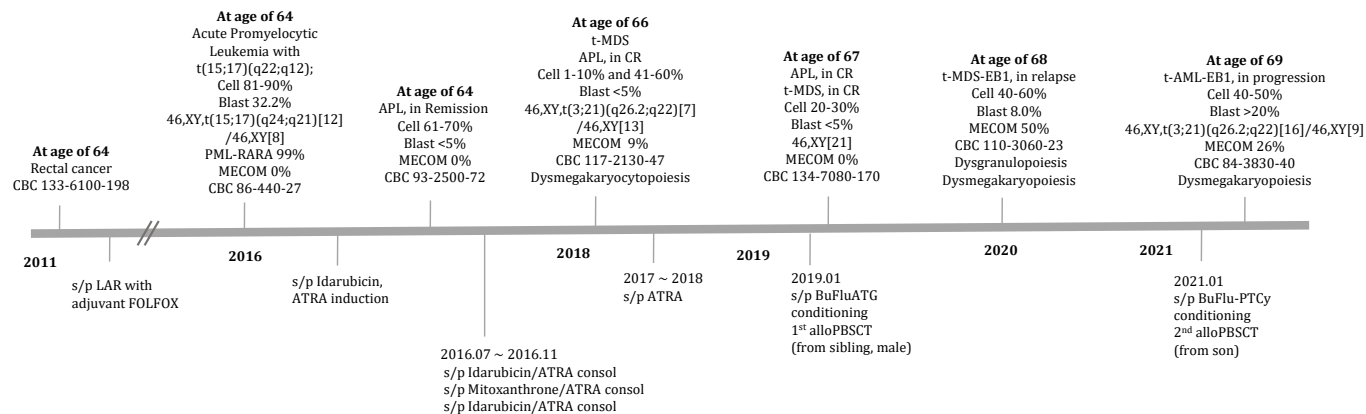


**Supplemental Data Figure S1.** Progression timelines with patient information from BM, CBC, and cytogenetic analyses. Disease progression and treatments are presented in the timeline by year. CBC, hematologic diagnosis, and bone marrow blast counts are shown. The chromosome and FISH results are described. The black rectangle indicates a patient's death.

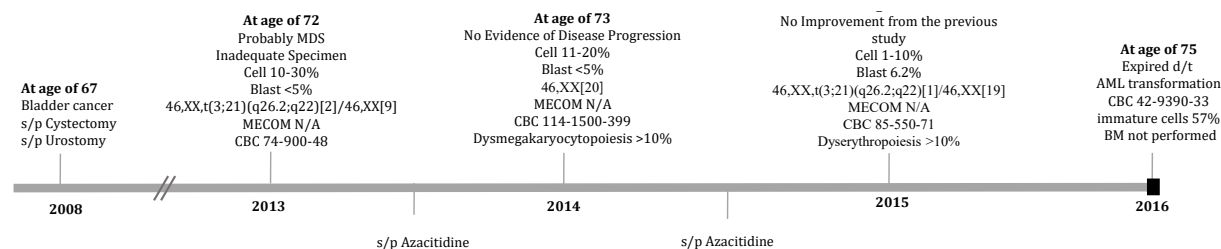
Abbreviations: M, male; F, female; BM, bone marrow; Cell, cellularity; CBC, complete blood count; APL, acute promyelocytic leukemia; AlloPBSCT, allogeneic peripheral blood stem cell transplantation; MCR, marrow complete remission; DLI, donor leukocyte infusion; GVHD, graft-versus-host disease; d/t, due to; CR, continuous remission; THRA, total hip replacement arthroplasty; VATS, video-assisted thoracic surgery; LAR, low anterior resection; Bu, busulfan; Flu, fludarabine; Cy, cyclophosphamide; ATG, antithymocytoglobulin; PTCy, transplantation cyclophosphamide; ICE, ifosfamide, carboplatin, and etoposide; High-dose araC, high-dose cytarabine; FOLFOX, folinic acid, fluorouracil, and oxaliplatin; ATRA, all-trans-retinoic acid.

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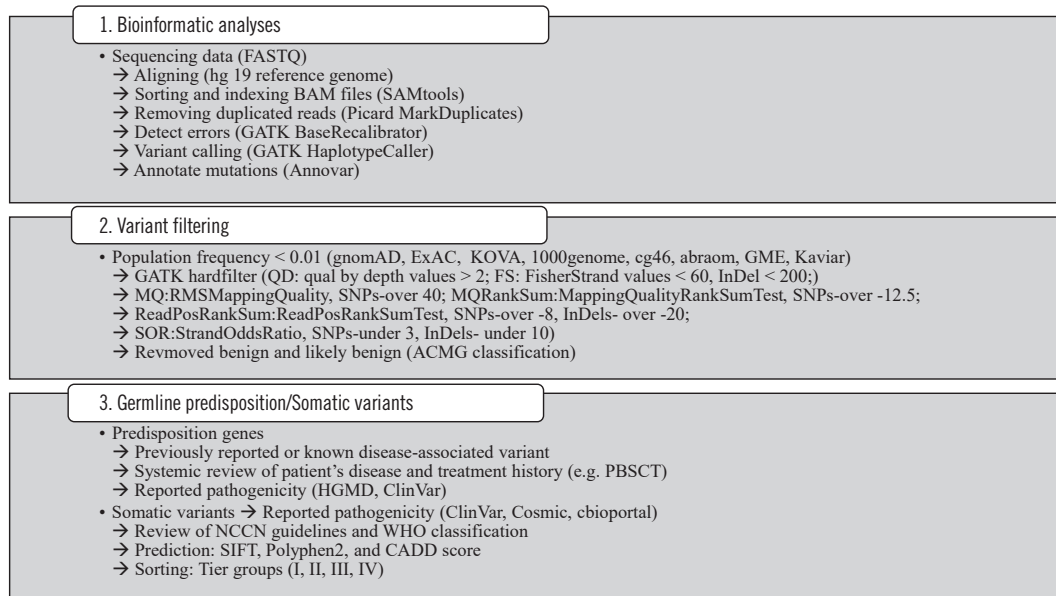
Case 3 (64 years/male)



Case 4 (72 years/male)



Supplemental Data Figure S1. Continued.



**Supplemental Data Figure S2.** Variant-calling strategy for somatic and germline variants. Evaluation of the multigene target sequencing results for somatic and germline variants from bioinformatics analyses to the interpretation of the variants.

Abbreviations: PBSCT, peripheral blood stem cell transplantation; ACMG, American College of Medical Genetics; HGMD, Human Gene Mutation Database; NCCN, National Comprehensive Cancer Network; SIFT, sorting intolerant from tolerant; CADD, combined annotation-dependent depletion.