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Clinical management of gastrointestinal amyloidosis

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ABSTRACT

Amyloidosis is characterized by extracellular deposition of abnormal protein, consisting of primary, secondary, hemodialysis-related, hereditary, senile and localized type. Primary amyloidosis is associated with monoclonal light chains. Secondary amyloidosis is associated with inflammatory, infectious, and neoplastic diseases. Amyloid deposition in the gastrointestinal tract can manifest the symptoms including diarrhea, steatorrhea, or constipation. For diagnosis, one should obtain an immunofixation of serum or urine as well as biopsy sampling of gastrointestinal mucosa stained specifically. While most gastrointestinal complications are managed symptomatically, treatment depends upon the type of amyloidosis. Causal therapy is reserved for a select few from various subtypes of this disorder.

KEYWORDS

Gastrointestinal Amyloidosis; Secondary Amyloidosis; Epidermolysis Bullosa; Colchicine

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References

- [1] Stermark, P. (2005) Aspects on human amyloid forms and their fibril polypeptides. *FEBS Journal*, 272, 5942-5949. doi:10.1111/j.1742-4658.2005.05024.x
- [2] Glenner, G.G. (1980) Amyloid deposits and amyloidosis. The β -fibrilloses. *New England Journal of Medicine*, 302, 1283-1292. doi: 10.1056/NEJM198006053022305
- [3] Petre, S., Shah, I.A. and Gilani, N. (2008) Review article: Gastrointestinal amyloidosis-clinical features, diagnosis and therapy. *Alimentary Pharmacology & Therapeutics*, 27, 1006-1016. doi:10.1111/j.1365-2036.2008.03682.x
- [4] Kyle, R.A. and Gertz, M.A. (1995) Primary systemic amyloidosis: Clinical and laboratory features in 474 cases. *Seminars in Hematology*, 32, 45-59.
- [5] Gillmore, J.D., Lovat, L.B. and Hawkins, P.N. (1999) Amyloidosis and the liver. *Journal of Hepatology*, 30, 17- 33.
- [6] Ebert, E.C. and Nagar, M. (2008) Gastrointestinal manifestations of amyloidosis. *American Journal of Gastro-enterology*, 103, 776-787. doi:10.1111/j.1572-0241.2007.01669.x
- [7] Kuang, L., Sun, W., Gibson, M.F., et al. (2003) Gastro-intestinal amyloidosis with ulceration, hemorrhage, small bowel diverticula, and perforation. *Digestive Diseases and Sciences*, 48, 2023-2026. doi:10.1023/A:1026190809074
- [8] Gertz, M.A., Lacy, M.Q. and Dispenzieri, A. (1999) Amyloidosis. *Hematology/Oncology Clinics of North America*, 13, 1211-1233. doi:10.1016/S0889-8588(05)70122-2
- [9] Browning, M.J., Banks, R.A., Tribe, C.R., et al. (1985) Ten years experience in an amyloid clinic: A clinicopathologic survey. *Oxford Journals Medicine*, 54, 213-227.

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- [10] Gertz, M.A. and Kyle, R.A. (1991) Secondary systemic amyloidosis: Response and survival in 64 patients. *Medicine*, 70, 246-256.
- [11] Tiitinen, S., Kaarela, K., Helin, H., et al. (1993) Amyloidosis—Incidence and early risk factors in patients with rheumatoid arthritis. *Scandinavian Journal of Rheumatology*, 22, 158-161. doi:10.3109/03009749309099264
- [12] Kobayashi, H., Tada, S., Fuchigami, T., et al. (1996) Secondary amyloidosis in patients with rheumatoid arthritis: Diagnostic and prognostic value of gastroduodenal biopsy. *British Journal of Rheumatology*, 35, 44-49. doi:10.1093/rheumatology/35.1.44
- [13] Suzuki, A., Ohosone, Y., Obana, M., et al. (1994) Cause of death in 81 autopsied patients with rheumatoid arthritis. *The Journal of Rheumatology*, 21, 33-36.
- [14] Kuroda, T., Tanabe, N., Sakatsume, M., et al. (2002) Comparison of gastroduodenal, renal and abdominal fat biopsies for diagnosing amyloidosis in rheumatoid arthritis. *Clinical Rheumatology*, 21, 123-128. doi:10.1007/PL00011217
- [15] Overstreet, K., Barone, R.M. and Robin, H.S. (2003) Secondary amyloidosis and gastrointestinal stromal tumors. A case report and discussion of pathogenesis. *Archives of Pathology & Laboratory Medicine*, 127, 470- 473.
- [16] Hosaka, N., Ito, M., Taki, Y., et al. (2003) Amyloid A gastrointestinal amyloidosis associated with idiopathic retroperitoneal fibrosis. Report of a rare autopsy case and review of the literature. *Archives of Pathology & Laboratory Medicine*, 127, 735-738.
- [17] Friedman, S. and Janowitz, H. (1998) Systemic amyloidosis and the gastrointestinal tract. *Gastroenterology Clinics of North America*, 27, 595-614. doi:10.1016/S0889-8553(05)70022-4
- [18] Floege, J. and Ketteler, M. (2001) Beta2-microglobulin-derived amyloidosis: An update. *Kidney International*, 78, S164-S171. doi:10.1046/j.1523-1755.2001.07823.x
- [19] Rocken, C., Saeger, W. and Linke, R.P. (1994) Gastroin- testinal amyloid deposits in old age. Report on 110 consecutive autopsical patients and 98 retrospective bioptic specimens. *Pathology-Research and Practice*, 190, 641- 649.
- [20] Gertz, M.A. and Kyle, R.A. (1997) Hepatic amyloidosis: clinical appraisal in 77 patients. *Hepatology*, 25, 118-121. doi:10.1002/hep.510250122
- [21] Jacobs, P., Sellars, S. and King, H.S. (1988) Massive macroglossia, amyloidosis and myeloma. *Journal of Post-graduate Medicine*, 64, 696-698. doi:10.1136/pgmj.64.755.696
- [22] Pereira, C.M., Gasparetto, P.F., Correa, M.E., et al. (2005) Primary oral and perioral amyloidosis associated with multiple myeloma. *General Dentistry*, 53, 340-341.
- [23] Gogel, H.K., Searles, R.P., Volpicelli, N.A., et al. (1983) Primary amyloidosis presenting as Sjogren' s syndrome. *Archives of Internal Medicine*, 143, 2325-2326. doi:10.1001/archinte.1983.00350120123027
- [24] Cowan, A.J., Skinner, M., Seldin, D.C., et al. (2012) Amyloidosis of the gastrointestinal tract: A 13-year single center referral experience. *Haematologica*, in press. doi:10.3324/haematol.2012.068155
- [25] Heitzman, E.J., Heitzman, G.C. and Elliott, C.F. (1962) Primary esophageal amyloidosis. *Archives of Internal Medicine*, 109, 595-600. doi:10.1001/archinte.1962.03620170093015
- [26] Rubinow, A., Burakoff, R., Cohen, A.S., et al. (1983) Esophageal manometry in systemic amyloidosis. A study of 30 patients. *American Journal of Medicine*, 75, 951-956. doi:10.1016/0002-9343(83)90874-4
- [27] Suris, X., Moya, F., Panes, J., et al. (1993) Achalasia of the esophagus in secondary amyloidosis. *American Journal of Gastroenterology*, 88, 1959-1960.
- [28] Battle, W.M., Rubin, M.R., Cohen, S., et al. (1979) Gas-trointestinal motility dysfunction in amyloidosis. *New England Journal of Medicine*, 301, 24-25. doi:10.1056/NEJM197907053010105
- [29] Briggs, G.W. (1961) Amyloidosis. *Annals of Internal Medicine*, 55, 943-957.
- [30] Menke, D.M., Kyle, R.A., Fleming, R., et al. (1993) Symptomatic gastric amyloidosis in patients with primary systemic amyloidosis. *Mayo Clinic Proceedings*, 68, 763-767.
- [31] Bjornsson, S., Johannsson, J.H. and Sigurjonsson, F. (1987) Localized primary amyloidosis of the

- [32] Lau, C.F., Fok, K.O., Hui, P.K., et al. (1999) Intestinal obstruction and gastrointestinal bleeding due to systemic amyloidosis in a woman with occult plasma cell dyscrasia. *European Journal of Gastroenterology and Hepatology*, 11, 681-685. doi:10.1097/00042737-199906000-00017
- [33] Iijima-Dohi, N., Shinji, A., Shimizu, T., et al. (2004) Recurrent gastric hemorrhaging with large submucosal hematomas in a patient with primary AL systemic amyloidosis: Endoscopic and histopathological findings. *Internal Medicine*, 43, 468-472.
- [34] Walley, V.M. (1986) Amyloid deposition in a gastric arteriovenous malformation. *Archives of Pathology and Laboratory Medicine*, 110, 69-71.
- [35] Chang, H.S., Myung, S.J., Yang, S.K., et al. (2004) Massive small bowel bleeding in a patient with amyloidosis. *Gastrointestinal Endoscopy*, 59, 126-129. doi:10.1016/S0016-5107(03)02352-6
- [36] MacManus, Q. and Okies, J.E. (1978) Amyloidosis of the stomach: Report of an unusual case and review of the literature. *American Journal of Surgery*, 42, 607-610.
- [37] Reddy, A.B., Wright, R.A., Wheeler, G.E., et al. (1983) Nonobstructive gastroparesis in amyloidosis improved with metoclopramide. *Archives of Internal Medicine*, 143, 247-248. doi:10.1001/archinte.1983.00350020069014
- [38] Legge, D.A., Carlson, H.C. and Wollaeger, E.E. (1970) Roentgenologic appearance of systemic amyloidosis involving the gastrointestinal tract. *American Journal of Roentgenology*, 110, 406-412.
- [39] French, J.M., Gall, G., Parish, D.J., et al. (1965) Peripheral and autonomic nerve involvement in primary amyloidosis associated with uncontrollable diarrhea and steatorrhea. *American Journal of Medicine*, 39, 277-284. doi:10.1016/0002-9343(65)90052-5
- [40] Jeong, Y.S., Jun, J.B., Kim, T.H., et al. (2000) Successful treatment of protein-losing enteropathy due to AA amyloidosis with somatostatin analogue and high dose steroid in ankylosing spondylitis. *Clinical and Experimental Rheumatology*, 18, 619-621.
- [41] Kuan, L., Sun, W., Gibson, M.F., et al. (2003) Gastrointestinal amyloidosis with ulceration, hemorrhage, small bowel diverticula, and perforation. *Digestive Diseases and Sciences*, 48, 2023-2026. doi:10.1023/A:1026190809074
- [42] Choi, H.S., Heller, D., Picken, M.M., et al. (1989) Infarction of intestine with massive amyloid deposition in two patients on long-term hemodialysis. *Gastroenterology*, 96, 230-234.
- [43] Pearson, D.C., Price, L.M. and Urbanski, S. (1996) Pneumatosis cystoides intestinalis: An unusual complication of systemic amyloidosis. *Journal of Clinical Gastroenterology*, 22, 74-76. doi:10.1097/00004836-199601000-00022
- [44] Herskovic, T., Bartholomew, L.G. and Green, P.A. (1964) Amyloidosis and malabsorption syndrome. *Archives of Internal Medicine*, 114, 629-633. doi:10.1001/archinte.1964.03860110099009
- [45] Vernon, S.E. (1982) Amyloid colitis. *Diseases of the Colon and Rectum*, 25, 728-730. doi:10.1007/BF02629550
- [46] Chen, J.H., Lai, S.J., Tsai, P.P., et al. (2002) Localized amyloidosis mimicking carcinoma of the colon. *American Journal of Roentgenology*, 179, 536-537.
- [47] Biggers, J.A., Remmers, A.R., Lindley, J.D., et al. (1975) Femoral neuropathy and ischemic colitis associated with amyloidosis in hemodialysis patients. *Annals of Surgery*, 182, 161-162. doi:10.1097/00000658-197508000-00014
- [48] Garcia-Gonzalez, R., Fernandez, F.A., Garijo, M.F., et al. (1998) Amyloidosis of the rectum mimicking collagenous colitis. *Pathology-Research and Practice*, 194, 731-735. doi:10.1016/S0344-0338(98)80134-9
- [49] Kumar, S.S., Appavu, S.S., Abcarian, H., et al. (1983) Amyloidosis of the colon. Report of a case and review of the literature. *Diseases of the Colon and Rectum*, 26, 541-544. doi:10.1007/BF02563751
- [50] Fraser, A.G., Arthur, J.F. and Hamilton, I. (1991) Intestinal pseudoobstruction secondary to amyloidosis responsive to cisapride. *Digestive Diseases and Sciences*, 36, 532-535. doi:10.1007/BF01298889

- [51] Rives, S., Pera, M., Rosinol, L., et al. (2002) Primary systemic amyloidosis presenting as a colonic stricture: Successful treatment with left hemicolectomy followed by autologous hematopoietic stem-cell transplantation. *Diseases of the Colon and Rectum*, 45, 1263-1266. doi:10.1007/s10350-004-6403-x
- [52] Gonzalez-Sanchez, J.A., Molinero, R.M., Sayans, J.D., et al. (1989) Colonic perforation by amyloidosis. Report of a case. *Diseases of the Colon and Rectum*, 32, 437-440. doi:10.1007/BF02563700
- [53] Buck, F.S. and Koss, M.N. (1991) Hepatic amyloidosis: Morphologic differences between systemic AL and AA types. *Human Pathology*, 22, 904-907. doi:10.1016/0046-8177(91)90180-W
- [54] Levy, M., Polliack, A., Lender, M., et al. (1974) The liver in amyloidosis. *Digestion*, 10, 40-51. doi:10.1159/000197521
- [55] Kim, S.H., Han, J.K., Lee, K.H., et al. (2003) Abdominal amyloidosis: Spectrum of radiological findings. *Clinical Radiology*, 58, 610-620. doi:10.1016/S0009-9260(03)00142-9
- [56] Takahashi, T., Miura, H., Matsuura, Y., et al. (2005) Urine cytology of localized primary amyloidosis of the ureter: A case report. *Acta Cytologica*, 49, 319-322. doi:10.1159/000326156
- [57] Braunstein, J.M., Aman, A. and Warman, J. (2007) Colonic amyloidosis. *Clinical Gastroenterology and Hepatology*, 5, A30.
- [58] Smith, T.R. and Cho, K.C. (1986) Small intestine amyloidosis producing a stippled punctuate mucosal pattern: Radiological-pathological correlation. *American Journal of Gastroenterology*, 81, 477-479.
- [59] Pandarinath, G.S., Levine, S.M., Sorokin, J.J., et al. (1978) Selective massive amyloidosis of the small intestine mimicking multiple tumors. *Radiology*, 129, 609-610.
- [60] Tada, S., Iida, M., Fuchigami, T., et al. (1990) Barium meal study for amyloidosis of the small intestine: Measurements on radiograph. *Gastrointestinal Radiology*, 15, 320-324. doi:10.1007/BF01888809
- [61] Tada, S., Iida, M., Iwashita, A., et al. (1990) Endoscopic and biopsy findings of the upper digestive tract in patients with amyloidosis. *Gastrointestinal Endoscopy*, 36, 10-14. doi:10.1016/S0016-5107(90)70913-3
- [62] Lovat, L.B., Persey, M.R., Madhoo, S., et al. (1988) The liver in systemic amyloidosis: Insights from 123I serum amyloid P component scintigraphy in 484 patients. *Gut*, 42, 727-734. doi:10.1136/gut.42.5.727
- [63] Hazenberg, B.P.C., van Rijswijk, M.H., Piers, A., et al. (2006) Diagnostic performance of 123I-labeled serum amyloid P component scintigraphy in patients with amyloidosis. *American Journal of Medicine*, 119, E15-E24. doi:10.1016/j.amjmed.2005.08.043
- [64] Ohta, H., Kokuryu, H., Ota, T., et al. (1997) CT, MR imaging and radionuclide imaging in a patient with hepatic involvement in primary amyloidosis. *Clinical Nuclear Medicine*, 22, 778-780. doi:10.1097/00003072-199711000-00012
- [65] Rajkumar, S.V. and Gertz, M.A. (2007) Advances in the treatment of amyloidosis. *New England Journal of Medicine*, 356, 2413-2415. doi:10.1056/NEJMe078027
- [66] Gertz, M.A., Lacy, M.Q., Dispenzieri, A., et al. (2002) Stem cell transplantation for the management of primary systemic amyloidosis. *American Journal of Medicine*, 113, 549-555. doi:10.1016/S0002-9343(02)01208-1
- [67] Inoue, D., Arima, H., Kawanami, C., et al. (2010) Excellent therapeutic effect of tocilizumab on intestinal amyloid a deposition secondary to active rheumatoid arthritis. *Clinical Rheumatology*, 29, 1195-1197. doi:10.1007/s10067-010-1422-6
- [68] Perry, M.E., Stirling, A. and Hunter, J.A. (2007) Effect of etanercept on serum amyloid A protein (SAA) levels in patients with AA amyloidosis complicating inflammatory arthritis. *Clinical Rheumatology*, 27, 923-925. doi:10.1007/s10067-008-0875-3
- [69] Bodin, K., Ellmerich, S., Kahan, M.C., et al. (2010) Antibodies to human serum amyloid P component eliminate visceral amyloid deposits. *Nature*, 468, 93-97. doi:10.1038/nature09494
- [70] Gillmore, J.D., Tennent, G.A., Hutchinson, W.L., et al. (2010) Sustained pharmacological depletion of serum amyloid P component in patients with systemic amyloidosis. *British Journal of Haematology*, 148, 760-767. doi:10.1111/j.1365-2141.2009.08036.x

- [71] Sunga, M.N., Reyes, C.V., Zvetina, J., et al. (1989) Resolution of secondary amyloidosis 14 years after adequate chemotherapy for skeletal tuberculosis. *Southern Medical Journal*, 82, 92-93. doi: 10.1097/00007611-198901000-00024
- [72] Gillmore, J.D., Lovat, L.B., Persey, M.R., et al. (2001) Amyloid load and clinical outcome in AA amyloidosis in relation to circulating concentration of serum amyloid A protein. *Lancet*, 358, 24-29. doi: 10.1016/S0140-6736(00)05252-1
- [73] Fernandez-Nebro, A., Tomero, E., Ortiz-Santamaria, V., et al. (2005) Treatment of rheumatic inflammatory disease in 25 patients with secondary amyloidosis using tumor necrosis factor alpha antagonists. *American Journal of Medicine*, 118, 552-556. doi: 10.1016/j.amjmed.2005.01.028
- [74] Bhat, A., Naguwa, S.M., Cheema, G.S., et al. (2009) Colchicine revisited. *Annals of the New York Academy of Sciences*, 1173, 766-773. doi: 10.1111/j.1749-6632.2009.04674.x
- [75] Livneh, A., Zemer, D., Langevitz, P., et al. (1993) Colchicine in the treatment of AA and AL amyloidosis. *Seminars in Arthritis and Rheumatism*, 23, 206-214. doi: 10.1016/S0049-0172(05)80042-3
- [76] Meyers, S., Janowitz, H.D., Gumaste, V.V., et al. (1988) Colchicine therapy of the renal amyloidosis of ulcerative colitis. *Gastroenterology*, 94, 1503-1507.
- [77] Kagan, A., Huszar, M., Frumkin, A., et al. (1999) Reversal of nephrotic syndrome due to AA amyloidosis in psoriatic patients on long-term colchicine treatment. Case report and review of the literature. *Nephron*, 82, 348-353. doi: 10.1159/000045450
- [78] Kaneko, K., Someya, T., Ohtaki, R., et al. (2003) Colchicine therapy in amyloid nephropathy due to recessive dystrophic epidermolysis bullosa. *Pediatric Nephrology*, 18, 1311-1312. doi: 10.1007/s00467-003-1310-2
- [79] Chen, C.C., Isomoto, H. and Hayashi, T. (2012) Gastro-intestinal amyloidosis secondary to inherited skin disorder. *Gastroenterology*, 142, e9-e10. doi: 10.1053/j.gastro.2011.08.052
- [80] Reddy, A.B., Wright, R.A., Wheeler, G.E., et al. (1983) Nonobstructive gastroparesis in amyloidosis improved with metoclopramide. *Archives of Internal Medicine*, 143, 247-248. doi: 10.1001/archinte.1983.00350020069014
- [81] Gil, R., Debiais, F., Lefevre, F.P., et al. (1984) Amyloidosis with gastroparesis. Improvement with domperidone. *Presse Médicale*, 13, 564.
- [82] Ponc, R.J., Saunders, M.D. and Kimmey, M.B. (1999) Neostigmine for the treatment of acute colonic pseudo-obstruction. *New England Journal of Medicine*, 341, 137-141. doi: 10.1056/NEJM199907153410301
- [83] Hayman, S.R., Lacy, M.Q., Kyle, R.A., et al. (2001) Primary systemic amyloidosis: A cause of malabsorption syndrome. *American Journal of Medicine*, 111, 535-540. doi: 10.1016/S0002-9343(01)00919-6
- [84] Poullos, P.D. and Stollman, N. (2003) Gastrointestinal amyloidosis: Approach to treatment. *Current Treatment Options in Gastroenterology*, 6, 17-25. doi: 10.1007/s11938-003-0029-2