

FRCPath Immunology Part 2 oral examination question example question

Stem	<p>A GP calls you for advise to request for “RAST” Allergy test - to Sultanas, Raisins, Chocolate and Tomatoes. He informs you he has seen a 32 year old lawyer, who is anxious and thinks she is having reactions to lots of different things. She is demanding that she should have an Adrenaline Auto-Injector and he wants the above tests done to reassure her.</p> <p>You arranged to see the patient in the clinic. She informs you that the first episode happened at around 10:30 in the night when she ate a handful of dry sultanas and within 20 minutes developed significant itching of the palms, facial swelling and a generalised rash, she went to the local A&E, and was treated with antihistamines and steroids. When she woke up next morning, she continued to have significant facial swelling and it took about a further two days for the symptoms to completely resolve.</p> <p>Since then she has had several similar episodes with various different foods:</p> <ol style="list-style-type: none">1. A chocolate dessert (Gu desert)2. Mediterranean vegetables with cherry tomatoes3. Del Monte prepared fruit (piece of pineapple and melon)4. Chicken kebab dish (with salad + tomato + cucumber + lettuce)5. Mustard mayo6. Jamaican bun with raisins7. Ribena (kind of grape juice)8. Tesco white chocolate plus strawberry sponge cake <p>She has attended A&E 6 times with similar episodes.</p>
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Part	Question	Answer	Marks
a)	What additional information would you need to explore in the clinic?	<ul style="list-style-type: none"> • Temporal relationship of onset / sequence of symptoms with each of the foods • Clarify symptoms and signs (angioedema, wheeze, blood pressure, SaO2) • Is there a history of hay fever – spring vs summer • Is there a history Asthma – establish severity (use of relievers, admission with asthma attacks) • Explore OAS/PFS • Establish difference in tolerance of cooked and processed foods. • Cofactors' impact on symptoms : Alcohol, Exercise, NSAIDs, Infection • Ethnicity • Serum tryptase 	<p>1</p> <p>1</p> <p>0.5 +0.5</p> <p>0.5 +0.5</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>9</p>
b)	What is your diagnosis / differential diagnosis? List all the possibilities given the clinical scenario	<ul style="list-style-type: none"> • nsLTP Allergy • Allergy to Cross reactive allergen component • Food allergy with a potential co-Factor (FDEIA spectrum) • Allergy to an unknown allergen • Idiopathic Anaphylaxis • Spontaneous Urticaria and Angioedema • Systemic mastocytosis 	<p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>8</p>
c)	What allergy investigations should be performed in this scenario?	<p>Skin prick tests (aeroallergens and relevant foods)</p> <ul style="list-style-type: none"> • Specific IgE testing • Allergen component panels (components, ISAC) • Total IgE • Baseline serum tryptase 	<p>0.5 + 0.5</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>5</p>

	<p>What are the advantages and limitations of each type of testing?</p>	<p>Specific IgE</p> <p>Advantages</p> <ul style="list-style-type: none"> • No risk of systemic reaction 0.5 • Multiple tests from a single sample 0.5 • No interference from drugs 0.5 • No interference from dermatographism 0.5 <p>Limitations</p> <ul style="list-style-type: none"> • Predictive values variable 0.5 • Variable specificity and sensitivity 0.5 • CCD interference 0.5 • Challenges in interpretation in patients with high Total IgE 0.5 • Differences in Antigen : Native and Recombinant proteins 0.5 • Differential performance in different platforms (Immunocap, Hycor, Siemens) 0.5 • Limited range 0.5 • Not helpful in non-IgE-mediated reactions 0.5 <p>6</p> <p>Microarray / Macroarray Specific IgE testing by Panels (ISAC / ALEX)</p> <p>Advantages :</p> <ul style="list-style-type: none"> • Improved antigen specificity 0.5 • Clarify True food allergy (Species specific) Vs Cross reactive allergy 0.5 • Multiple tests from a single sample 0.5 • No CCD interference in recombinant proteins 0.5 	
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<p>d)</p>	<p>You will be provided some more information during the viva and will be asked <u>four</u> more questions.</p> <p><i>1. What laboratory investigations would you like to do for this patient and why ?</i></p> <p>Information to be provided to the candidates during the viva</p> <p>Result 1</p> <p>Result 2</p> <p><i>2. Comment on the results</i></p>	<ul style="list-style-type: none"> • ISAC Profile looking for Cross-reactive allergen components <p>OR</p> <ul style="list-style-type: none"> • Specific IgEs to look for Cross reactive allergen components – nsLTP / PR10 / Profilins <ul style="list-style-type: none"> • Raised tryptase consistent with MC degranulation, return to 	<p>2</p> <p>1</p>

	<p>provided</p> <p>3 Discuss nsLTP Allergy. What food avoidance measures do you advise to someone with nsLTP allergy</p> <p>4 Would you prescribe an adrenaline autoinjector (Epipen, Emerade)?</p>	<p>baseline</p> <ul style="list-style-type: none"> • ISAC result consistent with nsLTP sensitisation • Clinically consistent with LTP allergy <ul style="list-style-type: none"> • Lists examples of foods which contain nsLTP (Peach, Grapes, Peanut, Hazelnut, Tomatos, Kiwi, Sunflower, Wheat etc) • nsLTps have high thermal and proteolytic stability • nsLTP is a PR14 protein • Recognises nsLTP is widely distributed in plant kingdom: in multiple foods and it is very challenging to provide food avoidance advise in this scenario • WHO /IUIS Allergen Nomenclature website for nsLTP • Recognises potential for severe anxiety around foods • Recognises potential risk of adverse impact on nutrition because of multiple food avoidance • Able to answer why one may be able to tolerate some nsLTP containing foods but not others – difference in nsLTP epitopes, difference in thresolds <ul style="list-style-type: none"> • Will depend on the clinical presentation, indicated if severe reactions 	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>13</p> <p>2</p> <p>15</p>
Total			57

Result 1

CASE – 32 Year lawyer



1. Summary of positive IgE results

Mainly species-specific food components

Shrimp	Pen m 2	Arginine kinase	0,4 ISU-E	
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Cross-reactive components

Lipid transfer protein (nsLTP)				
Hazelnut	Cor a 8	Lipid transfer protein (nsLTP)	15 ISU-E	
Walnut	Jug r 3	Lipid transfer protein (nsLTP)	1,4 ISU-E	
Peach	Pru p 3	Lipid transfer protein (nsLTP)	1,3 ISU-E	
Mugwort	Art v 3	Lipid transfer protein (nsLTP)	0,7 ISU-E	
Plane tree	Pla a 3	Lipid transfer protein (nsLTP)	0,9 ISU-E	

ISAC Standardized Units (ISU-E)

- < 0.3
- 0.3 - 0.9
- 1 - 14.9
- ≥ 15

Level

- Undetectable
- Low
- Moderate / High
- Very High



Result 2

The serum mast cell tryptase was measured on one occasion in A&E and was 30 ng/mL, and it was 4 ng/mL when measured in the Allergy clinic (reference range 2-14ng/ml).