

GP CME

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PLASMA CELL DYSCRASIA

Case

- 69F
- Active woman with osteoporosis on recent BMD
 - Bilateral oophorectomy 40-50s
 - Routine screen revealed IgA lambda paraprotein
- PMHx
 - Hyperlipidaemia on statin
- FHx:
 - “Bone cancer” but in hindsight ?metastatic from GU malignancy

Investigations

Haemoglobin	141 g/L	(115 - 155)
Haematocrit	0.42 L/L	(0.35 - 0.46)
MCV	94 fL	(80 - 99)
MCH	32 pg	(27 - 33)
RBC	4.43 x 10 ¹² /L	(3.60 - 5.60)
Platelets	335 x 10 ⁹ /L	(150 - 400)
WBC	4.5 x 10 ⁹ /L	(4.0 - 11.0)
Neutrophils	2.1 x 10 ⁹ /L	(1.9 - 7.5)
Lymphocytes	1.7 x 10 ⁹ /L	(1.0 - 4.0)
Monocytes	0.4 x 10 ⁹ /L	(0.2 - 1.0)
Eosinophils	0.2 x 10 ⁹ /L	(0.0 - 0.5)
Basophils	0.1 x 10 ⁹ /L	(0.0 - 0.2)

Sodium	138 mmol/L	(135 - 145)
Potassium	4.5 mmol/L	(3.5 - 5.2)
Creatinine	70 umol/L	(45 - 90)
eGFR	76 mL/min/1.73m2	(> 90)

Calcium	2.44 mmol/L	(2.10 - 2.55)
Phosphate	1.22 mmol/L	(0.75 - 1.50)
Calcium (albumin adjusted)	2.45 mmol/L	(2.10 - 2.55)
Albumin	39 g/L	(32 - 48)

	11/06/13 13:07	15/09/16 08:45	03/09/19 11:01	14/09/21 12:59	18/01/23 10:11	15/09/25 08:59	19/09/25 08:08	20/05/26 10:07	09/07/26 09:42	09/07/26 09:42
Bilirubin	6	10	9	5	8	8	5	7		9
Alkaline phosphatase	91	90	90	90	82	131	100	119		103
GGT	27	22	20	17	21	29	21	24		19
ALT	28	27	30	18	28	28	13	26		34
Protein	70	73	66	73	73	79	62	74		77
Albumin						39	32	38	39	39
Globulin	25	33	26	34	32	40	30	36		38
Calcium									2.44	
Phosphate									1.22	
Calcium (albumin adjusted)									2.45	
LIVER FUNCTION TESTS										
Albumin	45	40	40	39	41					
AST			30	29						
Comment										

IgG	8.7 g/L	(7.0 - 16.0)
IgA	13.5 g/L H	(0.8 - 4.0)
IgM	0.7 g/L	(0.4 - 2.5)
IMMUNOGLOBULINS		

Serum Protein Electrophoresis

Protein	77	g/L	(66 - 84)
Albumin	39	g/L	(32 - 48)
Globulin	38	g/L	(25 - 41)
Protein EPP			
Paraprotein 1 Type	IgA lambda		
Paraprotein 1 Size	10.0	g/L	
Paraprotein 2 Type	IgA lambda		
Paraprotein 2 Size	< 1.0	g/L	
Immunotyping			
PROTEIN ELECTROPHORESIS			

Protein EPP

There is a monoclonal protein present.

Immunotyping has been added to confirm and identify the monoclonal band. Result to follow.

Immunotyping

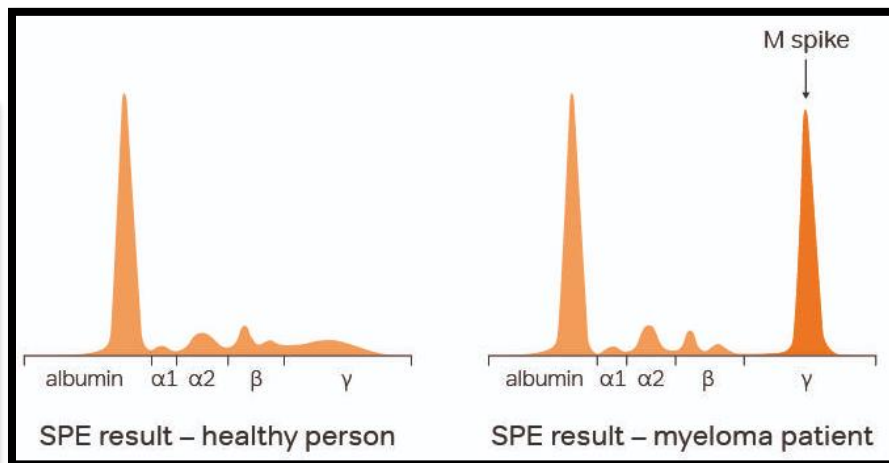
Immunotyping has identified the presence of multiple paraproteins.

Paraprotein 1 migrates in the beta-2 region.

Quantitation includes both the paraprotein and directly underlying physiological beta proteins.

Paraprotein 2 migrates in the near-gamma region and is too small to quantitate.

Immune suppression not seen.



Serum free light chains			
Kappa light chains (Optilite)	13	mg/L	3-19
Lambda light chains (Optilite)	40	mg/L	H 6-26
Kappa/Lambda ratio (Optilite)	0.33	0.26-1.65	
LabPlus Reference Number	19H26Q729100		
Result From	LabPlus Auckland		

Immunoglobulin

- Paraprotein
 - Measure of the heavy and light chain
- Light chain
 - Kappa or lambda only
- Diagnosis
 - IgX myeloma/MGUS
 - K/L light chain
 - Non-secretory myeloma
 - Oligosecretory myeloma
 - Plasmacytoma
 - **(AL amyloidosis)**

Indication to Treat

SLiM-CRAB

- Unchanged
 - Sixty (60% plasma cell burden)
 - *Light chain ratio >100*
 - MRI (bone lesions)
 - Calcium >2.75mmol/L
 - Renal impairment >176umol/L
 - Anaemia (Hb <100g/L)
 - Bone disease

High risk SMM

- Not used in NZ but practiced in Australia
- 20/20/20 (2 or more /3)
 - >20% plasma cell in bone marrow
 - Paraprotein >20g/L
 - SFLC ratio >20x

Treatment

- Many new things
- Not funded....
- Don't want to talk about it

Take home message

- Not uncommon to detect paraprotein
 - iStopMM will be used much more often
 - Risk may be overestimated in some patients
 - Serum free light chain interpretation
 - Absolute number may not be as important
 - Kappa LC is “retained” in older patient or with renal impairment
 - Bence Jones protein is done less often
 - Non-secretory myeloma are rare
 - Generally will have immunoparesis

Causes of Thrombocytosis

- Reactive
 - Increased bone marrow activity
 - Acute bleeding/haemolysis
 - Iron deficiency
 - Infection
 - Splenectomy
 - 30% of platelet is sequestered in spleen
 - Inflammation
 - Autoimmune
 - Malignancy
 - Trauma/Surgery
 - Smoking
- Primary
 - Myeloproliferative neoplasm

Clinical relevance of thrombocytosis in primary care: a prospective cohort study of cancer incidence using English electronic medical records and cancer registry data

Sarah ER Bailey, Obioha C Ukoumunne, Elizabeth A Shephard and Willie Hamilton
Br J Gen Pract 2017; 67 (659): e405-e413. DOI: <https://doi.org/10.3399/bjgp17X691109>

- Prospective Registry Data
- Associated
 - Lung
 - Colorectal
 - Urogenital
- Annual Risk of Cancer
- Few comment
 - Lack of multivariate analysis is frustrating
 - Clear evidence of chronic inflammation causes cancer
 - Chicken or Egg

	Elevated %/NNT	Persistent (within 6m)	4-12m	13-24m	Baseline
Male	11.6%/(13)	18.1%/(7.1)	3.9%	2.7%	4.1%
Female	6.2%/(25)	10.1%/(12.7)	2.4%	1.8%	2.2%

MYELOPROLIFERATIVE NEOPLASM

- Copenhagen General Population Study
 - 2003-2008
 - 49488 individual
 - Real-time qPCR technique
 - Those who were positive was re-invited in 2012

0.12%

Investigation

- Polycythaemia
 - JAK2 V617F
 - *JAK2 exon 12 no longer performed*
 - Serum erythropoietin
 - SGLT-2 inhibitor
- Thrombocytosis
 - BCR-ABL1 (especially with concurrent leucocytosis)
 - **MPN NGS panel**
 - Historically sequential testing
 - BCR-ABL1 + JAK2 V617F if negative
 - CALR and MPL

- Myeloid NGS panel (LabPlus)
 - 50 genes (minimum 500x)
 - More than just detected could potentially give a % of variant
- MPN NGS panel
 - 11 genes
 - Actually the same test as above but only “report” 11 genes
 - However, all 50 genes are actually tested
- ***Consent is required***

ET – Current SoC

Low Risk

- Aspirin as per IPSET

High Risk

- Aspirin
- Cytoreductive Therapy
 - **First line**
 - Hydroxycarbamide >90%
 - Salvage treatment
 - Peginterferon (MPD-RC 111)/Anagrelide
 - Busulfan

Take home message

- TestSafe is amazing
 - Trend is important
- MPN is rare disease but prevalent
- Recent change in testing process
 - MPN NGS