

Paraprotein Guidelines

Background

An M-protein (otherwise known as a paraprotein) is a monoclonal immunoglobulin secreted by an abnormally expanded clone of plasma cells.

BOX1: Differential diagnosis includes

MGUS (Monoclonal Gammopathy of Undetermined Significance)

Multiple myeloma

Solitary plasmacytoma (skeletal or extramedullary)

AL amyloidosis

Waldenstrom's macroglobulinaemia

Non-Hodgkin's lymphoma and other B-lineage

lymphoproliferative disease

How common is MGUS and what happens with time?

Frequency of MGUS increases with age.

<u>Age</u>	<u>MGUS prevalence</u>
------------	------------------------

>50 years	3.2%
-----------	------

>70 years	5.3%
-----------	------

>85 years	7.5%
-----------	------

Approximately 1% per year will develop a myeloma or low grade lymphoma.

Small paraproteins may also occur transiently during infection or inflammation.

Further assessment

BOX2: Detailed history and examination looking for clinical features associated with myeloma, lymphoma or AL amyloidosis

Myeloma	Lymphoma /lymphoproliferative disease	AL amyloidosis
Bone pain/lesions	Lymphadenopathy	Macroglossia
Hypercalcaemia	Hepatosplenomegaly	Unexplained heart failure
Renal failure	Hyperviscosity (especially if IgM)	Peripheral neuropathy
Anaemia	Pancytopenia	Carpal tunnel syndrome
Hyperviscosity	B symptoms – night sweats, fever, weight loss	Nephrotic syndrome

BOX3: Laboratory testing:

- Serum immunoglobulins
- Spot urine for protein excretion and urinary protein electrophoresis (Bence-Jones Protein)
- Serum free light chains are an alternative to BJP if myeloma suspected, to complete the myeloma screen
- Full blood count
- Serum creatinine
- Urea and electrolytes
- Serum calcium

Management

Myeloma-related organ or tissue impairment?

- Hypercalcaemia
Corrected serum calcium >0.25 mmol/l above the upper limit of normal or >2.75 mmol/l
- Renal impairment
Creatinine >173 μ mol/l
- Anaemia
Haemoglobin 2 g/dl below the lower limit of normal or haemoglobin <10 g/dl
- Lytic lesions or osteoporosis with compression fractures
- Symptomatic hyperviscosity
- Amyloidosis
- Recurrent bacterial infections (>2 episodes in 12 months)

YES to any

No

IgG

IgA/M

IgG
paraprotein
 ≤ 15 g/L

IgG
paraprotein
16-30g/L

IgG
paraprotein
 >30 g/L

IgA/M
paraprotein
 ≤ 10 g/L

IgA/M
paraprotein
 >10 g/L

Life expectancy
 <5 years

Life expectancy
 >5 years

Baseline
assessment
(BOX2 and BOX3),
then routine
referral to
Haematology

Monitor at 6
months, then
annually if stable.

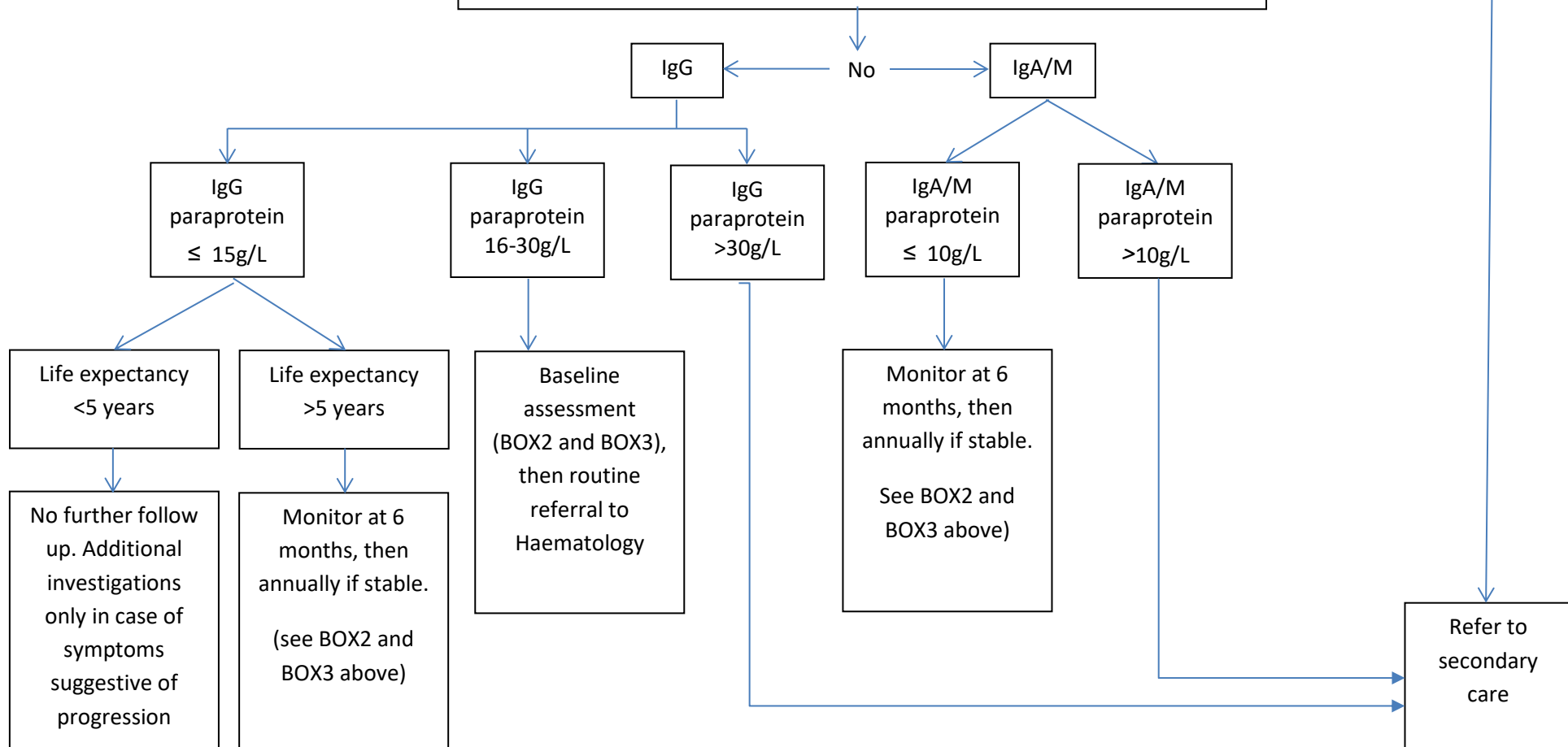
See BOX2 and
BOX3 above)

No further follow
up. Additional
investigations
only in case of
symptoms
suggestive of
progression

Monitor at 6
months, then
annually if stable.

(see BOX2 and
BOX3 above)

Refer to
secondary
care



Patient information

<https://www.myeloma.org.uk/documents/monoclonal-gammopathy-of-undetermined-significance-mgus-infosheet/>

References

Kyle *et al.* N Engl J Med 2006; 354:1362-1369

Bird *et al.* British Journal of Haematology 2009; 147, 22–42

Van de Donk *et al.* Haematologica 2014; 99(6)