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CASE REPORT

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Retroperitoneal Fibrosis as a presentation with masked multiorgan involvement of IgG4-related disease—demystifying the diagnosis: A case report from Nepal

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Abstract

The timely diagnosis of the disease helps in preventing the progression of RF and unnecessary interventions that may mislead the diagnosis. Biopsy and serum IgG4 both can be non-specific.

KEYWORDS

fibrosis, IgG4, nepal, retroperitoneal

1 | INTRODUCTION

RF associated with IgG4 antibody is a disease of autoimmune origin that can involve one or multiple sites in the body at the same time or at a different time. We report a case of 38-year-old male patient with IgG4-related retroperitoneal fibrosis, which had multiorgan involvement.

Retroperitoneal fibrosis (RF) is defined as the proliferation of fibrous tissue in the retroperitoneum, body compartment containing the kidneys, aorta, ureter, and other structures. RF associated with IgG4 antibody has an incidence and prevalence of 1/100,000 and 1.4/100,000,[1] respectively, is a disease of autoimmune origin. IgG4 can involve one or multiple sites in the body at the same time or at a different time including salivary glands, thyroid, liver, lungs, bile duct, kidneys, prostate, skin, pericardium, meninges, breast, and lymph nodes. It was first described in the study by Hamano et al in 2001 in patient with sclerosing pancreatitis.[2] It is characterized by the high number of $IgG4^+$ plasma cells. However, IgG4 serum levels rarely correlate with the disease.[3] The presentation may be an isolated IgG4-related retroperitoneal fibrosis; however, IgG4-related extra retroperitoneal lesions may occur synchronously or metachronously.[4] We report a case of 38 years-old male patient with IgG4-related retroperitoneal fibrosis confirmed by the correlation of CT and biopsy findings with increased IgG4 levels.

2 | CASE PRESENTATION

A 38 years-old male patient presented to our hospital with chief complaints of backache for six months and lower abdominal pain for one month. He had no fever

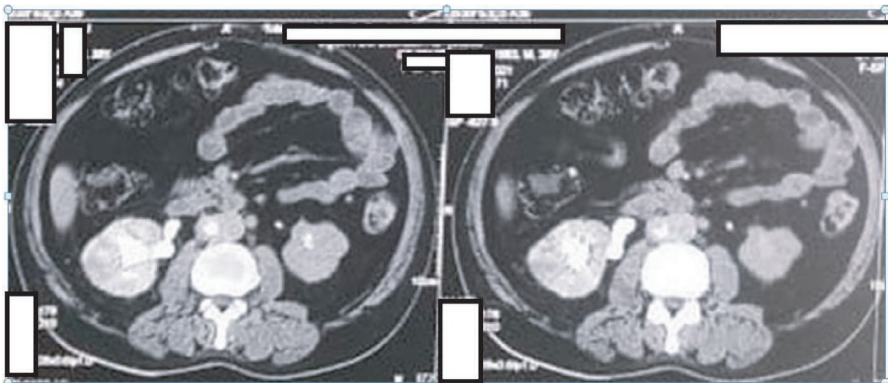

FIGURE 1 CECT of abdomen showing retroperitoneal fibrosis

or hematuria. He was on medications with amlodipine (5 mg once a day) for hypertension and thyroxine (25 mg once a day) for hypothyroidism. His blood pressure was 140/110 mm of Hg, creatinine level was 120 μmol/l, abdomen was soft, non-tender and renal angle tenderness was absent at the time of presentation. Ultrasonography (USG) of abdomen and pelvis showed enlarged liver (approximately 16.14 cm) with increased parenchymal texture and right mild hydroureteronephrosis. Computed tomography (CT) showed lobulated retroperitoneal soft tissue attenuating lesion in midline enhancing the aorta and inferior venacava (IVC) as well as right proximal renal artery; mild right hydroureteronephrosis with perinephric extravasation was noted. Calcified plaques were seen in anterior segmental artery of interpolar region and a wedge-shaped nonenhancing lesion in anterior cortex. Based on the CT and USG findings, he was diagnosed with retroperitoneal fibrosis. Double-J (DJ) stenting was attempted but it failed due to ureteric stricture so he underwent right percutaneous nephropathy (PCN) for hydronephrosis. In order to confirm the diagnosis, biopsy of the retroperitoneum was done and it showed multiple pieces of gray white tissue, thread-like tissues measuring 1.5*0.6 cm grossly, while nerve structure with ganglionic cells, lobules of mature adipose tissue and areas of fibrosis with focal lymphocyte infiltration on microscopy.

On follow-up after a week of right PCN, he had swelling of right lower limb, mild pain with burning sensation. He was referred to rheumatologist for consultation. Based on the CT scan USG findings, IgG4 disease was suspected. Rheumatoid factor and anti-nuclear antibody were found to be nonreactive. On examination, calf tenderness was absent. Laboratory examination revealed hemoglobin 13.2 gm %, total leucocyte count of 5800 cells/mm^3, and platelet count 2,10,000 cells/mm^3. His postprandial blood sugar was 11.9 mmol/L, fasting blood sugar 12.5 mmol/l, HbA_1C 8.3%, thyroid-stimulating hormone (TSH) 5.6 mlU/L, urea 53 mmol/l and creatinine 119 μmol/l. C-reactive protein (CRP) was elevated (11600 ng/ml). Immunological test for HIV, HbsAg, and HCV was nonreactive. Erythrocyte sedimentation rate (ESR) was 59 per 1st hr. Lactate dehydrogenase (LDH) was 332 U/L. Albumin and few triple phosphate crystals were reported on urine examination. His serum IgG4 level was 3.180 g/l (0.03–2.01g/l). Peripheral venous doppler study of deep venous system of lower limb was normal.

His final diagnosis was IgG4-related disease associated with retroperitoneal fibrosis with diabetes mellitus, based on blood examination, CT, USG, and serum IgG findings. He was on medication with gliclazide (40 mg once a day), etoricoxib (15 mg once a week), combination of frusemide and spironolactone (20 mg and 50 mg; once a day), and prednisolone (50 mg per oral), which was gradually tapered.

One month later, his serum IgG level was 20.70 g/l (6.6–16.9 g/l), which was done as a plan to start the therapy with rituximab. Contrast-enhanced computed tomography (CECT) of abdomen and pelvis reported decrease in size of retroperitoneal fibrosis. Calcified granuloma was reported in liver, multiple fibrocalcific nodules were noted in right lung field, and patchy fibrotic change was found in right upper lobe (Figure 1). These findings were not seen in previous CT findings. He is on a regular follow-up and compliant with the medications and has not reported the side effects.

3 | DISCUSSION

Retroperitoneal fibrosis is a rare inflammatory process, of autoimmune and inflammatory origin. It may involve retroperitoneal region on the fourth lumbar vertebra, may compress one or both ureters in about 60% of cases and the abdominal aorta and inferior vena cava.[1] These findings were similar in our patient. RPF is of two types: idiopathic RF and secondary RF. Idiopathic RF has no known cause and it is a diagnosis of exclusion whereas secondary RF may be associated with causes like drugs (most commonly analgesics and beta blockers), infections, malignant tumors, radiotherapy, and surgery.[1,5] Type 1 autoimmune pancreatitis, interstitial nephritis, Riedel's thyroiditis (fibrosing thyroiditis), Mikulicz's disease (enlargement of

glands in the head and neck), Kuttner's tumor (increase in the size of submandibular glands with fibrosis), inflammatory pseudotumors, mediastinal fibrosis, and retroperitoneal fibrosis have been classified in IgG4 disease.[6,7] Lung, liver, IVC, kidney, and scrotum were involved in our patient as described above.

Patients with retroperitoneal fibrosis present with abdominal pain, jaundice, weight loss, and exocrine/endocrine pancreatic failure most commonly.[8] IgG4 disease is usually diagnosed on the basis of histopathological findings as there are no criteria for diagnosis of IgG4-related diseases. Patients with multiple organ involvement of IgG4-related disease usually have increased levels of IgG4.[9] Patients with connective tissue disease, pemphigus, bronchial asthma, systemic sclerosis, chronic hepatitis, and allergic dermatitis may also have high level of serum IgG4[10]; hence, blood IgG4 is not the reliable indicator of diagnosing IgG4 disease. The presence of storiform pattern sclerosis, a dense lymphoplasmacytic infiltrate, and a raised proportion of IgG4-positive cells from immunohistochemistry compared with IgG1-positive cells; these findings often correlate with the disease and affected organ.[11,12] The presence of[1] serum IgG4 concentration >135 mg/dl and[2] >40% of IgG+plasma cells being IgG4+ and >10 cells/high powered field of biopsy sample is diagnostic criteria of IgG4RD.[13] Nerve structure and ganglionic cells, fibrosis, and lymphocyte infiltration were seen in biopsy of our patient, which was non-specific findings. Likewise, immunohistochemistry was not done.

The mainstay of treatment in patient with retroperitoneal fibrosis with ureteric involvement is renal level decompression through drainage, which was tried in our patient but failed due to ureteric stricture. Right PCN was done to decompress. High steroid dose therapy was given to halt the progress of RF in our patient. The goals of the treatment are to reduce fibroinflammatory reaction, release the obstruction of ureter and retroperitoneal structure, stopping the acute inflammatory reaction phase and prevent recurrence.[12] Rituximab can be used for remission in patients with IgG4-related retroperitoneal fibrosis.[14]

4 | CONCLUSION

IgG4-related disease should be one of the differential diagnosis in patients with retroperitoneal fibrosis. The timely diagnosis of the disease helps in preventing the progression of RF and unnecessary interventions that may mislead the diagnosis. Multiorgan involvement should be suspected in the similar cases. Biopsy and serum IgG4 both can be non-specific sometimes. Thus, the clinical judgment should be multidisciplinary.

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CONFLICT OF INTEREST

Authors have no conflict of interest to declare.

AUTHOR CONTRIBUTIONS

SS wrote the original manuscript, reviewed and edited the manuscript. RC reviewed and edited the original manuscript. SS, RC, BB, SS, YRA, and SK reviewed the manuscript and were incharge of the case.

ETHICS STATEMENT

Written informed consent was taken from the patient.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in corresponding author name.

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