

Young Male with Systemic Lupus Erythematosus Presenting with Sensorineural Deafness with Immune Suppression Induced Miliary Tuberculosis

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Abstract

A 32 year male presented with deafness and other classical symptoms suggestive of SLE. Subsequent serological investigations confirmed the diagnosis. Renal biopsy showed the presence of SLE induced Grade V nephropathy. Patient was started on NIH protocol for lupus nephritis on which he was doing well. After two years, he presented with symptoms of miliary tuberculosis and was started on ATD. Subsequently, he developed ATD induced hepatotoxicity and had to be switched over to Inj. Streptomycin containing regimen. We thought to share this clinical experience, as we found it a challenge to manage tuberculosis in such a setting, where a fine balance had to be maintained between immunosuppression for SLE and therapy of TB, and an ototoxic drug had to be used in a patient with deafness induced by SLE.

Introduction

Sensorineural deafness in SLE is very uncommon. It is extremely rare to get sensorineural deafness as a sole initial presentation of SLE and to the best of our knowledge this is the first reported case of an adult male SLE patient presenting with sensorineural deafness, from India. Immuno suppression for maintenance of clinical remission makes a SLE patient vulnerable to opportunistic infection like tuberculosis, especially in our country, where it is endemic in nature. The present case report also emphasizes the fact that, managing such a case is challenging due to anti tubercular drugs (ATD) induced ototoxicity, particularly when hepatotoxic and nephrotoxic ATD cannot be used.

Case Report

A 32 year old Bengali male was clinically diagnosed to have systemic lupus erythematosus based upon the clinical symptoms of fever, anasarca, bilateral small and large joint arthritis, photosensitive malar rash and oral ulcers. He was also suffering from progressive bilateral hearing impairment for last three years. Subsequently his serum ANA was found to be positive with 1:160 titre and homogenous pattern (hep 2), serum anti dsDNA was strongly positive and kidney biopsy was consistent with WHO class V lupus nephritis. His treatment was started as per NIH protocol and remission was achieved six months later. He was maintained on daily oral Mycophenolate mofetil 1000 mg, Prednisolone (gradually tapered) and Enalapril, with normal renal function parameters.

Two years after starting therapy for SLE, he was hospitalized owing to low grade intermittent fever, dry cough and progressive shortness of breath for more than two months. Clinico-

radiologically miliary tuberculosis was diagnosed and sputum for acid fast bacilli staining was found to be scantily positive. Immuno-suppressants were withheld and he was put on daily oral Isoniazid, Rifampicin, Pyrazinamide and Ethambutol as per body weight and Prednisolone 5mg OD. But after a week, he simultaneously developed jaundice and diffuse maculopapular skin rash. Subsequently he was put on Ethambutol 800mg OD, Levofloxacin 750mg OD and Streptomycin 750mg IM thrice weekly and Prednisolone 5mg every alternate day with pre treatment Pure tone audiometry showing sensorineural hearing loss of 70 dB and 30 dB (pure tone average) in left and right ear respectively. Consent for the use of Inj. Streptomycin was taken from the patient and he was explained that although use of Inj. Streptomycin could further aggravate his deafness, the use of other second line ATDs were not advisable at this point due to the chance of development of resistance to these drugs.

His hepatitis gradually subsided over 3 months with initially raised serum bilirubin (4.3 mg%), SGOT (1372 U/L), SGPT (1412 U/L) and ALP (968 U/L) being slowly normalized. Skin rash disappeared completely after 2 weeks. This time, lupus anticoagulant, anticardiolipin antibody, VDRL test, Anti HIV I and II antibody, IgM anti HAV, HBsAg, IgM anti HCV – all were negative. Serum ANA and anti dsDNA were consistently positive in high titers. The above-mentioned antitubercular regimen was continued for one year and Inj. Streptomycin was discontinued after the first six months. During this period, no further deterioration of his deafness occurred as evident from subsequent pure tone audiometry. After being declared cured from miliary tuberculosis, his therapy was restarted with oral Prednisolone 20mg OD, Mycophenolate mofetil 500mg OD, and Hydroxychloroquine 200mg OD. He is now kept on regular follow-up and is doing well.

Discussion

Autoimmune disorders are rarely known to be associated with sensorineural deafness. This case of a male SLE patient with sensorineural deafness (whose no other alternate cause except SLE could be delineated) is unique in the sense that anticardiolipin antibody was found to be negative here whereas SLE patients having sensorineural deafness were usually

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found to be positive for anticardiolipin antibody. Also immuno suppressants needed to treat SLE made him prone to suffer from miliary tuberculosis and for the treatment of tuberculosis injectable Streptomycin was chosen (a nephro- and ototoxic aminoglycoside) in the background of SLE induced nephritis and deafness, since the patient developed side effects to other important first line antitubercular drugs and the other second line antitubercular drugs had to be kept in reserve, given the fact that India ingloriously harbours the largest burden of tuberculosis patients and further reactivation or reinfection tuberculosis will only render severely restricted treatment option for him.¹

The first case of SLE with anticardiolipin antibody and deafness was described by Hisashi et al.² Milder degrees of deafness detected on audiogram have been demonstrated in 8% of cases of SLE; however profound deafness with SLE is extremely uncommon.³ It is said that anticardiolipin antibody affects platelet membrane or the endothelium and tends to reduce the level of prostacyclin release and this in turn leads to thrombosis, which is supposed to cause dysfunction of cochlea owing to angiitis of labyrinthine artery and this may result in deafness.⁴ Deafness in SLE cases were not related to age, sex, disease activity, duration of symptoms of SLE or to other organ system involvement such as kidney and brain.⁵ Therefore, audiological screening is important in all SLE patients.

Contrasting results have been found regarding treatment of autoimmune mediated hearing loss with immunosuppressive agents like Prednisolone and Cyclophosphamide although hearing loss in SLE patients can be temporarily improved by plasmapheresis suggesting that antiphospholipid antibody and circulating immune complexes might play a pathological role in the hearing impairment of SLE patients.⁵

S Roverano et al⁶ evaluated 31 unselected consecutive female patients with SLE for evidence of hearing impairment and found that 66% of patients had sensorineural hearing loss at high frequency in a bilaterally symmetrical way and no statistically significant correlation was found among the presence of asymptomatic sensory neural hearing loss, the detection of antiphospholipid antibody and the treatment with Hydroxychloroquine.

In our case, since the patient was anticardiolipin antibody negative and the treatment cost of plasmapheresis was unaffordable, therefore it was decided to continue steroids, Mycophenolate mofetil and Hydroxychloroquine after the completion of his antitubercular drug therapy. No deterioration of hearing occurred with the use of streptomycin.

In addition to plasmapheresis, the use of antiplatelet and anticoagulants may be considered. Further investigations involving macromolecules obtained in the discarded fraction at the time of plasmapheresis are needed to elucidate the mechanism of hearing loss in SLE patients.⁶

To conclude, one should be aware of the fact that deafness can be a presenting symptom of SLE, which may or may not improve with therapy. Even if not one of the presenting feature, investigation of auditory symptoms is important during the follow up of patients with SLE, since sensorineural hearing loss can affect a significant proportion of patients in its due course. Use of aminoglycoside in a setting of SLE (with deafness) induced TB has be considered on individual basis but already when irreversible auditory damage has settled in, the use of this ototoxic drug hardly adds to it, as shown in this clinical case scenario.

Abbreviations

ANA – Anti nuclear antibody; SLE – Systemic lupus erythematosus; HRZE – Isoniazid (H), Rifampicin(R), Pyrazinamide (Z), Ethambutol (E); ATD – Antitubercular drugs; LFT – Liver function test; SGOT – Serum glutamate oxaloacetate transaminase; SGPT – Serum glutamate pruvate transaminase; ALP - Alkaline phosphatase; PTA – Pure tone audiometry; HAV – Hepatitis A virus; HCV – Hepatitis C virus.

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