DISCOVERSM

SM-AHN Leaflet:

Identifying Systemic Mastocytosis (SM) in Haematological Neoplasms

~20%

of SM cases may be initially missed in patients with myeloid neoplasms[1]*

*Based on 140 patients with Advanced SM from a German reference centre of the ECNM between 2003 and 2018.[1]

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Diagnosis of systemic mastocytosis (SM) requires 1 major and ≥1 minor criterion, or ≥3 minor criteria[2]

WHO Diagnostic Criteria for SM[2]

Major Criterion

Multifocal dense infiltrates of mast cells (≥15 mast cells in aggregates) in bone marrow biopsies and/or in sections of other extracutaneous organ(s)

Minor Criteria

≥25% of all mast cells are atypical cells (type I or type II) on bone marrow smears or are spindle-shaped in mast cell infiltrates in sections of bone marrow or other extracutaneous organs

KIT-activating *KIT* point mutation(s) at codon 816 or in other critical regions of *KIT* in bone marrow or another extracutaneous organ

Mast cells in bone marrow, blood or another extracutaneous organ express one or more of: CD2 and/or CD25 and/or CD30

Baseline serum tryptase concentration >20 ng/mL. In the case of a known HαT, the tryptase level should be adjusted

Performing a high-sensitivity *KIT* D816V assay is recommended for patients in whom SM is suspected[3]

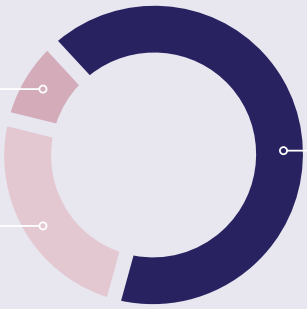
HαT=hereditary alpha-tryptasemia; WHO=World Health Organization.

Advanced SM predominantly presents with associated haematological neoplasm[4,5]

Classification of Advanced SM[4]

Mast cell leukaemia (MCL)
≥20% mast cells on aspirate/ peripheral[2]

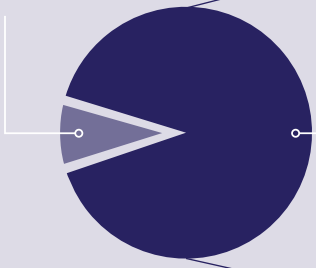
Aggressive systemic mastocytosis (ASM)
≥1 WHO SM C-finding[2]



Systemic mastocytosis with an associated haematological neoplasm (SM-AHN)
Meets WHO criteria for SM and has a non-mast cell haematologic neoplasm[2]

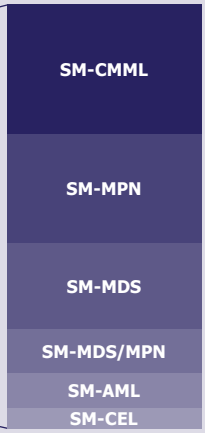
Data based on ECNM patient cohort. Only patients with Advanced SM are shown here (N=354): MCL (n=34), ASM (n=91) and SM-AHN (n=229).[4]

SM with an associated lymphoid neoplasm (SM-ALN)[5]*



SM with an associated myeloid neoplasm (SM-AMN) 89%[5]*

SM-AMN types[6†]



*Data based on a retrospective study at the Mayo Clinic. Only patients with SM-AHN are reported (N=138).[5]

†Estimated prevalence among all reported cases of SM-AHN, based on data that have been published in the available literature (PubMed) reported in the Valent 2024 study.[6]

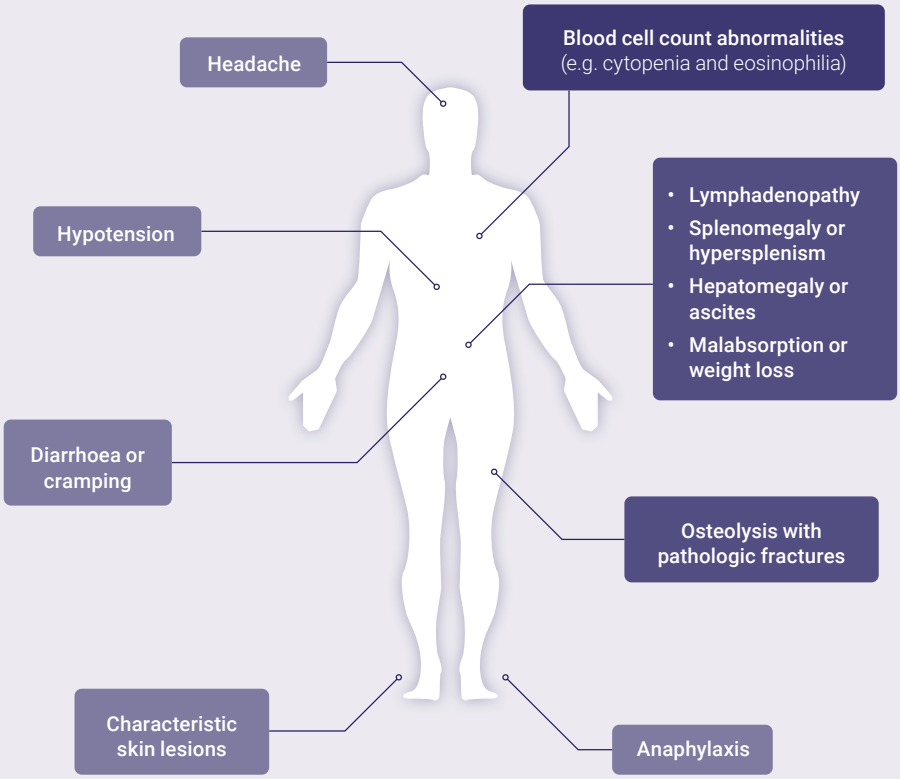
3.4% of CMML cases present with concurrent SM;[7‡]
CMML is the most common myeloid neoplasm associated with SM[6]

‡Data based on 645 CMML patients from the Moffitt Cancer Center CMML database.[7]

AML=acute myeloid leukaemia; ASM=aggressive systemic mastocytosis; CEL=chronic eosinophilic leukaemia; CMML=chronic myelomonocytic leukaemia; ECNM=European Competence Network of Mastocytosis; MCL=mast cell leukaemia; MDS=myelodysplastic syndrome; MDS/MPN=myelodysplastic syndrome/myeloproliferative neoplasm; MPN=myeloproliferative neoplasm; SM-AHN=systemic mastocytosis with an associated haematological neoplasm; SM-ALN=SM with an associated lymphoid neoplasm; SM-AMN=SM with an associated myeloid neoplasm; WHO=World Health Organization.

Could your patients with haematological neoplasms be experiencing undiagnosed SM?

The presence of **persistent non-chemotherapy-specific constitutional symptoms** or **unexplained organopathy due to mast cell infiltration** in AHNs should prompt suspicion and further investigation for SM:[3,8]



Diagnosis of SM in patients with another haematological neoplasm is defined as SM-AHN, a subtype of Advanced SM.[2]

Advanced SM is a rare clonal mast cell neoplasm and can cause debilitating mast cell symptoms as well as organ damage[8]

SM-AHN=systemic mastocytosis with an associated haematological neoplasm.

Advanced SM is associated with shortened survival[9]

Median Overall Survival (OS) for Advanced SM[9]

Data based on the ECNM registry of patients diagnosed with mastocytosis between 1978 and 2017. Only patients with Advanced SM are shown here (N=259).[9]

In a study comparing the clinical outcomes of patients with SM-CMML and CMML alone (N=551):[10]

Median survival for SM-CMML

18 MONTHS

n=50
Median follow-up of 16 months

Median survival for CMML alone

24 MONTHS

n=501
Median follow-up of 14 months

SM-CMML has a poorer survival rate than CMML alone[10]

ASM=aggressive systemic mastocytosis; CMML=chronic myelomonocytic leukaemia; ECNM=European Competence Network of Mastocytosis; MCL=mast cell leukaemia; SM-AHN=systemic mastocytosis with an associated haematological neoplasm.

Advanced SM may be missed in patients with myeloid neoplasms[1]

If you recognise persistent or unexplained haematological findings, consider performing a serum tryptase test and high-sensitivity *KIT* D816V assays to help screen for concurrent SM in myeloid neoplasms[1,3]

References: 1. Schwaab J, *et al. J Allergy Clin Immunol Pract*. 2020;8(9):3121–3127.e1. 2. Valent P, *et al. Hemasphere*. 2021;5(11):e646. 3. Valent P, *et al. J Allergy Clin Immunol Pract*. 2022;10(8):1999–2012.e6. 4. Valent P, *et al. J Allergy Clin Immunol Pract*. 2019;7(1):81–87. 5. Pardanani A, *et al. Blood*. 2009;114(18):3769–3772. 6. Valent P, *et al. J Allergy Clin Immunol Pract*. 2024;12(12):3250–3260.e5. 7. Kuykendall AT, *et al. Blood*. 2019;134(Supplement_1):2956. 8. Pardanani A. *Am J Hematol*. 2023;98(7):1097–1116. 9. Sperr WR, *et al. Lancet Haematol*. 2019;6(12):e638–e649. 10. Patnaik MM, *et al. Leukemia*. 2018;32(8):1850–1856.

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