# PATHOLOGICAL FINDINGS IN WM.

Roger Owen, M.D.

The laboratory diagnosis of haematological cancers relies upon the recognition that each disorder comprises a distinct clinico-pathological entity. This is the principal that underlies the World Health Organization classification of haematopoietic tumours which has been revised recently. Distinct clinico-pathological entities are therefore defined by the following features

- Morphology – the microscopic appearance of tumour cells
- Immunophenotype – the pattern of specific molecules (termed as antigens) expressed by the tumour cells. These antigens are typically denoted by CD numbers such as CD20, the target for rituximab
- Genotype – the genetic changes seen in the tumour cells
- Clinical features

WM is a bone marrow disorder and hence bone marrow aspiration and trephine biopsy is essential for diagnosis. Utilising the WHO principles WM is characterised by the following –

- Morphology – a so-called lymphoplasmacytic infiltrate in the bone marrow. Essentially this means that WM has two main cellular components. The dominant component is comprised of B-cells which are considered to be the proliferative fraction and will express CD20. The second cellular component comprises plasma cells which are responsible for the production of IgM. These develop or differentiate from the B-cells and the extent to which this occurs varies from patient to patient and explains the variability seen in IgM levels. This fraction will be CD20 negative.
- Immunophenotype – WM B-cells express CD20 but usually lack CD5, CD10 and CD23.
- Genotype – as yet there is no disease defining genetic abnormalities in WM. Deletions involving chromosome 6 are the commonest abnormality and may confer a poor prognosis but routine assessment of this abnormality is not currently required.
- Clinical features – clearly a diagnosis of WM cannot be made in the absence of an IgM monoclonal protein!

The diagnostic criteria also recognise the following groups of patients -

- Symptomatic WM - IgM monoclonal gammopathy, bone marrow infiltration and symptoms such as anaemia requiring therapy.
- Asymptomatic WM - IgM monoclonal gammopathy, bone marrow infiltration but no symptoms.
- IgM MGUS - IgM monoclonal gammopathy but no evidence of bone marrow infiltration and no symptoms.
- IgM related disorders – these are the patients who have symptoms attributable to the properties of the monoclonal IgM e.g. neuropathy and cold agglutinin disease. Typically such patients have no or a minimal degree of bone marrow infiltration.