A Summary of a Clinical Case Study: *A Two-Year Longitudinal Follow-Up*

Sustained Deep Biochemical Response In Multiple Myeloma via AIC Therapy

1. EXECUTIVE SUMMARY

A woman in her late 60s with IgG-lambda multiple myeloma achieved a deep, durable biochemical remission after presenting with a high disease burden. Managed with Antibonding Ionic Calcium (AIC) therapy as the continuous therapeutic backbone—combined with targeted anti-myeloma agents—the patient demonstrated extraordinary recovery across multiple clinical domains. By April of 2026, all targeted therapies had been withdrawn, and the patient's deep response is being successfully maintained on AIC therapy alone. Notably, no antiresorptive agents (like bisphosphonates or denosumab) were used at any stage.

2. CLINICAL PRESENTATION & EARLY SIGNS

Early Skeletal Signs: Retrospective spinal imaging from April 2023 revealed an L2 compression fracture, marrow edema, and low bone mass months before a formal hematological diagnosis.

Formal Presentation (Late 2023): The patient presented with multiple lytic bone lesions, vertebral compression fractures, and symptomatic hypercalcemia.

Disease Burden (July 2024 Peak): Bone marrow evaluation confirmed an extensive 70% lambda-restricted plasma-cell infiltrate.

3. TREATMENT STRATEGY & TIMELINE

Phase 1: AIC Monotherapy (Dec 2023 – May 2024): AIC therapy was initiated to address hypercalcemia and skeletal complications. During these initial months, serum calcium normalized and remained steady on AIC therapy alone.

Phase 2: Combined Targeted Therapy (June 2024 – early 2026): As tumor burden peaked, bortezomib was added in June 2024. Subsequent cycles included Darzalex and dexamethasone.

Phase 3: Return to AIC Monotherapy (May 2026 – Present): Due to accumulating fatigue and side effects, bortezomib was stopped in February 2026, and Darzalex was withdrawn on April 30, 2026. The patient has since been maintained in a low, stable disease state on AIC therapy alone.

4. CLINICAL DATA & RECOVERY TRAJECTORIES

The patient achieved a **Very Good Partial Response (VGPR)** / deep biochemical remission, evidenced by massive quantitative improvements while maintaining a persistently positive immunofixation.

A. Tumor Burden & Protein Status

Serum M-Spike: Fell from a peak of **4.5 g/dL** (July 2024) to a stable **0.2–0.3 g/dL** (mid-2025 through June 2026).

Total IgG: Dropped from **5177 mg/dL** to a nadir of **485 mg/dL**, settling at **495 mg/dL** by June 2026.

Immunofixation (IFE): Evolved from a single dense IgG-lambda band to faint co-migrating bands, yet remained positive throughout the course.

B. Serum Free Light Chains (FLC)

Parameter	Peak Burden (Jul 2024)	Latest Review (Jun 2026)	Reference Range
Lambda FLC	24.12	0.41	*0.57–2.63*
Kappa FLC	0.46	0.69	*0.33–1.94*
K/L Ratio	0.02 (Severely Suppressed)	1.68 (Normalized)*	*0.26–1.65*

**All units in mg/dL. The slightly elevated ratio in June 2026 reflects the continued suppression of the involved lambda clone rather than disease progression.*

C. End-Organ Recovery (Renal & Hematological)

Renal Function (eGFR): Improved from a baseline of **62 mL/min/1.73 m²** to healthy **75 mL/min/1.73 m²** by June 2026.

Hematology: Hemoglobin fully recovered from baseline anemia (**9.2 g/dL**) to a robust **13.9 g/dL**. Platelets and white blood cells remained within normal limits.

5. KEY CLINICAL TAKEAWAYS

Diagnostic Vigilance for Skeletal Compromise

Myeloma bone disease is frequently the earliest manifestation of the condition. Unexplained vertebral fractures or marrow edema in an older adult should prompt immediate consideration of an underlying plasma-cell disorder before a paraprotein is even sought.

Interpreting Depth of Response

This case illustrates the critical discordance between quantitative and qualitative responses. Despite an approximate 15-fold drop in the M-spike and a completely normalized FLC ratio, immunofixation remained positive. Clinicians must pair qualitative IFE with quantitative markers to avoid mistakenly categorizing a *Very Good Partial Response* as a Complete Remission.

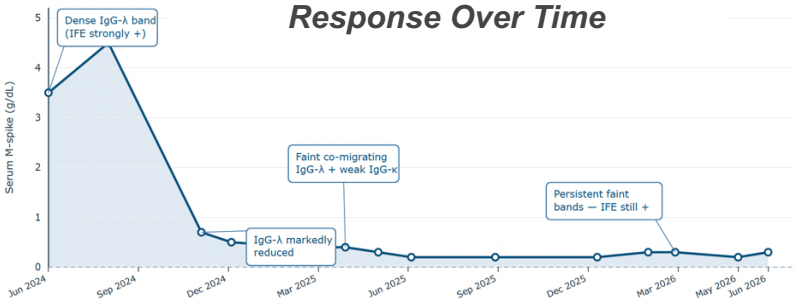
End-Organ Recovery Tracks Disease Control

The successful control of the malignant clone resulted in the parallel recovery of renal filtration (eGFR up to 97) and erythropoiesis (Hb up to 13.9), demonstrating that managing the underlying disease burden yields measurable end-organ recovery.

Efficacy of AIC-Based Management

AIC therapy, alongside targeted medications during peak burden, supported sustained metabolic, skeletal, hematological, and renal stabilization across two years. The maintenance of a deep response on AIC therapy alone—without the use of standard antiresorptive agents—highlights its potential as a highly effective therapeutic backbone for long-term disease management.

Immunofixation / M-Spike Response Over Time



Serum M-spike trend with immunofixation band status annotated. The M-spike falls from 4.5 to 0.2–0.3 g/dL while immunofixation remains positive throughout.

Treatment Timeline – AIC Therapy & targeted therapy