A PATIENT'S JOURNEY

# Childhood asthma

Chantelle Down,[1] Anna Chappell[2]

[1]Penzance
[2]Rosmellyn Surgery, Penzance TR18 4JH
Correspondence to: A Chappell apldj@btinternet.com

Cite this as: *BMJ* 2009;339:b2889
doi: 10.1136/bmj.b2889

This patient describes becoming increasingly adept at managing her asthma, particularly with the help of dance

I am a 15 year old girl, and asthma greatly affects my life and the lives of my family and friends. My mother also has asthma, but my sister has now grown out of the condition. I was only 18 months old when I showed the first signs of asthma. At first my mother thought it was a chesty cough, but it lingered for many weeks. In addition, I was extremely wheezy and tight chested at times. My GP repeatedly assured my mother that there was nothing to worry about and that it was only a cough. As my mother has had asthma all her life, she was not convinced of this. Dissatisfied with the GP's diagnosis, she took me to see a locum doctor, who immediately recognised the symptoms of asthma. Because of our family history, he had me admitted to Treliske Hospital in Truro. Consequently my mother decided to change to a new GP, who still looks after our whole family.

I was put on a nebuliser twice a day for a week and given the steroid prednisolone. It was at this point that I was diagnosed with asthma. As I was only 2 at the time, I cannot clearly remember going into hospital or exactly what happened there. When I was first diagnosed it was an extremely stressful time as I did not know what was happening to me. It was very frightening for my family to watch me suffer and was by far the most worrying time for them. The staff at the hospital were all brilliant and offered as much advice as possible to my mother, who stayed in the hospital with me. When I left hospital about two weeks later I had my first home visit from an asthma nurse, who was a great support and provided helpful advice on how we should continue my treatment. She also spent a lot of time teaching me how to use my inhalers correctly through a spacer device.

At the age of 3 I started preschool, which did not cause any problems as the staff were made aware of my condition and were told how to supervise my use of my inhalers. However, when I started infant school, things changed slightly. Some of the other children did not understand about asthma. Going through junior school was extremely stressful at times as I was often bullied about my condition. Quite often members of school staff are unaware of how to deal with an asthma attack. Living with asthma has often made me feel out of place, and, in the past, I have had to take several days off school because of doctors' appointments and an inability to breathe. In addition, doing sports has caused problems with coughing fits, breathlessness, and wheezing. The amount of exercise I could undertake used to be very limited, and I had to sit out during physical education (PE) lessons, which again made me feel different from everybody else.

## How dance changed my life

During my last year of primary school I joined an after school dance club, which changed my life. The dance club took place just once a week at first, and I needed to use my inhaler more frequently than normal, but I loved it. I persevered, and over time I built up the number of lessons I took part in each week. Dancers are taught how to breathe and relax in a different way in order to enable them to take in enough oxygen to move quickly around the floor. Now at the age of 15, I have been dancing for five years. I train for 16 hours a week, and my breathing and asthma have improved dramatically. Dancing has acted as a natural therapy, enabling me to reduce the number of times I use my salbutamol inhaler. My dance teacher is fully aware of asthma in dancers and has taken courses on how to deal with the problems it could cause.

## My journey with drug treatment

Over the years I have been prescribed many medicines to help with my asthma. Currently the only medications I take are salbutamol and Seretide. To begin with I was given salbutamol and beclazone to inhale through a spacer device. Originally, when I was very young, I found this difficult, but the treatment seemed to be a success. As I grew older, this treatment seemed to work less and less. I was then given a new type of inhaler—the Oxis Turbohaler. This was a complete failure, however, and I had to go back to salbutamol and beclazone. In addition, I was given Singulair tablets to take before I went to bed to reduce the number of times I needed to use my inhalers the next day. This was brilliant, and I soon found I was using my inhalers only twice a day, once in the morning and once in the evening. Later I tried a new form of inhaler to replace the beclazone—Seretide—which is easier to use and much more effective than beclazone. I visit my doctor or asthma nurse every three months for a check up, to review my medication, and to ensure it is still working.

## Triggers

My asthma is triggered by a number of things, varying at different times in the year and depending on where I am and on my surroundings. One of the main triggers

This is one of a series of occasional articles by patients about their experiences that offer lessons to doctors. The *BMJ* welcomes contributions to the series. Please contact Peter Lapsley (plapsley@bmj.com) for guidance

### THE CLINICIAN'S PERSPECTIVE

I have been Chantelle's asthma nurse for the past 10 years. Her early experiences are very common because in children aged under 5 years it's difficult to use a peak flow meter or spirometry to diagnose asthma.

There are many causes of wheeze in children, and it is important that health professionals do not label a child asthmatic when this may be an inaccurate diagnosis. Viral induced wheeze associated with upper respiratory tract infections is very common in children under 5; the wheeze, cough, and breathlessness are present only during the viral illness, and there are no persistent symptoms. Most of these children will grow out of these episodes by school age. Recent guidelines from the British Thoracic Society recommend recording the starting point at which the diagnosis is suspected and investigating further according to the probability of asthma.

Good history taking is paramount in a case such as Chantelle's. Chantelle's family history is very suggestive of atopy. She had eczema as a baby and didn't tolerate cows' milk formula. She was admitted to hospital at the age of 2 years with wheeze and respiratory distress after having three or four episodes of wheeziness previously. Her mother reported a persistent night time cough also at the age of 2 years. She was treated in hospital with bronchodilators and prednisolone, and these medications had a positive response.

Over the years Chantelle has been prescribed various inhaled therapies. Recently she has had a good response to the leukotriene receptor antagonist Singulair, which seems to work well in people with asthma who have atopy and exercise induced symptoms. Asthma is a chronic inflammatory disease of the airways with variability. As Chantelle has grown up, she has become more aware of her condition and has improved her general fitness. Dancing has helped her to control her breathing, and she has become more aware of the triggers that affect her asthma and tries to avoid these where possible.

Chantelle's asthma is now well managed with a low dose Seretide Accuhaler used twice daily, and she rarely needs her short acting bronchodilator.

Health professionals working with patients who have asthma need to develop a good relationship with their patients. We need to educate them about the condition, explain the importance of regular maintenance therapy, and ensure that the lowest dose is taken to maintain optimal asthma control.

Anna Chappell, practice nurse with special interest in respiratory medicine

### USEFUL RESOURCES

Asthma UK (www.asthma.org.uk)—Charity dedicated to improving the health and wellbeing of the 5.4 million people in the UK whose lives are affected by asthma

Asthma and Allergy Foundation of America (www.aafa.org)—Non-profit organisation dedicated to education and to finding a cure for and controlling asthma, food allergies, nasal allergies, and other allergic diseases

Asthma Foundations Australia (www.asthmaaustralia.org.au)—Aims to eliminate asthma as a major cause of ill health and disruption within the community by providing asthma education, information, research, community advocacy, and support to people with asthma and their carers

for me is pollen, which gives me hay fever, for which I have to take cetirizine. Now that I am getting older, my hay fever seems to be lessening in its severity. During the winter, sudden cold air can trigger an asthma attack. If I get a cold, it quite often goes to my chest, and I then need to take steroids and antibiotics. Possible other triggers include hairspray, dust, and aerosol deodorants. Recently some girls at school were spraying large quantities of deodorant in the changing room, which is small and windowless. In so confined a space, the hairspray triggered my asthma. I could not breathe and was gasping for air. My teacher would not listen to my cries for help and told me to be quiet. Fortunately, my best friend grabbed my inhaler from my school bag and took me out of the room. I very nearly had a bad asthma attack that day.

### The need for education

This is just one example of the sorts of situation I have been in. Similar incidents occur frequently in schools and workplaces throughout the country. This is why my family and I feel that it is so important to publicise asthma and make both adults and children fully aware of it and of the problems it can cause. In schools all teachers should have relevant training in case someone in their class has an asthma attack, and asthma should be recognised as the serious condition it is. We fully support the work done by the charity Asthma UK to help improve awareness of this frightening and sometimes life threatening condition.

**Competing interests:** None declared.

**Provenance and peer review:** Not commissioned; not externally reviewed.

**Accepted:** 3 March 2009

## A patient's narrative

When Lenore was in her 70s she asked me whether I thought she should write her autobiography. I encouraged her, thinking that she would benefit from the process. What surprised me was how much I learnt.

Reading her book 18 months later, I reassessed my history-taking skills. Hadn't I asked about her family? I knew of her children, her grandchildren, and where her former husband lived. Yet I'd missed those no longer alive and here learnt for the first time of her mother's suicide. I knew of her diabetes and how important its management and doing physical exercise were to Lenore. Here, I learnt how controlling her sugar levels with sport had coincided with her own lifting of her severe depression.

Her hospitalisation for incapacitating mental illness had happened abroad, a decade earlier. No formal discharge letter existed in her medical record. Yet here were all the salient points I needed coloured by her invaluable impressions—from the black attired psychiatrist who had concurred with her pessimistic view of the future to the numb empty days of hospitalisation. Lenore had used the diaries written during this period as the basis for her book, and her perception of herself both during her depression and in retrospect was enlightening.

Could I have gleaned all this in the consulting room with time, patience, and skills attuned to narrative history taking? I'm not sure. I would still have been present, however light my touch, still moulding the story to my needs.

Should we encourage all our patients to write autobiographies? Probably not, but if you're lucky enough to have a patient place his or her book in your hands, take the time to read it.

**Katharine Thomas** family physician, Tel Aviv, Israel
marshykd@gmail.com

Patient consent obtained.

Cite this as: *BMJ* 2010;340:b2950

LESSON OF THE WEEK

# Unrecognised scurvy

Clarisa T P Choh,[1] S Rai,[1] M Abdelhamid,[1] W Lester,[2] R K Vohra[1]

[1]Department of Vascular Surgery, University Hospitals Birmingham NHS Foundation Trust, Selly Oak, Birmingham B29 6JD
[2]Department of Haematology, University Hospitals Birmingham NHS Foundation Trust, Edgbaston, Birmingham B15 2TH
Correspondence to: C Choh
clarisa.choh@gmail.com

Cite this as: *BMJ* 2009;339:b3580
doi: 10.1136/bmj.b3580

## Take a careful dietary history to exclude scurvy in patients with unexplained musculocutaneous bleeding

Scurvy, first described by Hippocrates, has troubled sailors and soldiers since 460 BC, and consumption of citrus fruit was shown to be a cure by James Lind, a Scottish naval surgeon.[1] Scurvy is a deficiency of vitamin C and commonly occurs in people with poor social status, malnutrition, and alcoholism, especially in those with peculiar dietary habits.[2 3] It is thought to be rare in the developed world, but emerging literature has shown otherwise.[4-6] Poor vitamin C status is relatively common in the United Kingdom, especially in adults living on a low income, with a prevalence of 46% in men and 35% in women.[4] Scurvy has also been described in reports from the United States,[7] Canada,[8] Spain,[9] and Italy.[10] Patients usually present with fatigue, gum swelling or bleeding, and skin discolouration.[7 11 12]

Here, we discuss a case of a young man who presented with unilateral leg swelling and pigmentation, in association with other symptoms such as gastrointestinal bleeding and epistaxis, which resolved after the oral administration of vitamin C.

### Case report

A 30 year old white law clerk presented to the orthopaedic team with a two week history of non-traumatic left leg swelling and bruising. It had started with pain and swelling on the medial aspect of the left knee, which progressed to extensive bruising and swelling on the posteromedial aspect of the left thigh and calf. He was a non-smoker with no relevant medical history and was not on any medication. He looked well, and examination was unremarkable. His haemoglobin level was 105 g/l, mean cell volume 78 fl, mean cell haemoglobin 26 pg, with no thrombocytopaenia. A colour-flow Duplex-Doppler ultrasound excluded deep vein thrombosis but detected tissue oedema. He was discharged with ruptured left gastrocnemius muscle as a provisional diagnosis.

A fortnight later he presented to the medical assessment unit after a follow-up blood test arranged by his general practitioner showed a haemoglobin level of 37 g/l. He reported breathlessness, with no history of haematemesis, haemoptysis, or melaena, but he mentioned frequent episodes of epistaxis that resolved spontaneously after his first admission. On examination, he had generalised swelling and bruising of his left leg with a full complement of palpable pulses. No other bruises or petechiae were found on the rest of the body. His laboratory investigations showed that platelet count, prothrombin time, activated partial thromboplastin time, fibrinogen concentration, and renal function were all normal, but that his D-dimer concentration was raised at 2559 ng/ml.

On this admission, a repeat venous Duplex-Doppler ultrasound of the left leg showed a haematoma in the left distal thigh and deep vein thrombosis in the superficial femoral vein extending down to the ankle. Another repeat ultrasound by a consultant radiologist excluded evidence of deep vein thrombosis, and therefore anticoagulation was not started. Despite multiple blood transfusions, the patient's haemoglobin level stayed low. A gastroscopy revealed multiple duodenal ulcers, which were injected with adrenaline, and triple therapy with amoxicillin, clarithromycin, and omeprazole was started for *Helicobacter pylori* infection.

Since the patient's haemoglobin level remained low, between 65 g/l and 75 g/l, and a new onset of gum bleeding was noted, he was referred to gastroenterology and haematology. Meanwhile, an immune mediated haemolytic anaemia was excluded by vasculitic screen and Coombs test. Meckel's scan for ectopic gastric mucosa was negative. A bone marrow biopsy was normal apart from showing mild erythroid hyperplasia consistent with his recent history of blood loss. Scurvy was then considered as a differential diagnosis, as further questioning revealed that the patient's diet was deficient in fruits or vegetables. Given the symptom presentation of epistaxis, gum bleeding, and haemorrhage in the lower limbs, oral supplementation with vitamin C was started. Subsequently, his haemoglobin level improved to 85 g/l, and he had no further symptoms on follow-up. This was a diagnosis of exclusion, as no confirmatory investigation such as serum ascorbic levels was available.

### Discussion

This patient's anaemia was secondary to gastrointestinal and limb haemorrhage, which, together with recurrent epistaxis and gum bleeding, was due to scurvy.

Scurvy is caused by a deficiency of vitamin C (ascorbic acid), a nutrient that is abundant in citrus fruits, green vegetables, tomatoes, and peppers[13] and that is essential for normal collagen formation.[11] Unlike many other animals, humans cannot synthesise the vitamin, so a deficiency, most often because of poor diet, can lead to abnormal collagen formation. Abnormal collagen formation leads to increased vascular fragility, which results in extravasation of red blood cells into the skin, especially in the legs where hydrostatic pressure is highest. Smokers have greater vitamin C requirements than non-smokers, which predisposes them to scurvy.[14 15] However, the common factor described in the literature was that of a particular diet,[16] as in our patient's case.

Patients with a mild form of scurvy may initially present with fatigue, nausea, and weight loss.[17] Common clinical signs are gingival swelling,[7] poor wound healing,[17] skin discolouration, and follicular hyperkeratosis[16]—excess keratin around hair follicles that results in skin eruptions.[18] Scurvy can also present as purpuric swelling on the abdominal wall,[9] gastrointestinal haemorrhage, bleeding into the soft tissue and joints, haemorrhagic ulceration of the lower limbs,[19] or rarely, compartment syndrome of the leg.[8]

Diagnosis is based on history and clinical findings, such as poor intake of food rich in vitamin C, and examination findings of cutaneous haemorrhagic lesions on the limbs or body. Skin biopsy may be performed, but it will only exclude vasculitis.[10 16] Adults require 40 mg/day of vitamin C[13] and concentrations in serum should be 4-15 mg/l.[11] Measurement of serum level of ascorbic acid before and after treatment, although seldom done, can confirm the diagnosis when symptoms improve or resolve within weeks.[7 11] However, serum measurements may not correlate well with levels in tissue.[20]

Scurvy is unusual yet important, and delayed diagnosis can have serious consequences such as gastrointestinal or lower limb haemorrhage. Treatment is simple, with oral supplementation of ascorbic acid 300-400 mg daily, maintained with a daily intake of fruits and green leafy vegetables.[13] As patients with scurvy are often deficient in other nutrients, close attention is needed to prevent the development of refeeding syndrome, which is a result of profound hypophosphataemia and is common in patients after prolonged starvation. Refeeding syndrome can produce rhabdomyolysis, hypotension, arrhythmias, seizures, and may result in multiorgan failure and death in 0.43% to 34% of these patients if untreated.[21 22] Therefore electrolytes, especially serum phosphate levels, need to be monitored at least three times a week during hospital treatment and managed according to National Institute for Health and Clinical Excellence guidelines.[23]

**Acknowledgments:** We thank the Department of Vascular Surgery at Selly Oak Hospital for their support in this report.

**Contributors:** CTPC collected, analysed, and interpreted the data, drafted the article, and critically revised it, and had final approval of the version to be published. SR analysed and contributed to the final diagnosis, interpreted data, critically revised the article, and had final approval of the version to be published. MA critically revised the article and had final approval of the version to be published. WL contributed to the final diagnosis and treatment of the case, critically revised the article, and had final approval of the version to be published. RKV conceptualised the information, critically revised the article, and had final approval of the version to be published.

**Funding:** None.

**Competing interests:** None declared.

**Patient consent obtained.**

**Provenance and peer review:** Not commissioned; externally peer reviewed.

1 Carpenter KC. *The History of Scurvy and Vitamin C*. Cambridge: Cambridge University Press, 1988.
2 Chaudhry SI, Newell EL, Lewis RR, Black MM. Scurvy: a forgotten disease. *Clin Exp Dermatol* 2005;30:735-6.
3 Olmedo JM, Yiannias JA, Windgassen EB, Gornet MK. Scurvy: a disease almost forgotten. *Int J Dermatol* 2006;45:909-13.
4 Mosdøl A, Erens B, Brunner EJ. Estimated prevalence and predictors of vitamin C deficiency within UK's low-income population. *J Public Health* 2008;30:456-60.
5 Hampl JS, Taylor CA, Johnston CS. Vitamin C deficiency and depletion in the United States: the third national health and nutrition examination survey, 1988 to 1994. *Am J Public Health* 2004;94:870-5.
6 Ruston D, Hoare J, Henderson L, Gregory L, Bates CJ, Prentice A, et al. *The National Diet & Nutrition Survey: Adults Aged 19 to 64 Years, Vol. 4. Nutritional Status (Anthropometry and Blood Analytes), Blood Pressure and Physical Activity.* London: Office for National Statistics, 2004.
7 Hirschmann JV, Raugi GJ. Adult scurvy. *J Am Acad Dermatol* 1999;41:895-906.
8 Normandin L, Godin C, Fowles J. Compartment syndrome of the legs and scurvy [in French]. *Can J Surg* 1998;31:65-6.
9 Gil Llano JR, Grespo Rincon L, Ruiz Llano FC, Costo Campoamor A, Mateos Polo L, Gonzalez MA. Scurvy, A serious and rare form of avitaminosis, easily diagnosed and treated. Presentation of a case [in Spanish]. *An Med Interna* 1996;13:462-3.
10 Salvi A, Coppini A, Lazzaroni G, Manganoni A. A case of vascular purpura with scurvy [in Italian]. *Recenti Prog Med* 1992;83:652-3.
11 Burdette SD, Polenakovik H, Suryaprasad S. An HIV-infected man with odynophagia and rash. *Clin Infect Dis* 2005;41:744-7.
12 Li R, Byers K, Walvekar RR. Gingival hypertrophy: a solitary manifestation of scurvy. *Am J Otolaryngol* 2008;29:426-8.
13 Expert Group on Vitamins and Minerals: Food Standards Agency. Safe upper levels for vitamins and minerals, 2003. www.food.gov.uk/multimedia/pdfs/vitmin2003.pdf.
14 Schectman G. Estimating ascorbic acid requirements for cigarette smokers. *Ann NY Acad Sci* 1993;686:345-6.
15 Weber P, Bendich A, Schalch W. Vitamin C and human health—a review of recent data relevant to human requirements. *Int J Vitam Nutr Res* 1996;66:19-30.
16 Ellis CN, Vaderveen EE, Rasmussen JE. Scurvy—a case caused by peculiar dietary habits. *Arch Dermatol* 1984;120:1212-4.
17 NHS Choices. Your health, your choices: scurvy, 2009. www.nhs.uk/Conditions/Scurvy/Pages/Symptoms.aspx?url=Pages/what-is-it.aspx.
18 Nadiger HA. Role of vitamin E in the aetiology of phrynoderma (follicular hyperkeratosis) and its inter-relationship with B-complex vitamins. *Br J Nutr* 1980;44:211-4.
19 Boulinquez S, Bouyssou-Gauthier M, De Vencay P, Bedane C, Bonnetblanc J. Scurvy presenting with ecchymotic purpura and haemorrhagic ulcers of the lower limbs [in French]. *Ann Dermatol Venereol* 2000;127:510-2.
20 Emadi-Konjin P, Verjee Z, Levin AV, Adeli K. Measurement of intracellular vitamin C levels in human lymphocytes by reverse phase high performance liquid chromatography (HPLC). *Clin Biochem* 2005;38:450-6.
21 Hearing SD. Refeeding syndrome is underdiagnosed and undertreated, but treatable. *BMJ* 2004;328:908-9.
22 Mehanna HM, Moledina J, Travis J. Refeeding syndrome: what it is, and how to prevent and treat it. *BMJ* 2008;336:1495-8.
23 National Institute for Health and Clinical Excellence. Nutrition support in adults. Clinical Guidelines CG32, 2006.www.nice.org.uk/nicemedia/pdf/CG032NICEguideline.pdf.

**Accepted:** 30 April 2009

## Supportive psychotherapy

Dealing with a child with hyperpyrexia induced visual hallucinations is a terrifying ordeal.

My 4 year old daughter woke up screaming. She said that she could see worms coming out from her fingers, and she would then flick her fingers. She was petrified. She repeated that she could see worms on the bed and wouldn't sleep despite reassurance. She couldn't sit still and kept screaming. My wife consoled her and held her. Although I had given my daughter paracetamol a few hours earlier for the symptoms of flu, I kept dreading the worst and called a paediatrician friend who tried to reassure me. Even though I'm a doctor, my wife and I ended up taking my daughter to the emergency department in case I'd missed something. The paediatrician there was sympathetic, checked her, and reassured us. When we got home my daughter was exhausted, but only fell sleep as dawn broke.

For weeks after, the memories of that horrific night kept upsetting her. Repeated reassurances, comforting words, and hugs eventually restored her confidence and she was back to her normal, bubbly self. Later on, she would joke by saying, "see what's behind you, a worm."

I now understand how my patients feel when they experience such real and terrifying moments when they hallucinate. Supportive presence, sympathetic touch, empathetic communication, sensitive affirmation, and a safe place to recuperate often helps restore the patient's internal and external milieu. These factors are often missing in care settings.

Common sense suggests that the component of this multifaceted eclectic therapy called supportive psychotherapy is probably no more than tender love and care.

**Devender Singh Yadav** specialty doctor in psychiatry, department of psychiatry, Princess of Wales Hospital, Bridgend **dsyadav@doctors.org.uk**

**Patient consent obtained.**

Cite this as: *BMJ* 2010;340:b5452