CLINICAL VIGNETTE

Localized Amyloidosis as Presentation of Light Chain Multiple Myeloma

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A 78-year-old female was first evaluated for secondary erythrocytosis 3 year prior. She now presents with an episode of bloody diarrhea and iron deficiency anemia. Upper endoscopy was unremarkable but colonoscopy showed an ulcered mass in the sigmoid colon. Biopsy of the mass showed submucosal deposition of amyloidosis with positive staining on Congo red as well as with Alician blue. No dysplasia or malignancy was identified on biopsy.

Positron emission tomography with computerized tomography showed increased activity in the area of sigmoid colon mass and no other lesions. There were no lytic or blastic bone lesions. She underwent sigmoid colon resection. There was single 2.3 cm polypoid hyperplastic mass with some ulceration and granulation with submucosal amyloid deposition. The remainder of the resected colon was normal and two lymph nodes were also normal without dysplasia, malignancy or amyloid. Amyloid was present in the submucosa and lamina propria and was associated with vessels in the mass. There was apple green birefringence on congo red staining. Immuno histochemical studies were positive for Amyloid P (Primary) and negative for Amyloid A. On CD138 staining, scattered plasma cells were highlighted without evidence of clonality. Pathology was reviewed at the Mayo clinic and they agreed with above and also performed Liquid chromatography and tandem mass spectrometry (with laser microdissection) which showed amyloid to be AL (kappa) type. This very specific and sensitive test identifies the type of amyloid deposition.

No monoclonal protein was seen on serum and urine electrophoresis. Serum kappa light chain was elevated at 95.80 mg/dL(H) with Lambda light chain 1.42mg/dL and kappa lambda ratio at 67.46(H). Repeat levels were higher with Kappa 129, Lambda 0.92, K/L 140.22. 24 hours urine collection showed no increased light chain and no proteinuria. Beta 2 microglobulin was elevated and sedimentation rate was also mildly increased. Bone marrow biopsy showed increased kappa restricted plasma cells at 35% in hyper cellular marrow with erythroid hyperplasia and decreased iron stores. No amyloid deposition was seen in bone marrow. Plasma cells were positive for CD38, CD138 and CD56 dim as well as cytoplasmic kappa chain. Cytogenetics showed translocation 6:13 in 2/ 21 cells with rest being normal. FISH showed del 13q - monosomy 13, t 11:14 with normal IgH. Bone marrow biopsy was repeated at Mayo clinic and showed monoclonal plasma cells increased to 50-60% and otherwise similar findings. The diagnosis of kappa restricted multiple myeloma was confirmed.

Amyloidosis is a systemic disorder with extracellular deposition of fibrils of low molecular weight subunits of protein. X Ray diffraction demonstrates deposition in antiparallel beta pleasted sheets. Amyloidosis appears pink, amorphous and waxy under hematoxylin and eosin statins. AL Amyloidosis or primary amyloidosis is most often made of fibrils of monoclonal immunoglobulin chains (Lambda more often than Kappa) and is usually associated with plasma cell dyscrasia (MGUS, Multiple Myeloma or Waldenstrom Macroglobulemia). Only certain fragments of light chain deposition, with certain amino acid associated sequences and subgroups usually lacking a portion of constant region form this type of amyloidosis. Only this type of systemic amyloidosis responds to treatment of plasma cell dyscrasia.[1,2]

Amyloidosis usually affects multiple organs, but was not found on detailed evaluation. This concluded renal screening with 24 hour urine for creatinine and albumin ratio .Cardiac evaluation performed with Echo, EKG, Troponin T and NT-pro BNP; normal liver enzymes and normal appearing liver on cross sectional imaging. Coagulation evaluated with PT, PTT and if warranted Factor X level. Neurological symptoms from neuropathy of sensory, motor or autonomic nerves may be confirmed by studies if warranted. Skin, mucosa (gingival, buccal etc), tongue (macroglossia) or other muscle amyloid deposition need thorough evaluation before labeling patient as localized amyloidosis as prognosis is very different.[1,2]

Localized amyloidosis from monoclonal light chain has been described in the tracheobronchial tree, urinary tract and skin but not associated with myeloma.[3,4] One series reported 3 cases of localized amyloidosis of the colon presenting with rectal bleeding followed for 4.5 to 20 years without associated multiple myeloma. Other patients that presented with rectal bleeding and evidence of amyloid of colon had systemic amyloidosis and required treatment.[4] Localized AL amyloidosis seems to carry good prognosis without progression to systemic amyloidosis. Local resection if warranted is adequate management. Another series of 606 patients found 15% with localized AL amyloidosis that did not progress on median follow up 64 months.[5] A third series of 16 patients with localized gastrointestinal amyloidosis were followed over 36 months (Range 1-143 months) with no progression.[6]

Our case had localized kappa restricted AL amyloidosis of colon where resection of sigmoid colon could have been adequate. However, additional evaluation identified kappa restricted multiple myeloma.

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