Primary AL Amyloidosis Presenting with Macroglossia and Spontaneous Chest Wall Ecchymosis in a Young Male

Aamina Masud[1], Seemab Abid[2], Muhammad Afique[3]

Abstract

Summary: We report the case of a 35-year-old male who presented with progressive macroglossia associated with dysarthria and worsening dyspnea with no accompanying stridor, dysphagia, or features suggestive of acromegaly; however, the patient specifically reported difficulty pronouncing words starting with the letter "R." Clinical examination revealed evidence of both cardiac and pulmonary involvement. Comprehensive investigations were conducted to rule out alternative causes of macroglossia. An abdominal fat pad biopsy demonstrated Congo red positivity with apple-green birefringence under polarized light, confirming the diagnosis of primary AL amyloidosis.[4] The patient was initiated on chemotherapy, stabilized, and subsequently referred to the oncology department for outpatient follow-up.

Keywords: Immunoglobulin Light-chain Amyloidosis, Macroglossia, Ecchymosis.

Introduction

Primary (AL) amyloidosis is a plasma cell disorder resulting from excessive production of monoclonal light chains that misfold and deposit as insoluble amyloid fibrils in various organs, resulting in progressive organ dysfunction[1] The kidneys, heart, and lungs are most commonly affected organs[2] Macroglossia, although rare, is considered a pathognomonic clinical feature of AL amyloidosis[3]

Case Presentation

We report the case of a 35-year-old man, Zahid, a chronic smoker, who presented to the Emergency Department with macroglossia of sudden onset, progressive in nature, accompanied by spontaneous ecchymotic patches over the anterior chest wall. It was associated with difficulty pronouncing words beginning with the letter "R," yet notably, there was no associated stridor, dysphagia, drooling of saliva, or airway compromise. The onset of chest wall ecchymosis occurred simultaneously with the tongue enlargement.

The patient also reported progressive exertional dyspnea corresponding to NYHA Class III, generalized weakness, extreme fatigue, and frothy urine. His past medical history was significant for hypertension and previously diagnosed and operated on bilateral carpal tunnel syndrome. There was no history of trauma, anticoagulant use, or liver disease to explain the ecchymotic lesions.

On examination, there was a diffusely enlarged, non-tender tongue occupying the oral cavity without ulceration or restriction of movement. Multiple ecchymotic patches were noted over the anterior chest wall. Cranial nerve examination was intact. Jugular venous pressure was elevated, and bilateral pitting pedal edema was present. Respiratory examination revealed signs of bilateral pleural effusions. Cardiovascular examination was remarkable for a pansystolic murmur and an audible S3 gallop. Abdominal examination revealed hepatomegaly with ascites. Neurological assessment was unremarkable.

Differential diagnoses considered included primary amyloidosis, acromegaly, congestive cardiac failure, nephrotic syndrome, and hypothyroidism. Baseline laboratory investigations showed 2+ proteinuria, elevated ESR and CRP, and hypoalbuminemia. Brain natriuretic peptide (BNP) levels were raised, indicating cardiac strain. Serum β2-microglobulin was elevated. Serum protein electrophoresis demonstrated a homogeneous monoclonal band in the gamma region, consistent with monoclonal gammopathy, which was further characterized as IgA lambda on immunofixation.

Chest radiography revealed cardiomegaly, while abdominal ultrasonography showed ascites and coarse hepatic echotexture. Echocardiographic findings were consistent with restrictive cardiomyopathy. An abdominal fat pad biopsy demonstrated apple-green birefringence under polarized light on Congo red staining, confirming amyloid deposition. A skin biopsy taken from the right medial scapular region also tested positive for Congo red staining with birefringence.

Bone marrow aspiration revealed increased plasma cells with binucleate forms, suggestive of plasma cell dyscrasia. Bone marrow trephine biopsy showed hypocellular marrow with predominance of plasma cells and megakaryocytes, concluding bone marrow plasmacytosis.

A final diagnosis of primary systemic (AL-type) amyloidosis with multi-organ involvement secondary to plasma cell dyscrasia was established. The patient was initiated on injection cyclophosphamide, bortezomib, and Decadron (dexamethasone) as part of the CyBorD chemotherapy regimen, along with supportive therapy including furosemide, losartan, omeprazole, and prophylactic anticoagulation. He showed initial clinical improvement and was discharged with oncology follow-up for continuation of therapy.

Discussion

Amyloidosis is a systemic disorder characterized by extracellular deposition of insoluble misfolded protein fibrils composed of glycosaminoglycans, proteoglycans, and serum amyloid P component.[1]

Contributions:
AM SA MA - Conception, Design
AM SA MA - Acquisition, Analysis, Interpretation
AM SA MA - Drafting
AM SA MA - Critical Review

All authors approved the final version to be published & agreed to be accountable for all aspects of the work.

Conflicts of Interest: None
Financial Support: None to report
Potential Competing Interests: None to report

Institutional Review Board Approval
Holy Family Hospital, Rawalpindi

Review began 27/10/2025
Review ended 26/01/2026
Published 31/01/2026

How to cite this article: Masud A, Abid S, Afique M. Primary AL Amyloidosis Presenting with Macroglossia and Spontaneous Chest Wall Ecchymosis in a Young Male. JRMC. 2026 Feb. 14;1(1).

https://doi.org/10.37939/jrmc.v1i1.3190

It is classified according to the biochemical nature of the deposited protein. Primary light-chain (AL) amyloidosis results from monoclonal immunoglobulin light-chain deposition secondary to clonal plasma cell proliferation.[2] It predominantly affects individuals in the sixth decade of life, with fewer than 10% of cases reported below 50 years and demonstrates a slight male predominance.[3] The kidneys and heart are the most commonly involved organs, presenting with nephrotic-range proteinuria or restrictive cardiomyopathy, respectively.[4] Although macroglossia is considered a classical sign of AL amyloidosis, it is observed in only 10–20% of patients.[5] Spontaneous ecchymosis, particularly over the chest or periorbital region, is even rarer and is attributed to amyloid infiltration of vascular walls leading to increased capillary fragility.[6]

This case is unusual due to its presentation in a 35-year-old male with simultaneous macroglossia and anterior chest wall ecchymosis as initial manifestations. Differential diagnoses of macroglossia, including acromegaly, hypothyroidism, and neoplastic infiltration, were appropriately excluded through hormonal assays and clinical evaluation. Although the initial tongue biopsy was negative for Congo red staining, elevated beta-2 microglobulin on serum protein electrophoresis raised clinical suspicion. Subsequent abdominal fat pad and skin biopsies confirmed amyloid deposition, and bone marrow examination demonstrated clonal plasma cell infiltration, consistent with AL amyloidosis. The patient was initiated on a bortezomib-based chemotherapy regimen consisting of bortezomib, cyclophosphamide, and dexamethasone (VCD protocol), which is currently recommended as first-line therapy for transplant-ineligible patients.[7,] Early recognition of atypical mucocutaneous manifestations is essential, as delayed diagnosis significantly worsens prognosis. This case highlights the importance of maintaining a high index of suspicion for AL amyloidosis even in younger individuals presenting with isolated physical signs such as macroglossia and unexplained ecchymosis.

Author Information

1. House Officer, Holy Family Hospital, Rawalpindi 2. Senior Registrar, Holy Family Hospital, Rawalpindi 3. Medical Officer, DHQ Chakwal.
Corresponding author: Dr. Aamina Masud, theaaminamasud@gmail.com

References

1. Kittleson MM, Ruberg FL, Ambardekar AV, Brannagan TH, Cheng RK, Clarke JO, et al. 2023 ACC expert consensus decision pathway on comprehensive multidisciplinary care for the patient with cardiac amyloidosis: a report of the American College of Cardiology Solution Set Oversight Committee. Journal of the American College of Cardiology. 2023 Mar 21;81(11):1076-126.
2. Alraawi Z, Banerjee N, Mohanty S, Kumar TK. Amyloidogenesis: what do we know so far?. International journal of molecular sciences. 2022 Nov 12;23(22):13970. https://doi.org/10.3390/ijms232213970
3. Leung N, Bridoux F, Batuman V, Chaidos A, Cockwell P, D'Agati VD, et al. The evaluation of monoclonal gammopathy of renal significance: a consensus report of the International Kidney and Monoclonal Gammopathy Research Group. Nature Reviews Nephrology. 2019 Jan;15(1):45-59. https://doi.org/10.1038/s41581-018-0077-4
4. aus dem Siepen F, Hansen T. Diagnosing AL and ATTR Amyloid Cardiomyopathy: A Multidisciplinary Approach. Journal of Clinical Medicine. 2024 Oct 1;13(19):5873. https://doi.org/10.3390/jcm13195873
5. Mishra K, Jandial A, Prakash G, Malhotra P. Macroglossia and amyloidosis. QJM. 2018 Nov 1;111(11):835-836. https://doi.org/10.1093/qjmed/hcy141
6. Lee JH, Lee SH, Bae Y, Lee YB, Jang YH, Ahn J, et al. 2023 Consensus Korean diagnostic criteria for atopic dermatitis. Annals of Dermatology. 2024 Jul 31;37(1):12. https://doi.org/10.5021/ad.24.049.
7. Wechalekar AD, Cibeira MT, Gibbs SD, Jaccard A, Kumar S, Merlini G, et al. Guidelines for non-transplant chemotherapy for treatment of systemic AL amyloidosis: EHA-ISA working group. Amyloid. 2023 Jan 2;30(1):3-17. https://doi.org/10.1080/13506129.2022.2093635