CD138 possibly distinguishes WM from SMZL.

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***Introduction*:** It may be difficult to differentiate WM from SMZL. Both entities share clinical characteristics, B-lymphocytes' immunophenotype is usually CD5 and CD23 negative, although deviations from this pattern may be observed; there is no characteristic molecular abnormality neither for WM nor for SMZL, while in addition, serum IgM cut off is no longer used for the diagnosis of WM. Moreover, while paratrabecular and intrasinusoidal pattern of bone marrow infiltration are described as typical of WM and SMZL respectively, there is often overlap between them. Both WM and SMZL are included among the least reproducible diagnoses of the WHO classification when the diagnosis is based only on clinical grounds, routine laboratory tests and bone marrow biopsy (absence of lymph node or spleen biopsy or typical leukemic picture). CD138 expression is observed in myeloma plasma cells but also in NHL with plasmacytic differentiation such as WM.

***Aim*:** To evaluate whether CD138 is expressed WM and SMZL and secondly if its expression may help in the differential diagnosis of these entities.

***Patients and methods*:** 72 patients at presentation were studied, 47 with WM, 3 with IgM-MGUS and 22 with SMZL. Among WM patients, 18 were females and 29 males with a median age of 65 years. 60% presented anemia with hemoglobin<12gr/lt, 12,5% lymphathenopathy and 5% splenomegaly; 62% required treatment. Among SMZL patients, there were 9 females and 13 males (median age 61 years). 70% presented anemia, 9% lymphathenopathy and all splenomegaly; all received therapy. In all WM and SMZL patients bone marrow was infiltrated by neoplastic cells that were CD5 positive in 30% vs 0% and CD38 positive in 59% vs 6% of WM and SMZL patients respectively. By definition, WM patients had a monoclonal serum IgM paraprotein (median 2505mg/dl) while 19% of SMZL patients secreted a serum monoclonal paraprotein, either IgM or IgG. Paraffin embedded sections of bone marrow biopsies performed at diagnosis, were stained with anti-CD138 monoclonal antibody, CD138 expression was evaluated in the bone marrow of all patients and comparison between the two patients' groups was made. 10% CD 138 expression in bone marrow neoplastic cells was used as cut-off for the evaluation of positive or negative cases. Intensity of CD138 expression was scored from 1 (low) to 3 (high). Median follow-up of the whole series was 62 months.

***Results*:** 60% of WM patients presented CD138 expression in contrast with 18% of SMZL patients. Intermediate or high CD138 expression was observed in 47% of WM patients while it was low in all SMZL patients. Differences between WM and SMZL with regard to CD138 expression and its intensity were both significant (p= 0.00028 and 0.00021 respectively). Difference was also significant with regard to the percentage of cells expressing CD138 in both groups (p=0.0008). CD138 expression was strongly related to serum IgM levels in WM patients (p=0.0006).

***Conclusions*:** Patients with WM presented increased CD138 expression when compared to SMZL patients. If confirmed in larger series, CD138 expression could help differentiating the two entities.