Amyloidosis of the colon mimicking an acute ulcerative colitis flare: A case report

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Summary

The 2 most common types of amyloidosis are light chain (AL) that is associated with plasma cell dyscrasias and reactive (AA) that is associated with chronic inflammatory conditions. We report a 65-year-old man who presented with recurrent bloody diarrhea and anorexia that had been misdiagnosed as an ulcerative colitis (UC). Colonoscopy and detailed physical examination revealed features suspicious for amyloidosis. Bone marrow aspiration showed multiple myeloma and AL amyloidosis. This case demonstrates the importance of generating a broad differential and the pivotal role of physical examination and endoscopic findings in diagnosing uncommon diseases.

Keywords: Ulcerative colitis, amyloidosis, reactive amyloidosis, light chain amyloidosis.

I. BACKGROUND

Amyloidosis is a rare disorder that is caused by the extracellular deposition of abnormal protein fibrils in various organs and tissues. There are 6 types of amyloidosis: primary, secondary, hemodialysis-related, hereditary, senile, and localized[1]. The two most common forms of amyloidosis are light chain amyloidosis (AL) associated with multiple myeloma and reactive amyloidosis (AA) associated with rheumatois athritis, inflammation bowel diseases and chronic infection[2].

II. CASE PRESENTATION

A 65-year-old man presented with recurrent bloody diarrhea for a few months, painful mouth, anorexia and weight loss 5 kilogrammes per month. He was admitted to Institue of Gastroenterology and Hepatology, 108 Military Central Hospital. His medical history was no significant except COVID-19. Laboratory tests showed mild anemia of 126g/L, low serum protein and low serum albumin (50g/l and 31g/l), but no hypercalcemia and no renal dysfunction were present. Colonoscopy and pathology finding were chronic colitis and PCR positive for CMV. He had the initial diagnosis of UC complicated by Cytomegalovirus infection. The mesalazine and ganciclovir was started and he was discharged home with an oral regimen.

The patient, however, came back two months later without any clinical success. He complained more anorexia, mouth painful and fullness, bilateral hands tingling and paresthesia. Detail physical examination was notable for macroglossia and oral tongue ulcer (Figure 1), bilateral carpal tunnel syndrome which were highly suggestive of systemic amyloidosis. Abdominal and pelvic computed tomography showed mild acites, dilation of hepatic vein and bowel colon thickenning. Colonoscopy was performed to assess the severity of the disease and exclude infectious etiologies such as Cytomegalovirus and *Clostridioides difficile*. Mild inflammation was found along the colon. Multiple biopsies were taken from these sites. On withdrawal of the scope, friable mucosa with submucosal

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hemorrhage and blueish blebs were noted in the distal transverse colon to the rectum (Figure 2). These findings were suspicious for amyloidosis, and further workup was initiated. Bone marrow aspiration showed 39% of plasmocyte that suggested multiple myeloma. Serum immunoelectrophoresis showed *The Lambda light chain*. For detail, serum protein electrophoresis showed total protein of 46g/L, albumin of 29.95g/L, alpha1-globulin electrophoresis of 2.62g/L, alpha2-globulin electrophoresis of 6.9g/L, beta1-globulin electrophoresis of 2.67g/L, beta2-globulin electrophoresis of 1.38g/L gamma-globulin electrophoresis of 2.48g/L, and M-protein serum level of 68.5mg/dL. Immunofixation showed IgG-lamda monoclonal gammopathy. The free lambda light chain level was 491mg/L with k/l ratio of 0.009 Immunoglobulin levels were IgG of 178.6mg/dL, IgA of 6.6mg/dL, and IgM of 26.4mg/dL. Re-examination of previous colonoscopy biopsies were positive for amyloidosis that also confirmed this diagnosis (Figure 3). The dilation of hepatic vein in CT-scanner and proteinurea of 3.6 gram/24h suspected cardiomyopathy and neuropathy amyloidosis (Figure 4).

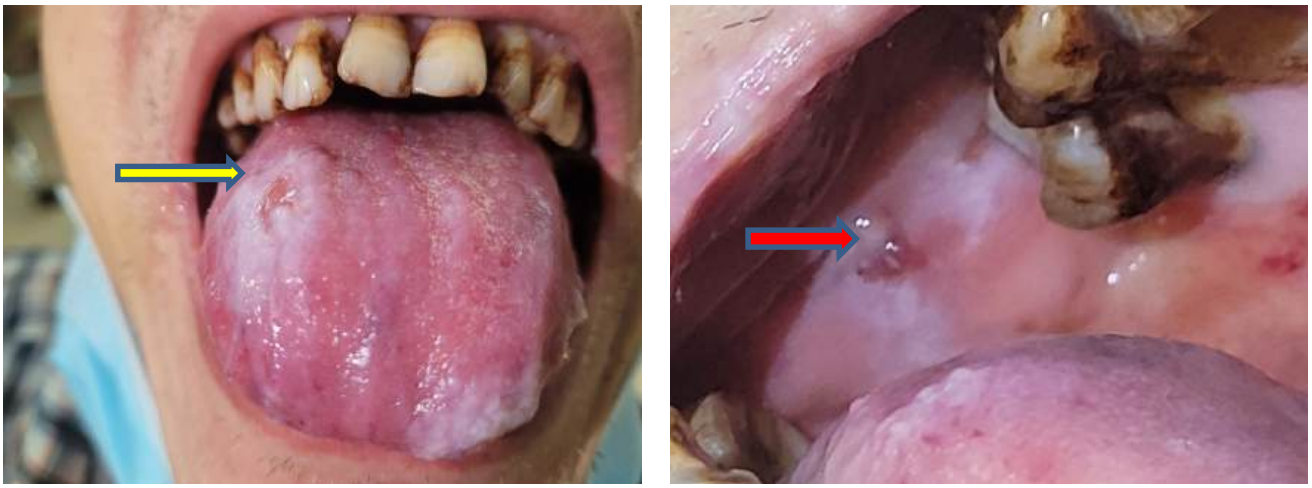

Figure 1. Macroglossia, a sign of amyloidosis (yeallow arrow) that caused oral/tonge ulcer (red arrow)

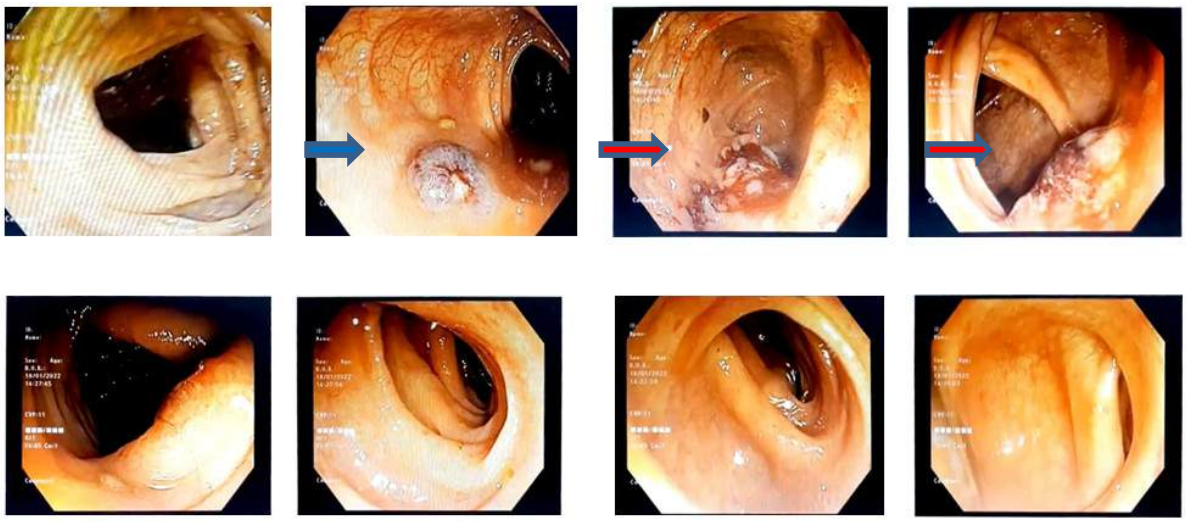

Figure 2. Friable mucosa with submucosal hemorrhage (red arrow) and bluish blebs (blue arrow) along the colon

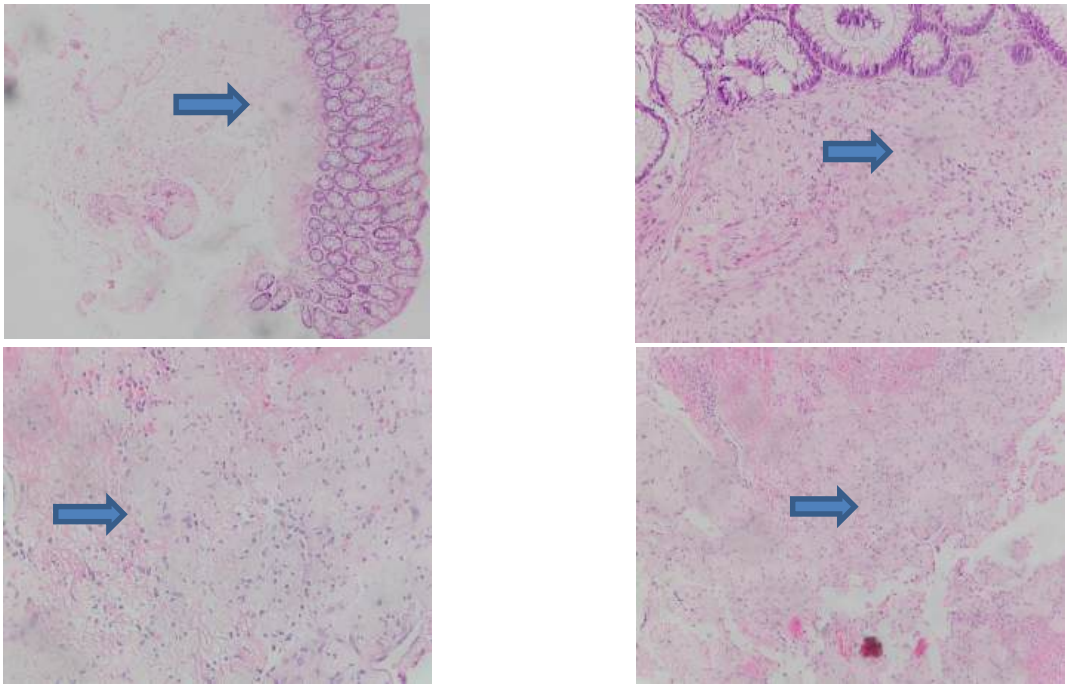

Figure 3. Colonic biopsy showed deposition of amyloid in submucosa (blue arrow)

Figure 4. CT scanner showed dilation hepatic vein (yeallow arrow) and mild acites (red arrow)

Result: Mesalazine were stopped, and chemotherapy was initiated. After two cycles on chemotherapy bortezomib, thalidomide, dexamethason and bortezomib, mephalan, prednisolon, lenalidomide, the symptoms of intestinal amyloidosis improved but the cardiac amyloidosis deteriorated. He died of heart failure approximately 10 months after the diagnosis of AL amyloidosis.

III. DISCUSSION

Amyloidosis is a rare disorder. One epidemiologic study reported incidence densities of 6.13 per million person-years for AL amyloidosis and 1.21 per million person-years for AA amyloidosis. Depending on the type of amyloidosis, GI tract involvement varies. The GI tract is affected in approximately 60% of patients with AA amyloidosis, but less common in patients with AL amyloidosis, with only 8% of patients[6]. AA amyloidosis is typically associated with chronic inflammatory states such as IBD. Among patients with IBD, patients who have Crohn's disease are more predisposed than those who have UC. The incidence of AA amyloidosis in Crohn's disease is approximately 0.9% and 0.07% with UC[7].

There have been a couple of case reports that describe AL amyloidosis mimicking an UC flare-up. Casad and Bocian described a patient with a medical history of chronic lung fibrosis in the

setting of possible UC flare[3]. While attempting to find the etiology of his chronic lung fibrosis, the clinicians were able to diagnose AL amyloidosis. Rahman et al. presented a case in which heart failure symptoms led to the discovery of AL amyloidosis in the setting of suspected UC flare[4]. Janczewska et al. published a case about a patient with UC with a history of chest pain and liver function test abnormalities[5]. These symptoms and laboratory anomalies led to an extensive workup, and AL amyloidosis was identified. All of these cases described patients who had other organs abnormalities that provided clues for the diagnosis of amyloidosis. Our case had not only intestinal symptoms but also symptoms of cardiomyopathy and nephropathy. And the manifestation of gastrointestinal tract was the initial symtoms.

For AL amyloidosis, amyloid mainly deposits in the submucosal layer and muscular layer[8, 9]. On the other hand, AA amyloidosis deposits more frequently in the lamina propria mucosa and submucosal layer[8, 9]. Because of these differences, polypoid protrusions and thickening of valvulae conniventes are more common in AL amyloidosis, whereas fine granular appearance, mucosal friability, and erosions are more common in AA amyloidosis[9]. Other colonoscopy findings for AL amyloidosis have been described such as multiple bullous hemorrhagic lesions, submucosal hematomas, and submucosal hemorrhages[2, 10]. Our patient's colonoscopy had friable mucosa with submucosal hemorrhage and blueish blebs. These findings had some differential diagnosis but not limited to Blue-Bleb-Nervous Syndrome, Kaposi Sarcoma, Hemangioma. However our patients had the symptoms macroglossia and bilateral carpal tunnel syndrome that highly suspective amyloidosis, and thus, extensive workup was initiated.

IV. CONCLUSION

This case emphasizes the importance role of detail physical examination and endoscopy with biopsy in diagnosing rare diseases. Our patient had AL amyloidosis rather than AA amyloidosis, as most would expect, in the setting of UC. His diagnosis of multiple myeloma was made in an unusual fashion from physical examination that prompted a further workup.

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