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A case report of biopsy proven bisphosphonate induced acute kidney injury of a patient with kidney transplantation

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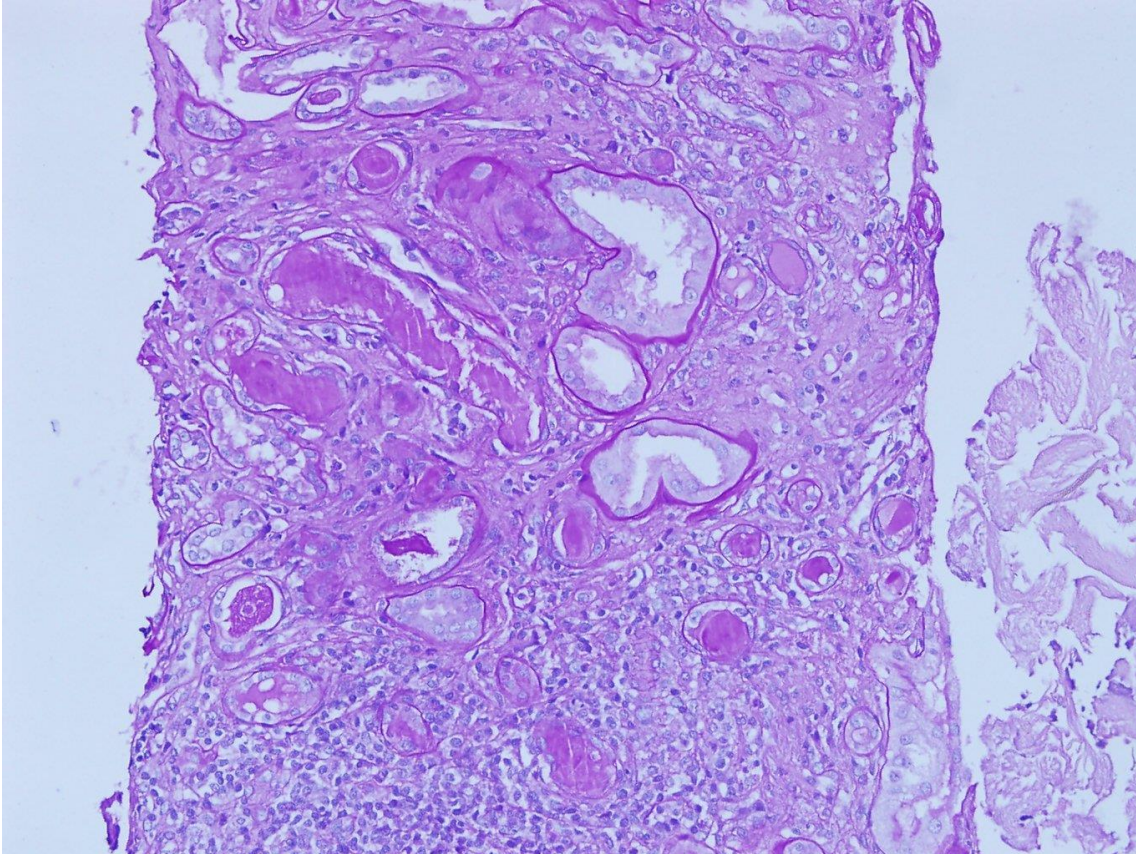
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Case Study: Bisphosphonate is a commonly used drug for the treatment of osteoporosis. Intravenous bisphosphonate is known to have a higher risk of nephrotoxicity compared to oral formulations and the nephrotoxicity is dose and infusion-time dependent. In the case of oral bisphosphonate, there was no significant difference in the risk of AKI (acute kidney injury) among bisphosphonate users compared to non-users. Several AKI cases by intravenous bisphosphonate had been reported, however, oral bisphosphonate induced ATN (acute tubular necrosis) is known to be rare, thus we described a case in which overdose of oral bisphosphonate caused ATN, and her renal function did not recover.

A 72-year-old woman, who had kidney transplantation 3 years ago, was admitted to neurosurgery department due to acute subdural hematoma. She mistakenly took alendronate every day, which had to be taken once a week. The patient did not take any other medication except for tacrolimus and mycophenolate mofetil, and the tacrolimus level was optimal. The patient developed AKI on the 9th day after taking the weekly alendronate, and there were no other causes such as hypotension, dehydration or urinary tract obstruction. As there was no improvement even after supportive care, the patient transferred to the nephrology department. Renal replacement therapy was performed thereafter, and kidney biopsy was conducted for diagnosis, and it was confirmed as ATN without acute or chronic rejection. For 2 months, the renal function did not recover. Finally, she succumbed to death due to gram-negative septicemia.

This report is regarding a patient with chronic kidney disease in which ATN occurred by oral bisphosphonate overdose, which was confirmed based on kidney biopsy. This suggests that severe ATN may also occur by oral bisphosphonate, and it may require caution in dose adjustment in chronic kidney disease patients, especially those with kidney transplantation.

ATN pas stain



ATN(silver stain), Glomerular capillary wrinklings with segmental duplications

