# Leprosy and monoclonal gammopathy of undetermined significance

K V Mallawaarachchi[1], C N Gunasekara[2]

*Sri Lanka Journal of Dermatology*, 2011, **15**, 45-46


## Abstract

Monoclonal gammopathy of undetermined significance (MGUS) is a plasma cell proliferative disorder with a prevalence of 3% in patients aged 50 years and older. Many dermatological and non dermatological conditions are known to be associated with MGUS. Some of these conditions show statistically significant associations with MGUS while others are coincidental. We describe a 56-year old woman with borderline lepromatous leprosy who presented with a monoclonal band on serum protein electrophoresis and a bone marrow trephine biopsy suggestive of MGUS.


## Introduction

MGUS is the commoner of all plasma cell disorders. Although it is associated with malignancies such as multiple myeloma and Waldenström macroglobulinemia, most patients with MGUS do not develop malignant plasma cell disorders. MGUS is defined by the presence of plasma cell content of <10% in the bone marrow, serum monoclonal immunoglobulin concentration of <3 g /dl and the absence of any end organ damage (hypercalcaemia, renal insufficiency, anaemia, and lytic bone lesions)[1]. MGUS is associated with a wide variety of diseases. Identification of true disease associations with MGUS is important since many disease associations are likely to be coincidental due to relatively high prevalence of MGUS in the general population[2]. Association between MGUS and mycobacterium infections has been reported in literature, but these infections were due to *M. tuberculosis*[3]. The association between MGUS and *M. leprae* infection is a rare finding.

## Case report

A 56-year old woman was referred from the surgical unit with non healing lower limb ulcers for eight months duration. In addition, she had progressive numbness of both upper and lower limbs. She was free of systemic symptoms such as weight loss, poor appetite and bone pain.

Examination revealed diffuse infiltration of the facial skin and madarosis (Figure 1). There were non tender skin colored nodules on the limbs and the trunk. Tropic ulcers were present on both lower limbs and healed scars of previous burn injuries were present on fingers. She had thickened non tender ulnar nerves bilaterally and symmetrical glove and stocking type anaesthesia. The rest of the clinical examination was normal.

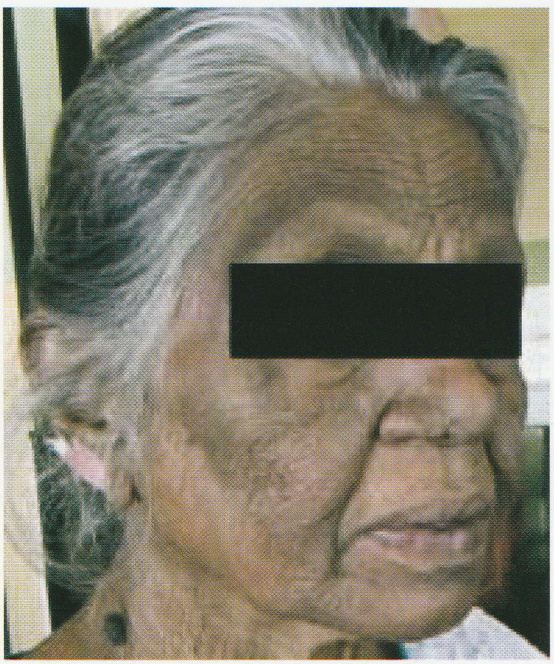

**Figure 1.**

Slit skin smear showed a bacillary index of 5+ with 80% solid forms. Histopathology of a nodule showed histiocytic granuloma within the dermis (Figure 2). Repeatedly high erythrocyte sediment rate prompted us to proceed with a blood picture which showed marked rouloux formation. Serum proteins were high with reversed albumin:globulin ratio and subsequent serum protein electrophoresis showed a monoclonal band in the γ region. Her renal function,

[1]*Senior Registrar in Dermatology*, [2]*Consultant Dermatologist, Colombo North Teaching Hospital, Ragama, Sri Lanka*

serum calcium levels, liver biochemistry, urine Bence-Jones protein levels and imaging studies (skeletal survey and abdominal ultra sound scan) were normal. Bone marrow trephine biopsy showed increased plasma cell content accounting for 8-10% of nucleated marrow cells.

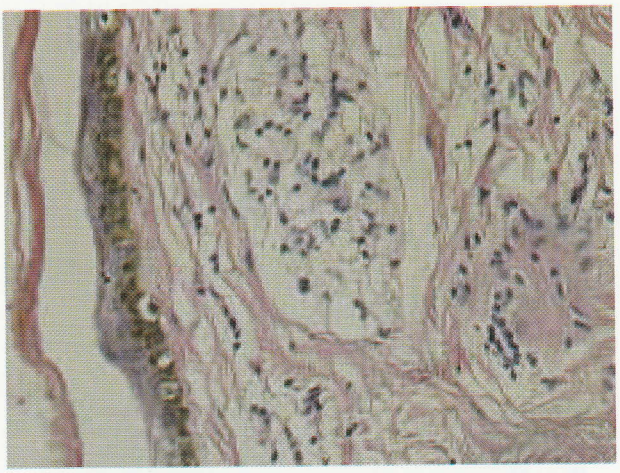

**Figure 2.**

She was started on MDT-MB for her leprosy and regular follow up was arranged to assess the progression of MGUS.

## Discussion

Given the wide variety of disease association with MGUS, the association with leprosy and MGUS may be rather coincidental[2]. However, this association is particularly interesting since it has not been reported to our knowledge in previous literature. Although the association between MGUS and tuberculosis has previously been reported, data related to the association with leprosy are lacking[2]. Chronic infection and immune stimulation may play an etiological role in MGUS. However, large population based studies are required to demonstrate the significance of these associations.

It is essential to quantify the serum M-protein levels in patients with MGUS. In our patient, it was not possible to demonstrate this since laboratory tests to quantify immunoglobulin are not available to us. Monoclonal protein level may remain stable or increase gradually leading to multiple myeloma. The initial level of serum M-protein is a major predictor of this progression while M-protein isotype, M-protein size, serum free light chain ratio and the presence of Bence Jones protein in the urine are also considered as prognostic markers[4]. Whatever the associated condition, MGUS patients should be continuously monitored.

In addition to possible malignant transformation, MGUS is associated with several other complications which need further attention. Osteoporosis, peripheral neuropathy, renal involvement and thromboembolic events are few of them[1].

It would be interesting to observe, whether the treatment of associated disease (eg. leprosy as in our patient) has any effect on the natural history of MGUS. However to asses this, serum M-protein levels should be done frequently during the follow up of the patient. We hope to follow up the patient with repeat ESR and serum protein electrophoresis.

## References

1. Berenson JR, Anderson KC, Audel RA, *et al.* Monoclonal gammopathy of undetermined significance: a consensus statement. *British Journal of Haematology* 2010; **150**: 28-38.
2. Bida JP, Kyle RA, Therneau TM, *et al.* Disease associated with gammopathy of undetermined significance: a population based study of 17 398 patients. *Mayo Clin Proc* 2009; **84**(8): 685-93.
3. Cheung WI, Leung VKS, Luk ISC, Loke TKL, Chan JCS, Chau TN. Splenic tuberculosis associated with monoclonal gammopathy of undetermined significance and pericarditis. *Hong Kong Med J* 2009; **15**: 291-3.
4. McMaster ML, Landgren O. Prevalence, clinical aspects and natural history of MGUS. *Cytometry Part* 2010; **78** (Suppl 1): 591-7.