



Case for ISRTP-August Month (For PG Residents)

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Investigations after biopsy

- SPEP: M band detected
- A:G ratio-reversed
- Bone marrow biopsy: Plasma cells and its precursors seen-60% of total nucleated cells-Plasma cell dyscrasia

Diagnosis

- Light chain Cast Nephropathy –LCCN (Lambda Light chain restriction)

Answer to MCQs

- 1: b
- 2: c
- 3: c

Discussion

- Cast Nephropathy is a common condition attributed to paraproteinemic state. Acute kidney injury (AKI) caused by light chain cast nephropathy (LCCN) is one of the major complications from multiple myeloma (MM). It is most commonly seen at initial MM diagnosis but can also develop later in the course of disease during relapse.
- Usually presenting age is >50 years, but it can be seen at early age.
- Back pain is a common symptom, patient often present with nausea, vomiting, loss of appetite, weight loss, etc.

Discussion-continued

- Histopathological diagnosis is based on large atypical appearing tubular casts in kidney biopsy having brittle appearance, fracture-planes, giant cell or epithelial reaction.
- PAS stain is very useful as atypical casts are typically PAS negative.
- DIF is essential for diagnosis which show light chain restriction.
- Often light chain tubulopathy is associated with Cast Nephropathy, in which proximal tubular cytoplasmic droplets also show light chain restriction.
- Early and correct diagnosis is essential for management.

Differential Diagnosis

Rhabdomyolysis or Hemolysis induced Tubular injury:

Casts are beaded/string like, pigmented, do not show fracture planes, usually PAS positive, do not show light chain restriction

Casts in Rhabdomyolysis are positive for Myoglobin (IHC)

Antiviral drugs induced Tubular injury:

History is suggestive

Casts may show some epithelial reaction, do not show fracture planes, are PAS positive, do not show light chain restriction.

References

- Knudsen LM, Hippe E, Hjorth M, Holmberg E, Westin J. Renal function in newly diagnosed multiple myeloma—a demographic study of 1353 patients. The Nordic Myeloma Study Group. *Eur J Haematol.* 1994;53:207–12.
- Leung, N., Rajkumar, S.V. Multiple myeloma with acute light chain cast nephropathy. *Blood Cancer J.* **13**, 46 (2023). <https://doi.org/10.1038/s41408-023-00806-w>