A Case Of Retroperitoneal Fibrosis As A Confusing Reason Of Positive FDG/PET

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Abstract: Retroperitoneal fibrosis is a rare disease and characterized by the presence of fibrous and inflammatory retroperitoneal tissue. Fluorine-18-fluorodeoxyglucose positron emission tomography (FDG/PET)is a beneficial methods for inflammatory dieseases. We presented here a case of 40 year old woman with idiopathic retroperitoenal fibrosis which detected high SUVmax level (21.4) on FDG/PET and had high erythrocyte sedimentatiton rate (140mm/h). If high SUVmax is detected, histologic confirmation is necessary to exclude malignancies [Arslan E NJIRM 2016; 7(2):123-125]

Key Words: Retroperitoneal fibrosis, Fluorodeoxyglucose positron emission tomography, high erythrocyte sedimentatiton rate.

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Introduction: Retroperitoneal fibrosis (RF) is a rare and chronic inflammatory condition. RF is characterized by the presence of fibrous and inflammatory retroperitoneal tissue. The affected tissue typicially surrounds abdominal organs especially abdominal aorta, vena cava inferior and ureters.RF may be idiopathic or secondary to other reasons. Idiopathic RFis an immune-mediated disease. It can be isolated or emerge in the context of a inflammatory disorder, known immunoglobulin G4-related disease (IgG4-RD). Radiation, infections, retroperitoneal hemorrhage, surgery and exposure to asbestosis can cause retroperitoneal fibrosis on the other hand.Fluorine-18-fluorodeoxyglucose positron emission tomography (FDG-PET) and positron emission tomography/computed (PET/CT) have been proposed as areasonable beneficialmethods for diagnosis of inflammatory dieseases.[1,2]But sometimes,these methods failed to differentiate between malignacy and RF.[3]We discuss here the case of 40 year-old woman with idiopathic retroperitoenal fibrosis.

Case: A 40 year old woman was admitted to the internal medicine department because of lumbar pain, exhaustion, weight loss and fever. In her history, her complaints was begun two months ago and she was evaluated in brain surgery department for lumbar pain and analgesics were used for pain but the pain wasn't relieved with this therapy. At that time, she was evaluated another causes of lumbar pain like brucellosis and hematologic diseases but there were no findings in terms of this diseases except for higherythrocyte sedimentatiton rate (ESR) and high C-reacitve protein (CRP) levels. She was consulted for this laboratory findings to our clinic. On her examination, right laseque test was positive and the remainder of physical examination was normal. On the laboratory, Wbc: 7950/mm3, Hgb: 9.9 gr/dl, Plt: 450000/mm3, ESR: 140 mm/h, CRP: 120 mg/l, albumin: 3.24 mg/dl and the remainder of laboratory test results were normal.

Blood and urine cultures were all negative and sputum culture was negative for acido-resistant bacteria. Quantiferon test was negative in terms of tuberculosis. Abdomen ultrasound showed only spleen size was 145 mm on the vertical plane. Infective endocarditis was excluded by cardiology clinic. Contrast enhanced abdominal tomography showed a soft tissue density which begining at the level L3 and ending L5-S1 level, at this level, aorta and vena cava was surrounded by this tissue. It laterally extended into psoas muscle. SUVmax 21.4 was detected by PET on the affected area and nuclear medicineclinic recommended the investigation of malign pathologic processes because of this high SUVmax point. The affected tissue was sampled twice by interventional radiology service but the pathology results weren't diagnostic. After three weeks later, abdomen MRI was ordered. On the MRI,grade 2 hydronephrosis was observed on the right kidney and was found a new lesion this area which narrowing the proximal right ureter.

The patient was tranferred to the general surgery department for surgical treatment. In the operation room, after the ureteral stenting and liberalization of the ureter, surgical biopsy were performed by surgeons. The pathologic diagnosis was "Retroperitoneal Fibrosis" for biopsy material. After pathologic diagnosis was recieved, the surgery was ended. Ig G4 levels were examined after diagnosis of RF and detected at normal levels. Steroid therapy was initiated. The patient was discharged. Physical examination findings at the next check-upafter a month were found regressed. On the laboratory, ESR was detected 8 mm/hr. Six months after initiation of

therapy, abdomen MRI was performed again and no lesion was detected.

Discussion: RF usually surrounds the abdominal organs, most commonly abdominal aorta, vena vaca inferios and ureters. Although pathogenesis of retroperitoneal fibrosis has not been clearly described, findings claims that fibrosis often begins around severe atherosclerotic plaques.[4]

RF almost always affects people between the ages of 40 and 60 years and half to two-thirds are men. The most common presenting symptoms are pain in the lower back abdomen, malaise, anorexia, weight loss, fever, nausea and vomiting.[5]The urine output may be reduced, normal, or even increased (due to a secondary concentrating defect) in patients with obstructive uropathy.[6] There are no biochemical abnormalities that are specific for RF. The ESR and CRP are elevated in the majority of patients at presentation, reflecting the inflammatory nature of the disease.[4]

The diagnosis is often made by imaging studies. Generally using imaging methods in this pathologic process are CT and MRI. But these methods have difficulty in discriminating between active and fibrotic lesions and in differentiating between RF and other retroperitoneal diseases such as malignacies.[5]One must note that the imaging evidence of this process are often looked alike by malignancies and these conditons must be ruled out before the diagnosis is made.

The purposes of the RF therapy are firstly alleviate the obstruction caused by fibrosis, secondly stop progression of the fibrotic process and prevent recurrence. There are both surgical and medical therapy options. Patients presenting with renal failure due to obstruction of the urinary tract, or if one kidney is severely obstructed, even if renal function is normal, should undergo upper urinary tract decompression. A variety of medical therapies may be used in patients with idiopathic RF. These options include glucocorticoids, other immunosuppressive drugs such as mycophenolate and methotrexate, and tamoxifen. Glucocorticoids are almost always the primary choice of the therapy.[7]As a result of, RF has an inflammatory disease nature so it can be with high ESR and high CRP. FDG-PET/CT can be used in the evaluation of RF but it can be confusing when high SUVmax detected. One must note that if high SUVmax is detected, histologic confirmation is needed in the aspect of excluding malignancies.

In our case, the ESR was above the 100 mm/h permanently and this finding is rare for RF. We assessed the lesion with CT, MRI and FDG-PET. FDG-PET is useful method for RF but in our case, on FDG-PET, the lesion features were confusing and failed to differentiate between malignacy and a benign process such as RF. Nakajo et al. [3] suggested this situation in their study. In another study, Moroni et al.[8] showed the PET in the assesment of active idiopathic retroperitoneal fibrosis and in their study, the highest SUVmax 12.5 which was reported by them. In our case, the SUVmax level was detected 21.4 as far as we know, it is the highest SUVmax value in the literature.

If there is no need for surgery or after the surgery, glucocorticoids are almost always the primary choice of the therapy.[7] We used glucocorticoids in our case and we assessed the lesion with abdomen MRI after six months and no lesion was observed.

Conclusion: In the present study it was found that greater the smoking load greater reduction in BMI also higher smoking load lead to reduced systolic blood pressure and hence reduced pulse pressure. Our findings on blood pressure contradict the findings of certain studies which show that hypertension results due to smoking.

Hence it was concluded that higher nicotine consumption caused significant reduction of BMI and SBP but the effects of minor alkaloids in cigarette smoking is still unknown.

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