MP4 MICROCYTOSIS IN PERNICIOUS ANEMIA WITHOUT IRON DEFICIENCY OR THALASSEMIA TRAIT

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Purpose of Study To demonstrate the presence and attributes of microcytes in Pernicious Anemia (PA) patients with high Red blood cell (RBC) distribution widths (RDW), but without iron deficiency or thalassemia trait. Marked macrocytosis is typical of PA, but their RDW are usually elevated (>21%).

Methods Used Cases and Methods We report two patients with severe anemia, B₁₂ deficiency, and elevated RDW's.

Patient 1: 55 y/o African-American man, with dyspnea, finger paresthesias without gait disturbance. WBC 2.4 K/uL, Hb 4.8 g/dL, MCV 84.8 fL, RDW 30%, reticulocyte count 15 K/uL, iron 234 µg/dL, ferritin 880 ng/dL, platelets 70 K/uL, LDH 5980 U/L, B₁₂ <30 pg/mL.

Patient 2: 37 y/o African-American woman with long hx of anemia, recent weakness, and gait disturbance. WBC 3.5, Hb 6.3, MCV 114, RDW 29.5%, reticulocyte count 27, iron 108, TIBC 304 mg/dL, ferritin 50, platelets 45, LDH 2484, B₁₂ 60.

Both patients' hematologic parameters normalized within 1–7 months after B₁₂ treatment.

Summary of Results Microcytes constituted 32.8% of 1000 RBC in patient 1, whose MCV was normal, and 19.3% in patient 2. They were minute, irregular or twisted cells, often with two very unequal dimensions. They were often normochromic, or even hypochromic. Twenty of the small cells were measured, and their smallest dimension ranged from 2–4 microns, with an average of 3.0 microns. The larger dimension averaged 1.5–2.0 times greater than the smaller. The larger cells were circular or elliptical, with equal dimensions ranging from 6.2 to 13 microns.

Conclusions Although the coexistence of macrocytic and normocytic RBC may help to explain PA patients' high RDW, a significant percentage of their RBC may be microcytic. These microcytes are smaller than those in iron deficiency or thalassemia, have very irregular shapes (micro-poikilocytes), and resemble neither other types of microcytes nor schistocytes. The microcytes in one patient reduced his MCV to a normal level. These microcytes may be the result of megaloblastic dyserythropoiesis.