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Images in Rheumatology

Phosphate Nephropathy in a Patient with Takayasu Arteritis

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Phosphate nephropathy can cause acute and chronic kidney damage and develops due to the use of sodium phosphate-containing oral preparations used in colonoscopy preparation. Mild to moderate proteinuria may be seen in acute phosphate nephropathy.

Takayasu arteritis is a granulomatous vasculitis involving large vessels and is rarely associated with nephropathy. Here we present a case of Takayasu's arteritis, which was diagnosed with phosphate nephropathy while investigating the etiology of newly developing proteinuria.

A 50-year-old woman was diagnosed with Takayasu's arteritis when she was 21 years old when she was admitted to an outside hospital with claudication and swelling in her left leg. Computed tomography angiography revealed distal abdominal aorta involvement which was compatible with Numano type V. Treatment was started with steroid and methotrexate and remission was achieved. In her follow-up visit 2 years later, she again had claudication in her legs. Due to the relapse of her symptoms, methotrexate was discontinued and azathioprine was started. Under azathioprine, the patient developed numbness and pain in her left arm. Magnetic resonance (MR) angiography revealed new involvement in ascending aorta, pulmonary artery and bilateral subclavian arteries. Based on these findings, infliximab was started. Due to the continuing claudication in her arms and persistent C-reactive protein (CRP) elevation, infliximab was switched to tocilizumab 3 years later.

In her evaluation 1 year later, her disease was in remission under subcutaneous tocilizumab 162 mg/week. However, proteinuria (1140 mg/day) was observed. Her other laboratory findings were creatinine 0.74 mg/dL, anti-nuclear antibody (ANA) was negative, anti-neutrophilic cytoplasmic antibody (ANCA) indirect immunofluoresence (IFA) was negative, anti-glomerular basal membrane (GBM) antibody was negative, and C3 and C4 were normal. These findings did not suggest an alternative diagnosis. Since the proteinuria persisted in the follow-up of the patient and no cause could be found to explain its etiology, a renal biopsy was performed for the etiology of proteinuria.

In the renal biopsy, purple-colored, globoid, non-reactive, non-reflective calcium phosphate crystals were seen in the distal tubule lumens, along with mesangial enlargement in the glomeruli (Figures 1-4). Based on these findings, a diagnosis of phosphate nephropathy and mesangioproliferative glomerulonephritis was made. In the retrospective evaluation of the patient, it was learned that a colonoscopy was performed in an outside hospital due to diarrhea 1 month before the proteinuria was first detected, and an oral phosphate preparation was given to the patient during the colonoscopy preparation. The patient was evaluated

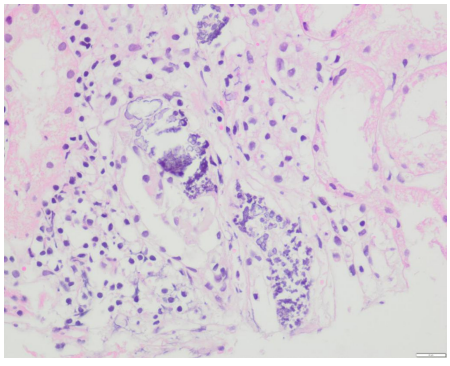

Figure 1. Numerous crystalloid deposits seen in the distal tubules. These deposits were non-refractive, non-polarizing calcium phosphate under polarized light (hematoxylin and eosin, ×40).

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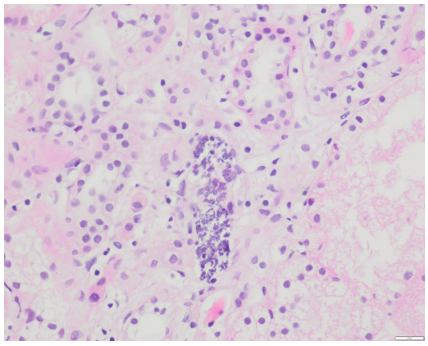

Figure 2. A distal renal tubule is obstructed by calcium phosphate crystals. (hematoxylin and eosin, ×40).

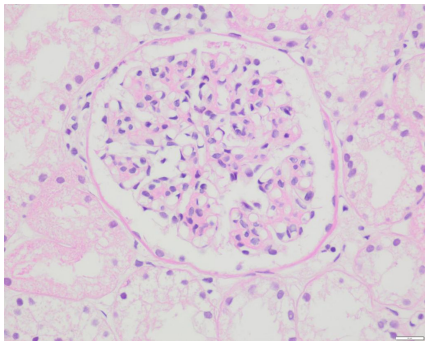

Figure 3. Diffuse global mesangial matrix increase accompanied by mesangial proliferation (hematoxylin and eosin, ×40).

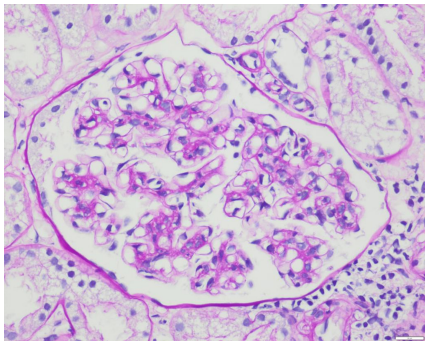

Figure 4. Mesangioproliferative glomerulonephritis with Periodic Acid-Schiff (PAS)-positive hyaline casts (PAS, ×40).

Main Points

- Most commonly seen renal complication of Takayasu arteritis is hypertension associated with renal artery vasculitis/stenosis.
- Glomerular and tubular diseases are rarely associated with Takayasu arteritis.
- Phosphate nephropathy is a complication of inadvertent use of phosphate-containing bowel preparation solutions.
- Phosphate nephropathy should considered in patients with acute kidney injury or newly onset proteinuria, who had a pertinent history of bowel preparation solution administration.

jointly with nephrology and it was planned to continue the current immunosuppressive treatment.

Written informed consent was obtained from the patient.

Takayasu arteritis is a granulomatous pan-arteritis that usually affects the aorta and its main branches. Although large vessel vasculitis is rarely associated with glomerulonephritis, mesangioproliferative glomerulonephritis is the most common pathological subtype.[1] Nephrotic-level proteinuria is rare in large-vessel vasculitides, but rare cases with proteinuria and renal dysfunction have been reported in Takayasu arteritis.[2,3] Our case is Takayasu's arteritis who was diagnosed with phosphate nephropathy by renal biopsy while investigating the etiology of newly developed proteinuria.

Phosphate nephropathy is a condition that develops due to the use of sodium-phosphat e-containing oral preparations for bowel cleansing before colonoscopy in patients at risk and it can lead to kidney damage. Risk factors for acute phosphate nephropathy include advanced age, female gender, hypertension, diabetes, chronic kidney disease (CKD), angiotensin receptor blockers, angiotensin-converting enzyme inhibitors, diuretics, and nonsteroidal anti-inflammatory drugs.[4,5] The incidence of acute phosphate nephropathy is low because many cases are clinically silent.[4,5] Patients who develop acute phosphate nephropathy are more likely to progress to chronic kidney disease.[4]

Informed Consent: Written informed consent was obtained from the patient.

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