

A DAY IN THE LIFE OF AN ALLERGIST: THINKING OUT OF THE BOX

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ABSTRACT

Allergology is so much more than 'itchy noses'. It is a broad sub-specialty which encompasses immunological 'mishaps' in many organ systems. Part of the art of allergology is sorting out the 'normal' from the 'allergic' from the 'alternative diagnoses'. The allergist needs to be able to see through common misperceptions, arrange appropriate tests for the patient in a targeted rather than a generic way, and recognise patterns of symptoms which can lead to the diagnosis. The allergist then needs to gently guide the patient into accepting the real diagnosis, and set out management plans for the long term as well as for acute exacerbations and emergencies. It is one of the few sub-specialties that deals with the whole patient rather than homing in on a specific organ system. The variety is stimulating and challenging, as demonstrated by a series of cases in the 'day in the life of an allergist'.



INTRODUCTION

When people ask me about the specialty of allergology, I often comment that I spend as much time 'disproving' allergies as I do 'confirming' them. Patients (and doctors) like to put a name to things, and the term 'allergies' is a common 'justification' used to explain a wide variety of presentations. One of the important skills in allergology is to recognise allergies but also to think laterally and recognise alternative diagnoses, even in someone who has been labelled 'allergic'.¹

In this part of the series, 'a day in the life of the allergist', I have taken the liberty of condensing some of interesting cases which I have seen in the past eight weeks (January–February 2021) into a 'day'. Two themes have come to the fore: management strategies in chronic itch/urticaria and conditions simulating asthma.

PART I: OF ITCHING AND URTICARIA ...

CASE 1

A 21-year-old university student came to see me for the third time in three months. He had been diagnosed with cholinergic urticaria (CU) – a sub-type of the chronic inducible urticarias – brought on by a rise in body temperature or sweating. He had, for the preceding six months, experienced recurrent episodes of a sudden onset of small, intensely itchy hives, whenever he started any form of exercise (even walking up a flight of stairs) and when he became upset/angry ('emotional'). This had become rather troubling as he was not able to participate in any form of physical activity, was unable to take a warm shower and felt awful whenever he became upset, anxious or irritated. Since he had started consulting me three months previously, we had tried a combination of high-dose rupatadine (20 mg twice daily) with montelukast 10 mg daily and ketotifen 2 mg at night.² He had tried a variety of other antihistamines, up to four times the recommended daily dose, without significant effect.

Today we needed to try something different. He was reluctant to start omalizumab because of financial and time constraints.



Figure 1: Photograph depicting the typical small hives of cholinergic urticaria

Our next port of call was propranolol, a beta-blocker. We started at 20 mg twice daily and moved up to 40 mg twice daily.³ We continued the rupatadine and montelukast. When we had to review his blood pressure and pulse two weeks later, he arrived with a gleeful grin, reporting a significant improvement in the symptoms. He had even had a pillow fight with his flatmate and had not developed hives or itching! And he tolerated a warm shower afterwards! This had not happened for a while.

Comment: One theory of the pathogenesis of CU is that increased sympathetic tone stimulates the post-ganglionic cholinergic fibres, leading to mast cell granulation. In such cases a beta-blocker may be a very useful addition to antihistamines and antileukotrienes.

CASE 2

Hot on the heels of the 21-year-old patient with chronic urticaria was a 12-year-old girl with a six-month history of recurrent, severe urticaria and angioedema when showering, swimming and exercising. She was completely disheartened as her dream was to play waterpolo for her school – an impossible activity, given her urticaria. During the COVID-19 lockdown we had done some telephonic consultations and also prescribed regular high-

dose rupatadine, and montelukast, with cetirizine in between as needed. This was barely working, and in considering alternative strategies, I thought about the successful use of propranolol in the previous patient. But this girl was more complicated in her medical history – she had coeliac disease as well as Type 1 diabetes, so I did not wish to interfere with her sympathetic nervous system, which could blunt responses to blood-glucose irregularities.

We talked about omalizumab. Omalizumab has now become the licensed 'second-line' agent in the chronic spontaneous or inducible urticarias which fail to respond to high-dose antihistamines.⁴ Both the parents and the patient were keen to try it, as her quality of life had deteriorated significantly with the recurrent itching and rashes. We talked about the complexities of attaining medical insurance cover for the omalizumab. However, in view of the severity of her symptoms and the urgency to try a new treatment, the parents opted to pay for the omalizumab privately. This sped up the process significantly, as we were able to set up an omalizumab injection for later that week. We opted for 150 mg in view of her young age.

For three weeks after the injection she experienced a significant improvement in urticaria and itching. She attended swimming lessons and was able to make it through the practice session without breaking out in hives. She could shower and wash her hair. The occasional hive was managed with a dose of cetirizine. In week 4 post injection, the symptoms started to recur. At the next injection, four weeks after the initial one, we discussed the initially impressive effect but then the waning efficacy in the past week and decided to try a 300 mg dose instead of 150 mg. Doubling the dose of omalizumab has not been found to have any significant side-effects, but may well improve the efficacy or longevity of action. The outcome of the increased dose remains to be seen at the time of writing this article.

Comment: Omalizumab has worked its way up the chronic urticaria ladder and is now a second-line agent, after high-dose antihistamines. It can be highly effective. The dosage and dosing interval may need to be adjusted according to symptom-relief patterns and side-effect profile.⁵

CASE 3

A 48-year-old man with a ten-year history of intermittent discoid eczema presented with an eight-month history of acutely itchy skin, worsened by exposure to sun, alcohol and hot showers. He also experienced dermatographism. Apart from eczema lesions on his trunk, the itch on the rest of the body was not associated with any particular lesions or rashes; just an intensely debilitating itch. He was concerned about a possible drug reaction to thyroid-replacement medications, but had not experienced significant improvement on stopping the medications temporarily. A previous full blood count, renal function tests and liver functions were normal. We ordered a baseline tryptase level, which was normal.

I generally realise that when middle-aged or elderly adults come into a paediatric allergy centre, they have come to the 'end of the road', desperate for answers, after having seen numerous family doctors and specialists! My first inclination was to manage this gentleman as a chronic spontaneous urticaria (CSU) case in addition to his longstanding eczema, hence I started him on fexofenadine 180 mg twice daily and montelukast 10 mg daily, as well as topical treatment for the eczema patches. On review two weeks later, he reported that the initial response to an antihistamine

treatment had been pleasing, but that after a week his generalised skin itching was again severe and debilitating, especially at night. I was not comfortable with this atypical response to treatment, therefore I decided to repeat some blood tests.

We repeated his blood count and found a raised haemoglobin of 17.8 g/dL (normal range 13.5–17.5 g/dL). We therefore added on iron studies and were surprised to find a markedly raised ferritin level of 410 ng/mL (normal range 20–250 ng/mL).

I called for the assistance of a helpful haematologist, whose detailed work-up ruled out malignancies and found the patient to be a carrier for haemochromatosis. In view of the high ferritin, he underwent serial venesection.

It is with delight that I heard the feedback that once the ferritin was down to normal, the itch settled almost completely.⁶

Comment: Atypical itching/urticaria should prompt consideration of an alternative diagnosis: uraemia, cholestasis, polycythaemia, hyper-ferritinaemia and haemochromatosis can all lead to itching.⁶ Approximately 30% of patients with Hodgkin's disease feel significantly itchy.

Learning Points

- Chronic itch and urticaria can have a variety of underlying causes.
- Typical CSU which does not respond to high-dose antihistamines may require a trial of beta-blockers (especially in CU) or omalizumab.
- If the urticaria/itch is not typical, then think laterally and consider systemic causes.

PART II: SHORTNESS OF BREATH: NOT ONLY ASTHMA ...

CASE 1

A ten-year-old boy came to our allergy centre with his father during the latter part of the second wave of the COVID-19 pandemic. He was a longstanding asthma patient of mine, but had outgrown his asthma symptoms by the age of six years and had been comfortably off controller therapy for four years. There was a concern about the return of asthma. Of late, when he walked up stairs or ran while playing in the garden, he became very short of breath. I questioned further: there was no audible wheeze and no cough. The sensation of dyspnoea was mainly on inspiration. The boy examined well with a clear chest and a normal age-and-height-related peak flow. However, he had noticeably gained a significant amount of weight since his last visit – his weight of 47 kg lay on the 98th centile, whereas his height of 138 cm was average for age. On prompting, he admitted to having been very sedentary during the lockdown; the entire year had been sports-free at school, and the quality of his diet had slipped into luxury-dominance. Of the many indirect consequences of COVID-19, lockdown-related inactivity and an increase in obesity have been visibly common.⁷

In this case, the shortness of breath was ascribable to obesity and deconditioning (being 'unfit'). There were no signs of asthma. We counselled the family on healthy diet and exercise habits, and the importance of staying in shape for one's general health.

Comment: A lack of exercise and obesity can contribute to shortness of breath, especially on exertion, which can be confused with asthma. In addition, obesity can worsen pre-existing asthma.⁸ When assessing patients for chest issues, their nutrition and body

mass index (BMI) should be taken into consideration.

CASE 2

A 12-year-old girl came in for assessment for asthma. She was fit and well, with no underlying atopy. During the preceding three months, she had started making some strange noises when breathing, which the parents thought were possibly due to asthma. On further questioning, the strange breathing did not worsen from exercise or extremes of emotion and there was no associated cough. The strange breathing occurred only during the day, even when distracted and resting, and disappeared at night.

Examination showed the chest was totally normal and aeroallergen tests were negative. During the consultation, she had three episodes of the unusual breathing pattern, in which she took a deep sighing inspiration, similar to a yawn. Oxygen saturation was normal; ears, nose and throat (ENT) examination was normal, and a chest X-ray was normal with no constriction or swelling around the upper airway.

A diagnosis of *sighing dyspnoea* (or 'sigh syndrome') was made. Sighing dyspnoea is an uncomfortable sensation of feeling unable to take a deep, satisfying breath during normal breathing, leading to recurrent deep sighing or yawning-type breathing.⁹ The inspiration can be quite exaggerated and staccato-style, leading to a concern about breathing difficulties. It is more common in females. Conversation remains normal, and episodes tend to occur more when the patient is alone or at rest. Sighing dyspnoea tends to occur in 'blocks' lasting days to weeks and can be helped by 'slow breathing' exercises. It is an entirely benign and transient condition, but it can evoke a lot of concern and unnecessary investigation if the physician is not familiar with the syndrome.¹⁰

Comment: In the past year I have seen four patients with 'sighing dyspnoea'. Many presented with extreme concern about a serious respiratory condition, and I will admit that I over-investigated the first such patient I had. But with pattern-recognition this has become a simple condition to diagnose, and reassurance with breathing exercises (and 'putting a name' to the condition) are usually all that is needed to manage the condition.

CASE 3

An 18-month-old boy came in with a one-week history of a worsening cough. He had experienced two prior episodes of viral-induced wheezing, at ten and 12 months of age respectively. The little boy was active and afebrile, but the breathing had become more laboured in the preceding few days. The chest was clear on examination despite tachypnoea (respiratory rate 60) and

subcostal recessions; and the oxygen saturation was reduced at 92%. I was concerned about pneumonia but confused regarding the clear chest, and so I proceeded to ask about COVID-19 exposure or any other unusual recent events or exposures. The father informed us that the little boy had eaten a handful of peanuts a week previously, and had suddenly coughed a lot at the time as if choking, hence the parents had taken him to the ER. There he had examined well and had a clear chest X-ray, so he had been given the all-clear.

Against this history, the worry about a foreign-body inhalation escalated, the little boy had an immediate chest X-ray (which showed hyperinflation but no localised consolidation) and was transferred within hours to our willing paediatric pulmonologists. The very next morning he had a bronchoscopy and half a peanut was retrieved from the right main bronchus. He made an uneventful recovery after this.

Comment: In a young child with shortness of breath or a progressive cough which is not explained by a typical bronchiolitis or pneumonia, always ask about the possibility of foreign-body inhalation.¹¹

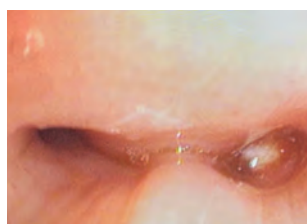


Figure 2a: Peanut visible in right main bronchus on bronchoscopy

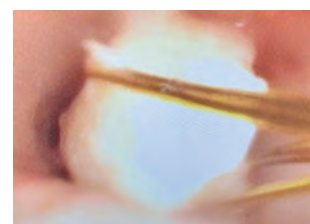


Figure 2b: Removal of the peanut bronchoscopically

(These are true photographs of the patient in the case, courtesy of Dr Taryn Gray, Paediatric Pulmonologist, Cape Town)

CONCLUSION

So many different clusters of symptoms and signs can present to an allergologist. If a referring doctor or the patients and/or caregivers have labelled the patient as 'allergic', do not take it at face value. Listen, examine and investigate appropriately but judiciously. Yes, some will be 'barn door' allergies, but some may require lateral thinking, taking the patient's current age or situation into account and practising astute pattern recognition.

DECLARATION OF CONFLICT OF INTEREST

The author declares no conflict of interest.

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