J MEDICINE 2015; 16 : 61-63

HIV Infection with Membranous Nephropathy in a Low HIV Prevalent Muslim Country, Bangladesh: A Case Report

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Abstract:

The most common renal manifestation of Human immunodeficiency virus (HIV), is HIV associated nephropathy (HIVAN). In this report, we describe a case that was referred for evaluation of proteinuria. Diagnostic workup revealed HIV infection with membranous nephropathy (MN). As he had sub-nephrotic range proteinuria and normal renal function we did not start any treatment for membranous nephropathy and for anti-retroviral therapy he was sent to a referral center. Being an uncommon variety of nephropathy in HIV infected patient in one of the lowest HIV prevalent country, we are reporting the case.

Keywords: *Human immunodeficiency virus (HIV), membranous nephropathy (MN), HIV associated nephropathy (HIVAN), sub-nephrotic range proteinuria.*

Introduction:

Human immunodeficiency virus (HIV) infection has become a global pandemic. As a result of increasing size of the HIV infected people and increased longevity due to highly active anti-retroviral therapy (HAART), diseases affecting various organ systems in the normal population are manifesting in these HIV infected patients. Previously only few diseases such as collapsing focal segmental glomerulosclerosis (FSGS) were thought to be prevalent in patients with HIV but a broad spectrum of renal diseases have been reported in patients with HIV infection.[1,2] In ordinary setting HIV associated nephropathy should be considered where an HIV infection is associated with heavy proteinuria.[2] Herein we present a case of HIV infected male patient with membranous nephropathy (MN) without any other co-infection associated with MN and having non-nephrotic range proteinuria.

Case summary:

A 28-year-old married, non-diabetic gentleman was referred to Nephrology Department of BIRDEM (Bangladesh Institute of Research and Rehabilitation for Diabetes Endocrine and Metabolic Disorder) for evaluation of proteinuria. During history taking he stated that he has been suffering from fever and cough for 3 months with significant weight loss. Fever was continued in nature with highest temperature of 103^0F. Cough was productive with mucoid sputum, moderate in amount and there was no haemoptysis, breathlessness or chest pain. He lost 13 kg weight in 6 months. His bowel habit was normal. He did not suffer from tuberculosis and gave no history of contact with any known tuberculosis patient or recent travel to endemic zone of malaria or kala-azar. He denied any I/V drug abuse. No history of blood transfusion or operation. He had history of extramarital unprotected sexual exposure 2 years back but he denied any homosexuality in his life time.

On examination, his temperature was 104°F. He was haemodynamically stable. There was no rash, lymphadenopathy or edema. He had few bilateral coarse crepitations in lower zone of both lung fields. He had no organomegaly. Other system examinations including ophthalmoscopic examination were unremarkable. Bed side urine revealed proteinuria 2+.

His haemoglobin was 10.7 gm/dl, total and differential white cell and platelet count were normal. ESR was 105mm in 1st hour, CRP 24 mg/dl. Urine routine examination showed 4-6 pus cells /HPF and 2-3 RBC/HPF. 24 hour urinary total protein was 1 gm/day. Phase contrast microscopy of urine showed only 5% dysmorphic RBC. Urine for eosinophil was also negative. His renal function test and USG of whole abdomen was normal. ANA, p-ANCA, c-ANCA, C3 and C4 was also unremarkable. On renal biopsy slide a total no of 22 glomeruli were observed and examination revealed sparse granular deposit of IgG in the subepithelial region consistent with membranous nephropathy stage 1. (Fig-1a, b, c)

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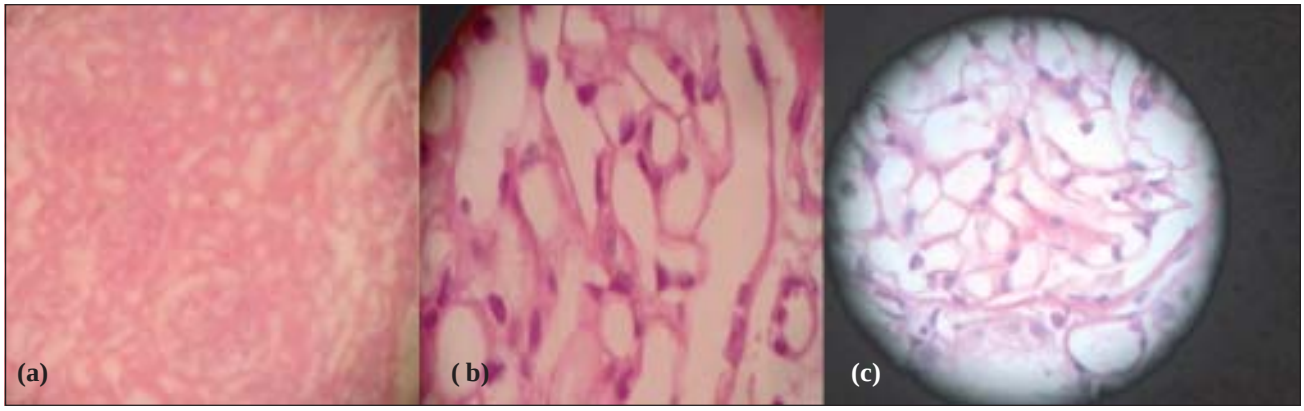

Fig 1(a, b, c): *Histopathology of Membranous Nephropathy*

For evaluation of fever we also did a chest x-ray P/A view which was normal. Urine and blood culture, ICT for malaria and Kalaazar, blood film for malarial parasite, febrile antigen- all were negative. Considering the possibility of tuberculosis and deep fungal infection, sputum, urine for AFB, bronchoscopy and bone marrow examinations were done. None of them gave any clue to the diagnosis. ELISA for HIV (type 1 & 2) was finally done and it was positive. He was negative for HBV and HCV infection, VDRL was non-reactive.

We empirically started anti-tubercular therapy being a high prevalent country for tuberculosis and gave cotrimoxazle as prophylaxis for *P. Jerovicci* and other supportive measures. As the patient had membranous nephropathy with non-nephrotic range proteinuria and normal renal function we decided to keep him under follow up and for specific anti-retro viral therapy he was sent to a referral centre.

We did HIV screening of his wife and it was negative. We then counseled her accordingly.

Discussion:

Bangladesh is a low HIV prevalent country with less than 0.1% of the population estimated to be infected with HIV. The number of HIV positive individual has increased to 7500 people in 2005 according to the International Centre for Diarrhoeal Disease Research, Bangladesh. UNAIDS estimate the number to be slightly high at 11000 people.[3]

As the prevalence of HIV is increasing the spectrum of renal disorder in HIV infected patient is also changing. Renal disease in patients infected with HIV was first described by Rao et all[4] as focal and segmental glomerulonephritis subsequently termed as "HIV associated nephropathy (HIVAN)". HIVAN which used to be synonymous with HIV renal disease in the first two decades of the HIV pandemic has been replaced with much more common disorder, namely acute kidney injury and other glomerular diseases.[5] Patient with HIVAN usually present with symptom of chronic renal failure accompanied by proteinuria.[6] Our patient did not have renal failure.

MN can be associated with several pathological conditions such as malignancy, autoimmune disease, exposure to several different agent and viral infection including Hepatitis B virus (HBV) and HIV[7] while, the majority of cases of MN have been considered to be idiopathic. Our patient did not have any co-infection or co-morbidities typically associated with MN. It can be argued that the MN might have been developed through an idiopathic mechanism but we feel that it is reasonable to consider that HIV likely played a role in the development of MN in our patient since HIV infection can lead to a functional and structural abnormality in renal tissue at any stage of the disease. Nevertheless MN has also been reported previously in HIV infected people.[8] Moreover, idiopathic MN is most typically described as presenting with nephrotic range proteinuria[7] and HIV associated MN should be considered in Caucasian people with HIV infection complicated by nephrotic syndrome and renal failure even in the absence of co-infection and co-morbidities associated with MN.[6]

Our patient had MN with non-nephrotic range proteinuria. The largest study of natural history of MN was published in 1979 and included 116 untreated patient with MN of which 28 (24.2%) presented with sub-nephrotic proteinuria.[9] In other studies between 15-46 % of patient presented with sub-nephritic range proteinuria.[10] In largest of this report 19% entered a complete remission, 21% had persistent sub-nephrotic range proteinuria and only 6% progressed to nephrotic syndrome.[11] In various studies it has been shown that giving immunosuppressive in non-nephrotic range proteinuria serves no extra benefit. There was also no indication, although not a prospective randomized trial, that the introduction of ACEI or ARB therapy has altered the

incidence or the percentage of patient who progress to nephrotic range proteinuria in those with MN presenting with low level proteinuria.[7] We did not give any treatment for MN and decided to follow up the patient with proteinuria and renal function as the probability of persistent spontaneous remission even of nephotic syndrome due to MN in untreated patient seems to be greater after 18-23 months.[12]

So, we did not treat him for MN and referred him to a specialized center for specific anti-retroviral therapy.

Conclusion:

Bangladesh is a low HIV prevalent country. Probably this is the first reported case of MN in HIV patient in our context. Detail history taking and all, even rare probabilities should be kept in mind while evaluating such cases with proteinuria. Obviously further studies and accumulated clinical experience is required to better determine the pathogenesis and management among patient with HIV infection.

Conflict of Interest : None

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