

CPD study pack

June 2013;257 (1762)

The study pack contains this month's CPD exercise plus all the relevant articles:

- Optimising treatment of allergic rhinitis in children
- Diagnosing and managing hip problems in childhood
- GPs have key role in early detection of melanoma

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Practitioner CPD exercise

When you have answered the questions below and overleaf, based on articles in this issue, tear out the page and put it in your personal development plan

ALLERGIC RHINITIS IN CHILDREN

1 What is the most common aeroallergen causing rhinitis:

A All year round?

B In spring?

C In summer?

2 A 15-year-old girl soon to take her GCSEs consults you about minimising her hay fever symptoms. Last year these were particularly troublesome. She currently takes loratadine.

A What other measures could you advise?

B Despite this she has a difficult summer. What treatment could be offered by a specialist allergy clinic?

3 Which of the following statements about allergic rhinitis are true?

A Nasal blockage is the most common symptom

True ☐ False ☐

B Allergic rhinitis affects one in ten children aged six to seven

True ☐ False ☐

C IgM attached to mast cells causes degranulation when presented with an antigen

True ☐ False ☐

D Topical nasal steroids are the first measure that should be implemented

True ☐ False ☐

E Treating associated asthma helps patients with allergic rhinitis

True ☐ False ☐

4 List any changes to your clinical practice that you may make having read this article.

HIP PROBLEMS IN CHILDREN

5 Rank the following pathological causes of limping in children in order of incidence (highest first):

A Slipped upper femoral epiphysis

B Perthes' disease

C Irritable hip

D Inflammatory arthritis/tendinitis

6 Which of the following statements about irritable hip are true?

A It peaks in the summer months when children are most active

True ☐ False ☐

B It is more common in boys

True ☐ False ☐

C CRP is mildly raised

True ☐ False ☐

D If symptoms last more than 12 days further investigation is indicated

True ☐ False ☐

E There is a recurrence in up to 20% of patients

True ☐ False ☐

7 Which of the following patients should be urgently referred?

A A two-year-old boy with fever and a painful limp

B A ten-year-old girl with a one-week history of pain in the hip

C A toddler who keeps falling over his feet

8 When screening for idiopathic developmental hip dysplasia, which tests are used?

9 Complete the following statement about the tests in question 8:

These tests have high but low



10 List any changes to your clinical practice that you may make having read this article.

11 MELANOMA

Which of the following statements concerning melanoma are true?

A Suspicious lesions, if small, should be removed in primary care and sent for histology
True ☐ False ☐

B Sentinel lymph node biopsy is critical to maximise survival
True ☐ False ☐

C Having a second wide excision after primary surgery improves survival
True ☐ False ☐

D Older people have the highest incidence
True ☐ False ☐

12 List the three major features on the Glasgow seven point checklist.

13 These major features all score 2 on the checklist. What score does NICE recommend as a threshold for referral?

14 Where is the most common site for melanoma:

A In men?

B In women?

15 Which of the following lesions should be referred?

A A mole that has started to bleed

B A lesion growing under a nail

C Any large mole

D A lesion that has changed in shape, colour or size

16 List any changes to your clinical practice that you may make having read this article.

Answers

- ALLERGIC RHINITIS IN CHILDREN**
1 A House dust mite B Tree pollen C Grass pollen
2 A Add a topical nasal steroid or consider a leukotriene receptor antagonist B Allergen immunotherapy
3 A True B True C False D False E True
- HIP PROBLEMS IN CHILDREN**
4 C, D, B, A
5 C, D, B, A
6 A False B True C False D True E False
7 A
8 Ortolani and Barlow manoeuvres
9 Sensitivity, specificity
- MELANOMA**
10 Change in size, irregular shape, irregular colour
11 A False B False C True D True
12 Change in size, irregular shape, irregular colour
13 3
14 A Back B Legs
15 A, B, D

Optimising treatment of allergic rhinitis in children

Marrs T, Anagnostou R, Fitzsimons, Fox AT. Optimising treatment of allergic rhinitis in children.

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Dr Tom Marrs^{1,2}
MA (Hons) MB BS MSc MRCPCH FHEA
Clinical Lecturer in Paediatric Allergy

Dr Katherine Anagnostou¹
MB BS MSc MRCPCH
Specialist Registrar

Ms Roisin Fitzsimons¹
RN BSc MSc Dip HE¹
Nurse Consultant

Dr Adam T Fox^{1,2}
MA (Hons) MB BS MSc MD FRCPCH DCH FHEA
Consultant Paediatric Allergist

¹Department of Children's Allergies, Guy's and
St Thomas' Hospital, London, UK

²Department of Paediatric Allergy,
King's College London, London, UK



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Optimising treatment of allergic rhinitis in children

AUTHORS

Dr Tom Marrs^{1,2}
MA (Hons) MB BS MSc
MRCPCH FHEA
Clinical Lecturer in
Paediatric Allergy

Dr Katherine Anagnostou¹
MB BS MSc MRCPCH
Specialist Registrar

Ms Roisin Fitzsimons¹
RN BSc MSc Dip HE¹
Nurse Consultant

Dr Adam T Fox^{1,2}
MA (Hons) MB BS MSc
MD FRCPCH DCH FHEA
Consultant Paediatric
Allergist

¹Department of Children's
Allergies, Guy's and
St Thomas' Hospital,
London, UK

²Department of
Paediatric Allergy,
King's College London,
London, UK

FIGURE 1

A child with typical
features of allergic
rhinitis – allergic
shiners, Morgan
Denny's folds, nasal
crease and dry lips



**ALLERGIC RHINITIS (AR)
AFFECTS AROUND ONE IN
FOUR INDIVIDUALS OVER
THEIR LIFETIME. HOWEVER,**

its burden is rarely appreciated and treatment is often poorly prioritised. UK paediatric prevalence data from the International Study of Asthma and Allergies in Childhood (ISAAC) cross-sectional survey has shown that 10.1% of children aged six to seven and 15.3% of those aged 13–14 years report symptoms of allergic rhino-conjunctivitis in the past 12 months.¹

Acute and chronic symptoms can disrupt school and leisure activities, significantly reducing quality of life. These symptoms often impair sleep,

resulting in tiredness and poor concentration. A consequence is that children with seasonal allergic rhinitis

Table 1

Typical features of allergic rhinitis

- Nasal blockage
- Clear nasal discharge
- Sneezing
- Nasal itching
- Ocular itching
- Red nasal turbinates
- Sleep interference
- Responds to regular oral antihistamines and nasal steroids

What are the
typical features
of allergic rhinitis?

How should
symptoms
be managed?

When should
immunotherapy
be considered?

perform significantly worse in summer exams, relative to their mock exam results, when compared with their peers.² Those individuals showing most symptoms are also likely to be affected by other allergic diseases, magnifying the detrimental impact on quality of life.

SYMPTOMS

Nasal blockage is the most common complaint associated with chronic AR, with acute exacerbations causing sneezing, clear nasal discharge and itchy eyes, see table 1, left, following exposure to the relevant airborne triggers. AR may usually be distinguished from infectious causes through its »

association with itchy eyes and clear nasal discharge.

Upper airway symptoms may be caused by a multitude of inflammatory and obstructive disorders, many of which may present alongside AR in children, see table 2, below. To manage these symptoms optimally, the correct cause or balance of factors must be identified.

'A holistic unified airway approach in allergic respiratory disease optimises both allergic rhinitis and asthma outcomes'

ATOPY

Atopy, a predisposition to allergy, is inherited. The immune systems of atopic children manufacture immunoglobulin E (IgE) capable of recognising specific allergens. In children with AR, IgE specific to inhaled allergens is bound to the surface of mast cells and basophils. When exposed to the relevant environmental allergen, these IgE molecules cross link and cause the cell to degranulate, releasing histamine

and other immune mediators which result in immediate itching, sneezing and mucus production. These early phase mediators recruit eosinophils and T-cells to the nasal mucosa, resulting in swelling and nasal engorgement.³

The Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines propose a stepwise approach to the management of AR.⁴ Guidance was developed to determine patients' severity of AR, and algorithms designed (see box 1 and box 2, p15).

More specifically, allergen avoidance measures should be instituted according to seasonal or perennial

symptomatology, guided by allergy testing, alongside nonsedating antihistamines such as cetirizine or loratadine. Continued symptoms should be treated with regular intranasal steroid spray. Anti-leukotrienes should be considered early in children presenting with multi-trigger wheeze.⁴

A holistic unified airway approach in allergic respiratory disease optimises both AR and asthma outcomes. Asthma admission rates in children with hayfever increase with higher pollen counts.⁵ However, appropriate rhinitis treatment with nasal steroids or antihistamines can reduce the number of visits to A&E and

FIGURE 2

Pale swollen inferior turbinate with a narrowing of the nasal airway

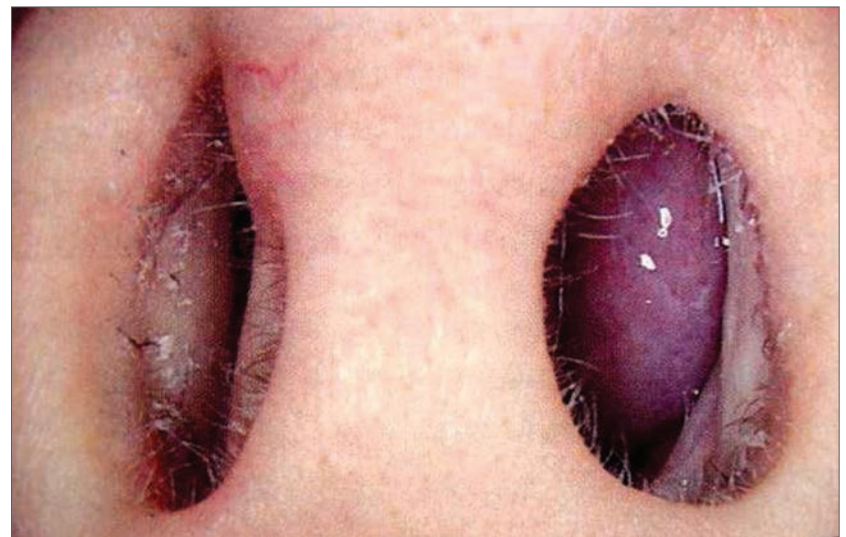


Table 2

Differential diagnoses for upper respiratory tract complaints in children, in likely order of increasing age of child

Differential	History	Signs
Tonsillar hypertrophy	Snoring, nasal speech	Mouth breathing, hypertrophy/kissing tonsils
Foreign body in young child	History or accessibility to small objects	Visualise. To remove: parent blows through other nostril with closed glottis
Glue ear	Hearing loss, perforation	Middle ear effusion
Acute/chronic rhino-sinusitis	Purulent discharge, headache, posterior discharge/drip/cough	Tender sinuses, purulent discharge, responds to antibiotics
Allergic rhinitis	Nasal blockage with itchy eyes, sneezing and coughing, worsening with environmental triggers	Mouth breathing, allergic salute, nasal crease, allergic shiners, Morgan Denny's folds, red nasal turbinates, responds to nasal steroids
Multi-trigger wheeze = asthma	Coughing or difficulty in breathing in the evenings/mornings, on exertion, in cold air or allergen exposure	Wheeze on auscultation, poor peak flow or air entry
Nasal polyps	Nasal congestion with possible loss of sense of smell, cystic fibrosis or aspirin hypersensitivity	Polyps (pale, mobile, boggy and insensible) and possible signs of cystic fibrosis (weight loss, chesty cough and salty sweat)
Obstructive sleep apnoea	Snoring with episodes of apnoea, wakeful nights, sleeping in day	No specific signs
Septal deviation	Likely history of trauma	Deviated septum or cherry haematoma (check patency)

hospital admissions for wheeze.⁶

Temporal patterns of rhinitis exacerbation give clues as to the most important aeroallergens implicated, see table 3, below. Seasonal AR, or hayfever, occurs when levels of allergens (tree pollens, grass pollens, weeds or fungi) are elevated. In the UK, tree pollen allergy predominates throughout the spring, whereas those affected by grass pollen allergy may find their symptoms increasing over the summer months.

'Dust mite sensitisation is also an early hallmark of developing other allergic disorders, especially later asthma'

In contrast, perennial AR symptoms are the result of exposure to house dust mites, animals and moulds. Children who are allergic to these often find the winter more troublesome as they spend more time indoors and the central heating regularly disperses these household allergens.

Advice on avoidance will depend on specific triggers, see table 4, p17. It is important to note that children with perennial and fluctuating symptoms may well be allergic to both pollens and dust mite allergens, demonstrating acute on chronic exacerbations over the warmer months.

CASE ONE

An eight-year-old boy is brought into your surgery by his mother, describing alternating nasal discharge and congestion even between viral upper respiratory tract infections.

The symptoms are particularly troublesome over the winter, in warm environments and in the evenings, with constant nasal congestion, tickling cough and rubbing of his eyes and skin. He often sneezes repeatedly on waking.

You note that you have previously prescribed a salbutamol inhaler when he was unwell with a viral upper respiratory tract infection. On further questioning, his mother reports that he does not cough or get short of breath

outside the house. However, his nose streams clear fluid when he visits his grandparents' house and his symptoms were particularly marked during a recent stay in a hotel.

He rubs his nose throughout the consultation and on examination he has mild facial eczema, allergic shiners, Morgan Denny's folds and visible nasal crease, see figure 1, p13. He speaks »

Box 1

Classification of allergic rhinitis according to ARIA guidelines⁴

Intermittent symptoms

- < 4 days a week or
- < 4 weeks

Persistent symptoms

- ≥ 4 days a week and
- ≥ 4 weeks

Mild symptoms

- Normal sleep
- Normal daily activities, sports and leisure
- Normal schoolday
- No troublesome symptoms

Moderate/severe symptoms

- One or more of:
- Abnormal sleep
 - Impairment of daily activities, sports and leisure
 - Problems at school
 - Troublesome symptoms

Box 2

Stepwise management of allergic rhinitis adapted from ARIA guidelines⁴

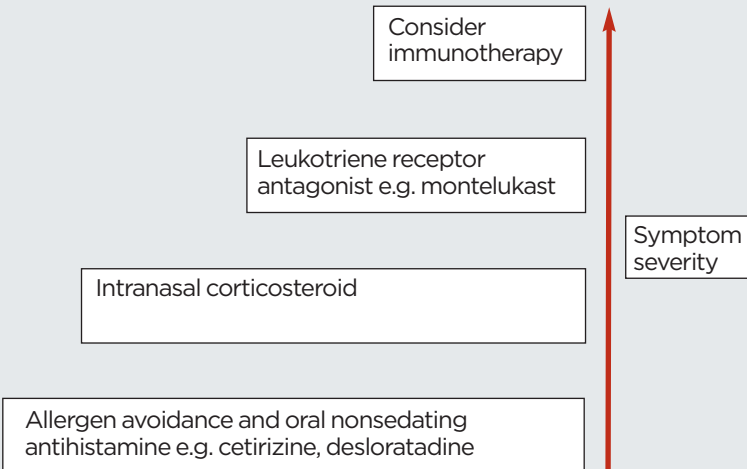


Table 3

Distinguishing seasonal from perennial aeroallergen exposure

Type of AR	Aeroallergen	Time of year
Seasonal	Trees	Spring (March–June)
	Grasses	Summer (April–September)
Perennial	Dust mite	All year (symptoms may be worse in winter)
	Mould spores	All year (symptoms may be worse in winter)
	Domestic animals	All year (symptoms may be worse in winter)

with a hyponasal voice. On inspection of his nasal cavity with an auriscope, he has pale and enlarged turbinates on both sides, see figure 2, p14.

Discussion points

House dust mite allergy commonly causes perennial AR. Dust mite sensitisation is also an early hallmark of developing other allergic disorders, especially later asthma, in accordance with the Allergic March, see figure 3, below.

It will be important to continue to screen him with questions regarding multi-trigger wheeze when he re-presents to your practice.

Avoidance measures: This boy may benefit from dust mite avoidance measures see table 4, opposite. While researchers continue to debate whether this should be offered systematically to all sensitised patients, clearly there are children who demonstrate such considerable

symptoms from dust exposure that a focused trial of dust allergen reduction measures may demonstrate significant clinical improvement.

Antihistamines: Regular morning and evening antihistamines are an important step in managing his pervasive symptoms. Sedation can largely be avoided by using second- or third-generation antihistamines; cetirizine, loratadine, desloratadine or levocetirizine.

As cetirizine has a good safety

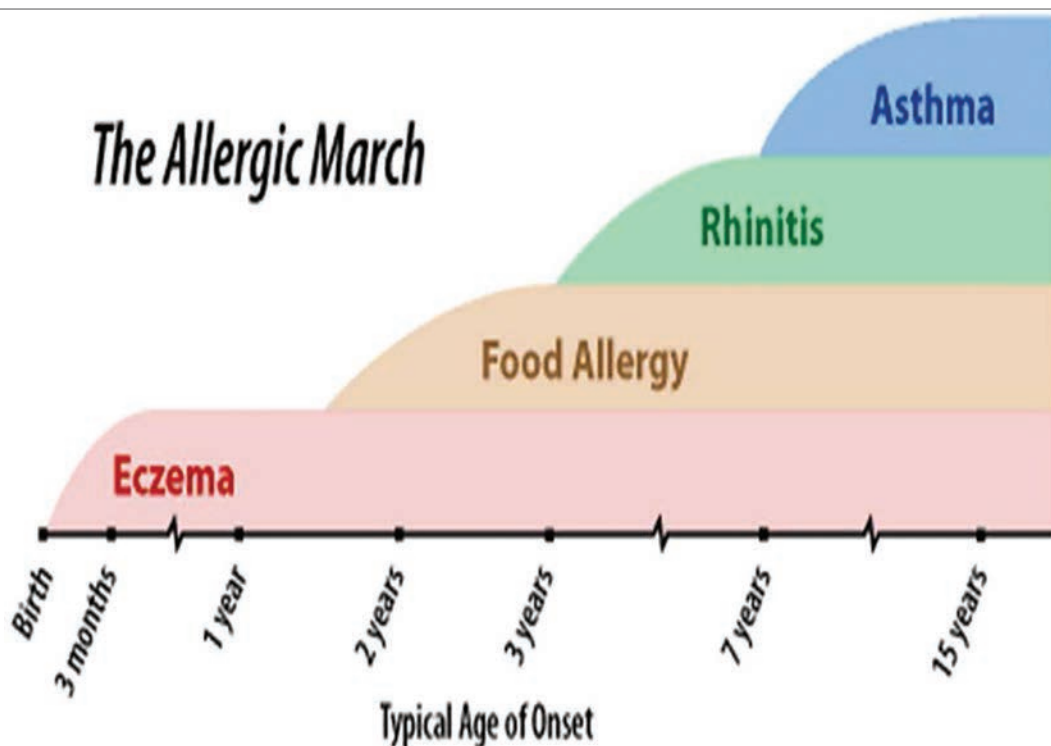


FIGURE 3

The Allergic March: the common temporal progression of allergic diseases



Clear the nose and tilt head forward



Hold the spray in the opposite hand to the nostril in which you are about to apply the spray. (Shown here, right hand for left nostril)



Place the end of the spray bottle just inside the nostril aiming up and back towards the side wall of the nose. Activate the spray without sniffing. (Change hands and repeat this action in the other nostril)

FIGURE 4

Steps for administration of nasal spray, as recommended by the British Society for Allergy and Clinical Immunology⁷

Table 4

Standardised advice for dust avoidance in accordance with the British Society for Allergy and Clinical Immunology

These recommendations progress from easy measures to more involved steps, which should be applied to the household where possible. Subjects may respond at differing levels of avoidance.

Step 1: Reduction of dampness

- Open windows and ventilation in kitchens and bathrooms after cooking and bathing
- Avoid drying clothes indoors
- Air bedding before remaking beds
- Run central heating a few degrees lower

Step 2: Prevent dust build up

- Use enclosed storage for clothes
- Restrict areas where dust may settle, e.g. cabinets and wardrobes
- Regularly wipe surfaces where dust settles with a damp cloth
- Regularly wipe window blinds
- Vacuum soft furnishings and carpets, replacing collection bags regularly
- Vacuum mattresses every two weeks

Step 3: High temperature washing

- Choose fabrics which sustain washing at 60°C which will kill dust mites
- Wash bedding fabrics at 60°C every two weeks
- Wash curtains at 60°C

Step 4: Bedding and soft toys

- Replace pillows with new ones every six months
- Replace blankets with duvets made of synthetic material
- Cover all dust sensitised child's mattresses, duvets and pillows with microporous membrane covers and wipe clean when bedding changed
- Reduce number of soft toys around bed area
- Put soft toys in freezer once per month for six hours to kill dust mites

Step 5: Carpets

- Replace carpets with linoleum/vinyl flooring or cork/wood boards without cracks
- Choose short pile synthetic carpets
- Wash rugs at 60°C

Step 6: High efficiency vacuum cleaners

- Consider buying a high efficiency vacuum cleaner for floors, carpets, soft toys and furnishings

Step 7: Replace home furnishings

- Replace woven seat covers and material sofas with cane, canvas and leather-like covers

record in children over six months of age, this tends to be our first choice, usually once daily.

Nasal sprays: Children with persistent symptoms despite first-line treatment require a nasal steroid spray, in addition, to reduce their chronic nasal congestion.

Nasal sprays containing a combination of nasal steroid and antihistamine (azelastine hydrochloride and fluticasone propionate) have recently received a licence for patients from 12 years of age and data on their effectiveness is very encouraging.

Parents often ask whether steroid use may risk limiting their child's growth potential. Whereas intramuscular and oral corticosteroids are established as risk factors for growth limitation, long-term follow-up studies with nasal sprays such as once daily fluticasone furoate, mometasone, beclometasone and budesonide show no impact on growth, making these the best choice.

Decongestants are known to cause vasoconstriction of the nasal blood vessels thereby decreasing nasal congestion. However, their use should be limited to three to five days at a time because of the rebound congestion effect (rhinitis medicamentosa) which follows longer regular use.⁸

This patient's eye symptoms may best be controlled using an eye drop preparation such as olopatadine although nasal sprays also have a positive effect on conjunctival symptoms.

Indications for immunotherapy

Where continuing deterioration presents a challenge and allergic symptoms remain uncontrolled, patients should be referred to a specialist allergy service to be considered for immunotherapy.

CASE TWO

A 13-year-old boy comes with his father to your practice, describing symptoms of nasal blockage, itchy eyes and coughing. He has stopped playing cricket in the summer and is starting to take the bus to school rather than cycle because he can no longer see when making his way through the local park. His morning antihistamine chlorphenamine did not seem to be working and so he had stopped taking it.

He was previously prescribed a salbutamol inhaler for viral-induced exacerbation of asthma, however stopped using his beclometasone because he felt it afforded no benefit. He currently coughs when running around and uses his salbutamol three

to four times on an average schoolday. He requests repeat prescription for the salbutamol every two months over the summer season.

On examination, he mouth breathes during the consultation and has swollen red nasal turbinates with mucus on nasal inspection, see figure 2, p14. He has no added sounds on his chest today, although his peak flow is on the low side for his athletic build. His father wishes him to have allergen immunotherapy to cure his allergies, which he had received as a child himself, because he was hoping to compete for the county cricket side.

‘Sublingual immunotherapy is a relatively new development with proven efficacy and a good safety profile’

Discussion points

Antihistamines: Many children take sporadic chlorphenamine because of its ease of availability over the counter. However, it remains a poor choice beyond the nursery years because of its sedating effect in children who often already have sleep disturbance. In this case, a regular nonsedating antihistamine should be instituted along with a nasal steroid spray because of the extent of his symptoms.

Inhaler technique: This young man has a history of poorly controlled asthma and requires an assessment of his inhaler technique. Beclometasone, at least 200 µg/day, is likely to be required for adequate asthma control, and should be prescribed alongside salbutamol and a spacer device. The difference in technique required for nasal and inhaled steroid devices should be carefully explained, see figure 4, opposite.

Immunotherapy: Insufficient improvement in AR symptoms with long-acting antihistamines and regular nasal steroid application necessitates referral to a specialist centre, especially where asthma is causing further impact. By gauging his response to therapy around the »

key points

SELECTED BY

Dr Peter Saul

GP, Wrexham and Associate GP Dean for North Wales

Allergic rhinitis (AR) affects around one in four individuals

over their lifetime. A survey has shown that 10.1% of children aged six to seven and 15.3% of those aged 13–14 years report symptoms of allergic rhino-conjunctivitis in the past 12 months. Children with AR perform significantly worse in summer exams, relative to their mock results, when compared with their peers. Those individuals showing most symptoms are likely to be affected by other allergic diseases. Nasal blockage is the most common complaint associated with chronic AR, with acute exacerbations causing sneezing, clear nasal discharge and itchy eyes following exposure to the relevant airborne triggers.

Allergen avoidance measures should be instituted

according to seasonal or perennial symptomatology, guided by allergy testing, alongside non-sedating antihistamines such as cetirizine or loratadine. Continued symptoms should be treated with regular intranasal steroid spray. Anti-leukotrienes should be considered early in children presenting with multi-trigger wheeze.

Temporal patterns of exacerbation give clues as to the

most important aeroallergens implicated. In the UK, tree pollen allergy predominates throughout the spring, whereas those affected by grass pollen allergy may find their symptoms increasing over the summer months. In contrast, perennial AR symptoms are the result of exposure to house dust mites, animals and moulds. Children who are allergic to these often find the winter more troublesome as they spend more time indoors and the central heating regularly disperses these household allergens.

With dust mite allergy, a focused trial of dust allergen

reduction measures may demonstrate significant clinical improvement. Children with multiple system involvement often require a nasal steroid spray in addition to antihistamines. Long-term follow-up studies with recent nasal sprays such as once daily fluticasone furoate, mometasone, beclomethasone and budesonide show no impact on growth. Decongestants are known to cause vasoconstriction of the nasal blood vessels thereby decreasing nasal congestion. However, their use should be limited to three to five days at a time because of the rebound congestion effect.

Where continuing deterioration presents a challenge

and allergic symptoms remain uncontrolled, patients should be referred to a specialist allergy service to be considered for immunotherapy. Subcutaneous immunotherapy became increasingly widespread over the course of the 20th century and various studies have demonstrated its efficacy in both adults and children. Sublingual immunotherapy is a relatively new development with proven efficacy and a good safety profile.

age of 13 years, immunotherapy may be instituted in time to gain some relief before taking his exams at 15 to 16.

The practice of administering gradually increasing doses of allergen extract in order to reduce the symptoms associated with subsequent exposure dates back to 1911. Subcutaneous immunotherapy (SCIT) became increasingly widespread over the course of the 20th century and various studies have demonstrated its efficacy in both adults and children.⁹

It has been suggested that it also has the potential to modify the course of disease and protect against development of new sensitisations as well as asthma.¹⁰

Sublingual immunotherapy (SLIT) is a relatively new development with proven efficacy and a good safety profile.¹¹ It has been found to reduce symptoms and use of medication in children with seasonal allergic rhinitis.¹² Formulations for grass pollen, have now been licensed for children, however treatments for tree pollen, dust mite and pet allergens are also available for use in the UK. SLIT has an excellent safety record in children over two years of age with only mild adverse reactions reported.¹³

The sublingual route only requires the first dose to be supervised and is more convenient for younger patients. However, this reliance on self-administration does raise the issue of adherence, which is likely to influence efficacy. There are currently no head-to-head trials comparing relative efficacy of subcutaneous versus sublingual immunotherapy regimens.

At present, immunotherapy is generally only available through specialist clinics.

CONCLUSIONS

AR carries an under-recognised morbidity and often relates closely to common childhood disorders. Careful history taking is the most important tool in distinguishing causes of nasal symptoms and addressing the correct line of treatment.

Treatment involves allergen avoidance, where possible, together with long-acting, non-sedating antihistamines. Courses of nasal steroids should be prescribed where there is insufficient relief with antihistamines and allergen avoidance.

Specialist care should be involved in cases where nasal steroid spray is inadequate, particularly in cases of comorbid allergic disease and

for assessment of suitability for desensitisation.

Optimal AR management in primary care substantially alleviates this chronic condition in most children.

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Useful information

The British Society for Allergy and Clinical Immunology
www.bsaci.org

We welcome your feedback

If you would like to comment on this article or have a question for the authors, write to:
editor@thepractitioner.co.uk

Diagnosing and managing hip problems in childhood

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Mr James S Huntley
MA MCh DPhil (Oxon) FRCS (Ed)
Consultant Paediatric Orthopaedic Surgeon, Royal Hospital for Sick Children,
Yorkhill, Glasgow, UK



Diagnosing and managing hip problems in childhood

AUTHOR

Mr James S Huntley

MA MCh DPhil (Oxon)
FRCS (Ed)
Consultant Paediatric
Orthopaedic Surgeon,
Royal Hospital
for Sick Children,
Yorkhill, Glasgow, UK

FIGURE 1

A The pelvis can be stabilised by the non-examining hand with the palm over the sacrum and the thumb over the pubic tubercle

B The femur of the examined hip can be held between the thumb medially and the middle finger over the greater trochanter, allowing gentle controlled movement for Ortolani/Barlow testing



What are the most common hip problems?



THE HIP, A DEEP BALL AND SOCKET JOINT WITH A COMPLEX RANGE OF MOVEMENT, CAN BE

affected by several potentially serious pathologies throughout childhood, though age is a strong indicator for particular conditions.

The sequelae of missed diagnoses can be devastating. Furthermore, examination of the hip, and indeed the musculoskeletal system in general, is not always taught well at medical school. Unsurprisingly therefore, in primary care, the evaluation of the paediatric hip may cause some concern.

This article contains a brief overview of the more common paediatric hip pathologies encountered in primary care, together with suggestions for assessment, management and referral.

DEVELOPMENTAL DYSPLASIA

Developmental dysplasia of the hip (DDH) is a spectrum disorder of joint development and/or instability.¹ It is a major cause of morbidity, indeed potentially avoidable disastrous consequences, in both childhood and adult life.

How should children be examined?

It can be classified into three types:

- Neuromuscular (associated with conditions such as spina bifida)
- Teratological (associated with skeletal dysplasia syndromes such as Larsen's (which involves multiple large joint dislocations, short stature, craniofacial abnormalities, and cervical spine anomalies especially kyphosis)
- Idiopathic

Hereafter the most common type, idiopathic, is focused on.

Females are predominantly affected as are the first born. The other well known major risk factors used to inform selective screening with ultrasound are listed in box 1, below.

Earlier detection is generally held to improve outcomes. This is complicated by the fact that early ultrasound scan yields many sonographically abnormal hips that normalise by themselves.

Early examination of the hips is performed neonatally within 72 hours using Ortolani and Barlow manoeuvres to look for dislocation with reducibility and dislocatability, respectively.

It is recommended that these tests are repeated within the context of a second head to toe examination,

Which children should be referred?

at six to eight weeks^{2,3} with a view to integration into the local DDH screening/referral pathway.

Poorly appreciated facets of these two tests are:

- The baby must be relaxed
- The examination must be gentle
- The examination manoeuvres must be repeated several times (unless indicating pathology, in which case they should be stopped)
- The pelvis should be stabilised by the contralateral (non-examining) hand – this allows for a more controlled (and therefore more gentle) examination (see figure 1, above).

Continued on p22 »

Box 1

Risk factors for developmental dysplasia of the hip

- First-degree relative affected
- Breech position
- Foot abnormalities (other than talipes)
- Torticollis/sternocleidomastoid contracture
- Oligohydramnios

During these tests, the pelvis can be stabilised from the side, by placing the palm of the non-examining hand over the sacrum and the thumb over the pubic tubercle (see figure 1, p19).

In Barlow's original description,⁴ the pelvis is stabilised from below, which may seem threatening to observing parents.

The Ortolani test involves gentle passive abduction of the hip while exerting an anteromedially directed force on the greater trochanter to relocate a dislocated hip. A relocation clunk is a positive result indicating a dislocated but reducible hip.

The Barlow test involves the patient in a similar position i.e. hip and knee at 90/90, and the hip in slight adduction. A posteriorly directed force is used to see if the femoral head is subluxatable posteriorly. If it is, the hip is deemed dislocatable.

These tests have high sensitivity but low specificity⁵ and this is one of the reasons that DDH is still picked up late. Through later infancy, several other tests are useful:

- The Galeazzi test. The test involves setting the pelvis level with the infant supine, hips flexed to 45 degrees, in neutral (abduction/adduction), knee at 90 degrees, and the ankle malleoli together. This gives a comparative view of femoral length — a relative shortening may indicate a unilateral dislocated hip or, more rarely, a congenitally short femur

‘Suspicion of developmental dysplasia of the hip mandates specialist referral at any age’

- Limitation of abduction. Progressively through infancy, a limitation by 20 degrees or more compared with the contralateral side (with hips and knee flexed) is a useful indicator of unilateral DDH.⁶

DDH may be detected in the walking child. If it is unilateral it may involve an asymmetric gait, possibly tiptoe on the affected side, as well as asymmetry around the thigh. If bilateral, the child characteristically walks with a Trendelenburg gait, and a prominent belly (actually a reflection of the lumbar lordosis compensating

Box 2

Rotational profile

Examination

- Foot progression angle (reference line of forward gait)
- Femoral anteversion (correlates to hip rotation)
- Foot-thigh angle and tibial torsion
- Foot shape

Features of concern in rotational deformity

- Unilateral/asymmetric
- Progressive
- Painful

for the fixed flexion deformities). Suspicion of DDH mandates specialist referral at any age.

THE IN-TOER

In-toeing is a common reason for referral of children under the age of five to orthopaedic specialists. Such referrals are usually made without an assessment of the rotational profile of the child.

Children usually in-toe because of torsion at one of three levels:

- the foot (metatarsus adductus)
- the tibia (tibial in-torsion)
- femoral in-torsion (or increased femoral anteversion)

Clinical features that are important in the assessment of rotational profile are listed in box 2, above.

In a recent study from Edinburgh,⁷ 202 patients were referred for in-toeing over the course of 2.75 years: 86% were discharged after their first visit, and although 14% were reviewed a second time, no pathology was identified. The majority of diagnoses involved either increased femoral anteversion or internal tibial torsion.

At birth, mean femoral anteversion is about 30 degrees, and gradually decreases to about 10 degrees by skeletal maturity. However, there is a large range of normal variation around this value.

With the child prone, the knees are flexed to 90 degrees and the limbs allowed to rotate first laterally, internal rotation (IR), and then medially external rotation (ER), to define maximum values for both IR and ER with the hip in extension.

In early life IR and ER are similar, but advancing through childhood ER exceeds IR as the femur grows rotationally, meaning that the femoral anteversion decreases. The rotational profile should be symmetrical side to side.

For patients with an extreme of physiological variation in rotational profile, there is no evidence that splints, braces, insoles or orthotics are of any use. These conditions improve of their own accord over time.

Certain pathologies can present as in-toeing e.g. metatarsus adductus, cerebral palsy and tibia vara. However, as the Edinburgh study has shown, these diagnoses underlie few of the referred cases.

‘For patients with an extreme of physiological variation in rotational profile, there is no evidence that splints, braces, insoles or orthotics are of any use’

THE LIMPING CHILD

The limping child is a common presentation to primary care, A&E and orthopaedic departments, and can present a diagnostic quandary.

It is important that the more uncommon diagnoses, including infection, neoplasia and slipped femoral epiphysis are kept in mind and appropriate urgent referral to the acute musculoskeletal team/emergency department made if appropriate (see box 3, p23).

A thorough history and examination localises the site of pathology and limits the differential diagnosis. The key features of the clinical history and examination are given in box 4, p23.

Sometimes there is a history of trauma, which can make interpretation easier. However, it is important to be aware that occasionally a history of trauma is given which unwittingly conceals a more sinister cause such as infection, neoplasia, slipped upper femoral epiphysis, see box 3, p23.

Over a six-month period, Fischer and Beattie⁸ investigated the epidemiology of the atraumatic limping child presenting to an emergency department.

A pragmatic algorithm for assessment was followed, involving

Box 3

The limping child: differential diagnosis

- 1 Septic arthritis
- 2 Osteomyelitis
- 3 Pyomyositis
- 4 Psoas abscess
- 5 Discitis
- 6 Non-septic arthritis including juvenile rheumatoid arthritis
- 7 Transient synovitis
- 8 Slipped femoral epiphysis
- 9 Neoplasia
 - Ewing's sarcoma, osteosarcoma, leukaemia, metastatic neuroblastoma
- 10 Langerhans' cell histiocytosis
- 11 Sickle cell disease
- 12 Fracture (consider this especially in toddlers and the neuromuscular group)
- 13 Perthes' disease
- 14 Avascular necrosis: haemophilia, infarct
- 15 Gaucher's disease
- 16 Haemarthrosis e.g. haemophilia
- 17 Foreign body
- 18 Knee conditions: discoid meniscus, osteochondritis dissecans, Osgood-Schlatter's disease, chondromalacia
- 19 Foot conditions: tarsal coalition, accessory navicular, Köhler's disease
- 20 Non-musculoskeletal conditions: urinary tract infection, appendicitis, gynaecological problems

clinical examination, appropriate radiography/ultrasound and blood tests, in particular full blood count (and film), CRP and ESR. For those cases in which a diagnosis was made, the hip joint was the culprit in the majority of cases.

'It is important to be aware that occasionally a history of trauma is given which unwittingly conceals a more sinister cause'

Overall there were 243 patients, with an incidence of 1.8/1,000, this is likely to be an underestimate as some cases will be hidden by being managed in primary care.

In 72 patients (30%), no cause was

Box 4

The limping child: History and examination

History

- Pain – site/onset/character/radiation/associated factors/timing (e.g. morning indicative of inflammatory conditions, nighttime = red flag)/exacerbating factors/severity
- Activities – restricted
- Past medical history – recent use of antibiotics (for another infection e.g. tonsillitis/ear infection) may mean that an intercurrent musculoskeletal infection has been partially treated, leading to a subacute picture
- Medications – e.g. steroids/chemotherapy predisposing to avascular necrosis

Examination

- Gait – may be abnormal because of pain, abnormal biomechanics or abnormal neuromusculature (e.g. weakness/spasticity)
- Standing – spine, including forward bend, Trendelenburg
- Cough – symmetry of posture, careful focal palpation to define the exact location of pain, joint range of movement (for pain, contractures, stiffness/spasticity)

Box 5

Managing musculoskeletal infection in primary care

- Suspect osteomyelitis/septic arthritis/pyomyositis in the systemically unwell (especially if pyrexial) child with bone pain/joint pain/limp
- Urgent referral to emergency department/acute on-call team
- Prompt diagnosis and treatment of patients with probable osteomyelitis/septic arthritis/pyomyositis improves outcomes and decreases complications
- Treatment with antibiotics may need to be high dose and prolonged

identified. Forty per cent were diagnosed as irritable hip or transient synovitis.

Other inflammatory arthritides/tendinoses accounted for 3.2%, Perthes' disease 2%, and infection (including osteomyelitis, septic arthritis, discitis, cellulitis, inguinal lymphadenitis) 3.6%. There was one case of a slipped upper femoral epiphysis (0.4%) and one case each of acute lymphoblastic leukaemia and Langerhans' cell histiocytosis. Eighteen per cent were diagnosed with trauma or overuse conditions including stress fracture, anterior knee pain, soft tissue injury, haematoma and Osgood-Schlatter's disease. There were two cases of hypermobility syndrome and one of testicular pathology.

INFECTION

Children of all ages are vulnerable to infection, be this septic arthritis, osteomyelitis or pyomyositis. Early diagnosis and treatment comprising antibiotics with or without surgery, see box 5, above, is critical to optimise outcomes and avoid complications. Hence immediate referral is warranted.

Potential complications include joint destruction, femoral head necrosis, overwhelming sepsis, associated venous thrombosis, septic thrombus with embolisation, pathological fractures, chronic infection and growth disturbance.⁹

Staphylococcus aureus remains the predominant pathogen. However, *Kingella kingae* has emerged as an important pathogen; infection may be subacute with the patient presenting in a more insidious and less unwell fashion.

In the limping child (or neonate/pre-walking infant), fever with focal tenderness or restricted range of movement is indicative of infection unless investigations show otherwise. In neonates or patients with compromised immunity, the signs may be subtle until the condition has advanced.

Be mindful of the extensive differential diagnosis (see box 3, above).

TRANSIENT SYNOVITIS

The irritable hip is common, affecting 3% of the paediatric population at some time, predominantly between the ages of three and ten years (peak six years). Left and right hips are »

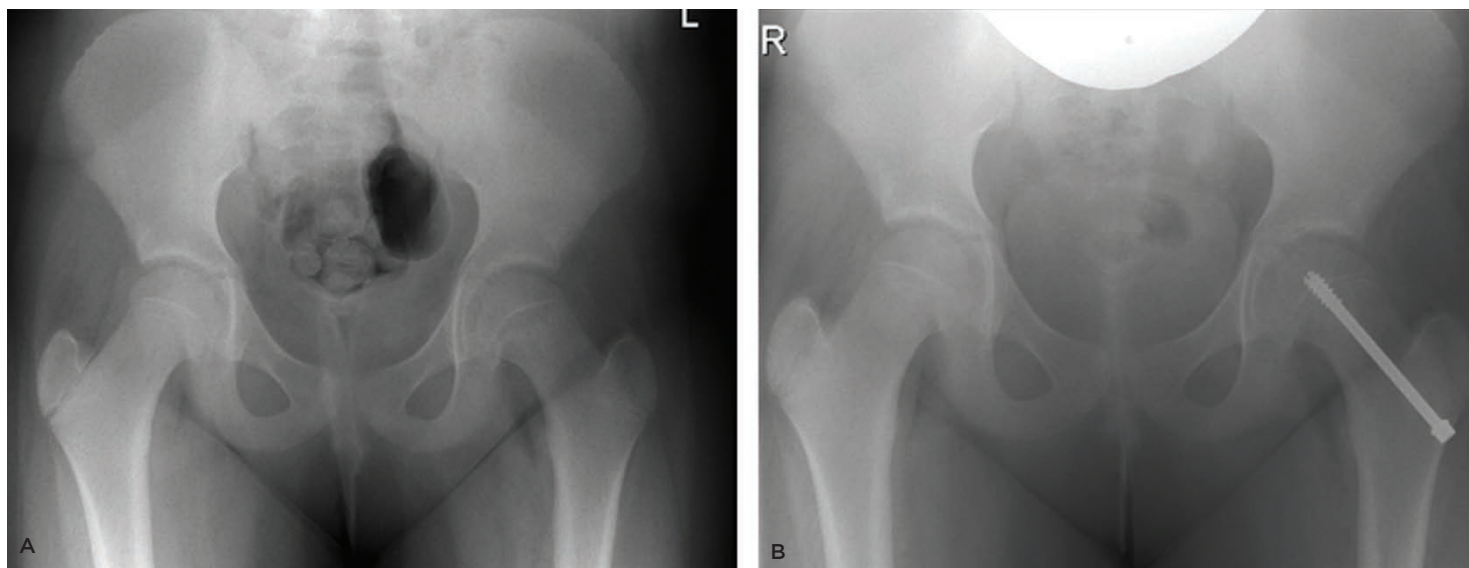


FIGURE 2
Slipped femoral epiphysis. This condition is usually missed at initial presentation, with potentially disastrous consequences
A Preoperative AP pelvis view **B** After operative stabilisation

equally affected. It is more common in Caucasians and twice as common in boys as girls.¹⁰ It is often preceded by a respiratory tract infection.

Aside from limp, pain, spasm and mild restriction of passive range, clinical features are not suspicious for more sinister pathology, and haematological indices are not raised. It peaks in late autumn in the UK. Up to 10% of patients experience a recurrence. By definition it is transient, resolving, or at least dramatically improving, by 10–12 days after onset. Persistence of limp beyond this timescale mandates further investigation and referral.

PERTHES' DISEASE

Perthes' disease is an idiopathic avascular necrosis of the femoral head. Its prevalence is 1 in 10,000 children. It mainly affects boys

(male:female ratio 6:1) in the four to nine years age range. This condition presents in a similar manner to transient synovitis. However, it is far less common and the symptoms outlast those that could be accorded to a transient synovitis.

Perthes' disease passes through four radiological stages:

- I sclerosis
- II fragmentation
- III healing
- IV healed

The active stages (I–III) take approximately three years¹¹ during which time orthopaedic specialists may recommend treatment from a spectrum of operative interventions (more likely in those over the age of seven years) and/or restriction of activities that patients and parents find extremely frustrating.

The aim is to minimise subsequent joint deformity/incongruity and thereby give the hip the best and longest lasting function possible. Nevertheless at 40 years follow-up 40% of patients have undergone hip arthroplasty.¹²

SLIPPED UPPER FEMORAL EPIPHYSIS

This condition is uncommon but the seriousness of the sequelae mandate a high index of suspicion. Slipped upper femoral epiphysis requires urgent admission for surgery (see figure 2, above, and box 6, left). Delay in diagnosis is associated with increased severity of slip and poorer outcomes,

including pain, restricted movement and subsequent degenerative arthritis.

Unfortunately, the diagnosis is usually missed at first presentation to a healthcare professional.¹³ The presenting feature of pain ranges from intermittent and mild to incapacitating and precluding weight bearing, the latter being designated unstable.

‘Delay in diagnosis of slipped upper femoral epiphysis is associated with increased severity of slip and poorer outcomes’

The site of the pain may misdirect the unwary practitioner. Although the pain may be localised to the groin, it may also be felt over the inner aspect of the knee (obturator nerve referred pain). It affects both boys and girls in the eight to sixteen years age range.

On examination the lower limb may lie in external rotation, and this may occur in the abnormal gait/limp pattern also. There is a decreased range of internal rotation (best

Box 6

Managing slipped upper femoral epiphysis

Features

- Limp
- Age 8–16 years
- Groin or knee pain
- Limited internal rotation of the hip

Management

- Make non-weight bearing
- Refer urgently for AP and frog lateral hip views

key points

SELECTED BY

Dr Peter Saul

GP, Wrexham and Associate GP Dean for North Wales

Developmental dysplasia of the hip (DDH) is a spectrum disorder of joint development and/or instability. It is a major cause of morbidity in both childhood and adult life. It can be classified into three types: neuromuscular; teratological; and idiopathic (the most common type). Early examination of the hips is performed neonatally using Ortolani and Barlow manoeuvres to look for dislocation. These tests have high sensitivity but low specificity and this is one of the reasons that DDH is still picked up late. DDH may be detected in the walking child. If it is unilateral it may involve an asymmetric gait, possibly tiptoe on the affected side, as well as asymmetry around the thigh. If bilateral, the child characteristically walks with a Trendelenburg gait, and a prominent belly.

Children usually in-toe because of torsion at one of three levels: the foot (metatarsus adductus); the tibia (tibial in-torsion); and femoral in-torsion (or increased femoral anteversion). For patients with an extreme of physiological variation in rotational profile, there is no evidence that splints, braces, insoles or orthotics are of any use. These conditions improve of their own accord over time.

When a limping child presents it is important that the more uncommon diagnoses, including infection, neoplasia and slipped femoral epiphysis are kept in mind and appropriate urgent referral made if necessary. In one study, in children where a diagnosis was made, the hip joint was the culprit in the majority of cases. Of these, 40% were diagnosed as irritable hip or transient synovitis. Other inflammatory arthritides/tendinoses accounted for 3.2%, Perthes' disease 2%, and infection 3.6%.

Any age group is vulnerable to infection such as septic arthritis, osteomyelitis and pelvic pyomyositis. Early diagnosis and treatment, comprising antibiotics with or without surgery, is critical. In the limping child, fever with focal tenderness or restricted range of movement is indicative of infection unless investigations show otherwise.

Perthes' disease is an idiopathic avascular necrosis of the femoral head. Its prevalence is 1 in 10,000 children. It mainly affects boys in the four to nine years age range. This condition presents in a similar manner to transient synovitis. However, it is far less common and the symptoms are longer lasting.

Slipped upper femoral epiphysis is uncommon but the seriousness of the sequelae mandates a high index of suspicion. It requires urgent admission for surgery. It affects both boys and girls in the eight to sixteen years age range. The presenting feature of pain ranges from intermittent and mild to incapacitating and precluding weight bearing.

assessed with the patient prone i.e. hip at neutral in terms of flexion/extension), often with obligate external rotation on hip flexion (with patient supine).

CONCLUSION

Early detection of hip dysplasia gives better long-term outcomes and missed DDH can result in catastrophic long-term morbidity. Slipped femoral epiphyses are missed on first presentation in approximately 50% of cases, with potentially disastrous sequelae. Early diagnosis, referral and treatment is the key to the immediate management of septic arthritis, osteomyelitis and pyomyositis.

The hip and proximate tissues are implicated in a variety of childhood conditions, and in the differential diagnosis of many more. To a large extent the possible diagnoses are limited by the age of the patient, an accurate history and thorough examination.

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Useful information

STEPS

A national charity supporting children and adults affected by lower limb conditions including all the hip pathologies. Information, contacts and resources are available at www.steps-charity.org.uk

We welcome your feedback

If you would like to comment on this article or have a question for the author, write to: editor@thepractioner.co.uk

GPs have key role in early detection of melanoma

Holme SA. GPs have key role in early detection of melanoma.

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Dr S. Alexander Holme
BSc MB ChB MD MRCP
Consultant Dermatologist, Royal Infirmary of Edinburgh, Edinburgh, UK



GPs have key role in early detection of melanoma

AUTHOR
Dr S. Alexander Holme

BSc MB ChB MD MRCP
Consultant Dermatologist,
Royal Infirmary of Edinburgh,
Edinburgh, UK



FIGURE 1

The 'ugly duckling' sign: moles in the same individual tend to resemble one another, and a melanoma often looks different. This man has a melanoma on his left anterior chest



MALIGNANT MELANOMA IS A POTENTIALLY FATAL SKIN CANCER THAT ARISES FROM THE MELANOCYTE

pigment cells in the skin. Normal melanocytes are found in the basal layer of the epidermis and produce the protein melanin, which is taken up by adjacent epidermal keratinocyte cells, and protects the skin by absorbing ultraviolet (UV) radiation.

Production of melanin by melanocytes

is increased in response to UV exposure, resulting in a sun tan. Melanocytes are found in equal numbers in black and white skin, but the melanocytes in darker skin produce much more melanin, resulting in increased UV protection.

Non-cancerous proliferation of melanocytes results in moles (benign melanocytic naevi) and freckles (ephelides and lentigines), while cancerous growth of melanocytes results in melanoma.

What are the risk factors for malignant melanoma?

How should suspicious lesions be assessed?

Which patients should be referred?

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INCIDENCE

Excluding non-melanoma skin cancer (NMSC), melanoma is the fifth most common cancer in the UK, with around 12,800 new cases annually.¹ It affects more women than men and the incidence is now more than four times higher than it was 30 years ago, and is rising faster than other common cancer types.

Melanoma is rare in childhood, but »

SPECIAL REPORT

MALIGNANT MELANOMA

Table 1

The Glasgow seven point checklist

Major feature

- Change in size
- Irregular shape
- Irregular colour

Minor feature

- Diameter > 7mm
- Inflammation
- Oozing
- Change in sensation

Score 2 for each major feature and 1 for each minor feature

from the teens onwards the incidence steadily rises with age. Although the highest melanoma incidence is in people over 80, the relatively low incidence of other cancers in young adults results in melanoma being one of the most common cancer types between the ages of 15 and 34.

RISK FACTORS

Exposure to UV radiation is the main risk factor for developing melanoma. In most individuals the common sources are sunlight or artificial sources such as sunbeds. Pale-skinned individuals have a higher risk of melanoma, with the highest reported rates in Australia,¹ where predominantly white-skinned populations live close to the equator. There, it is the third most common cancer, accounting for 10% of all cancer diagnoses (excluding NMSC).

Other risk factors for superficial spreading melanoma, the most common type, include:

- Increasing age
- Previous melanoma or melanoma in situ (precancerous melanoma)
- Previous NMSC
- Many melanocytic naevi
- Multiple (> 5) atypical naevi (irregular-looking moles or histologically dysplastic moles)
- Strong family history of melanoma with two or more first-degree relatives affected
- Fair skin that burns easily
- Residence abroad, particularly as a child below the age of 12 years
- Higher socioeconomic class
- Immunosuppression

SUSPICIOUS LESIONS

The first sign of a melanoma is usually an unusual looking freckle or mole, see figure 1, p 27. It may have a variety of colours including tan, dark brown, black, blue, red, light grey, or occasionally may lack pigment (amelanotic melanoma).

GPs should check the patient's

Table 2

The ABCDE of melanoma

- A** Asymmetry in two axes
- B** Border irregularity
- C** Colour variation > 2 colours
- D** Diameter > 6 mm
- E** Evolving/enlarging/elevation

pigmented lesion to assess if it has any of the characteristics described by the Glasgow seven point checklist, see table 1, above, or the ABCDE of melanoma, see table 2, above, and figure 2, below. Overall these checklists tend to be more sensitive than specific, overestimating risk.

Some melanomas are itchy or tender, and more advanced lesions may bleed easily or crust over. Melanomas can occur anywhere on the body, not only in areas that get a lot of sun: for example, the most common site in men is the back, and in women the leg.

Rarely melanomas can develop at sites other than the skin, such as oral or genital mucosae, under finger and toe nails (see figure 3, p29), and in the mouth, brain, eye or vagina.

REFERRAL

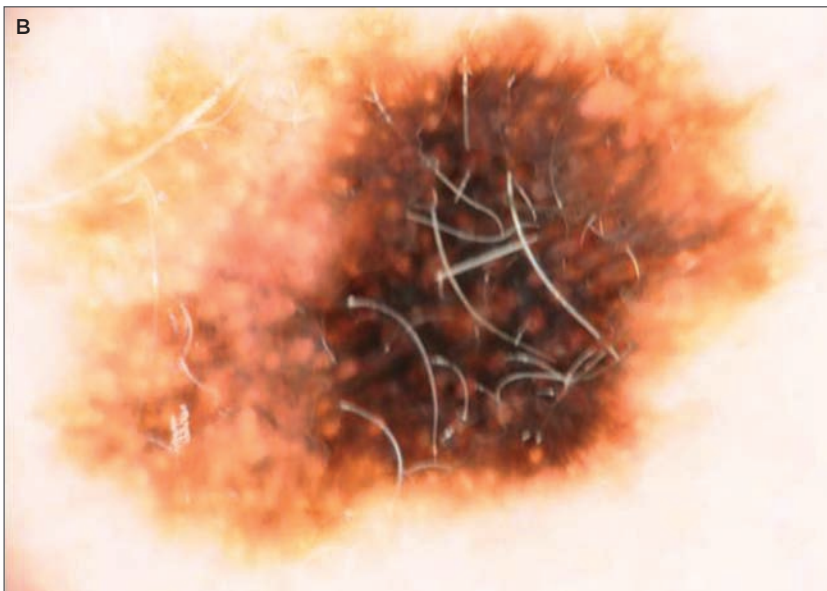
NICE recommends urgent referral of all lesions scoring 3 or more on the seven point checklist, or if there are significant concerns about any one feature.



FIGURE 2

A An asymmetric, irregular border, irregularly pigmented macule > 6 mm on a patient's right cheek, clinically in keeping with a melanoma

B The dermatoscopic appearance showing irregular pigment organisation



Box 1

Self-examination and sun protection advice for patients

- Self-examine all areas of skin one to three monthly for changes in moles listed in the ABCDE rules. Photographs of the skin can help as a baseline reference. If there are any changes, patients should seek advice from their GP immediately
- Avoid too much sun exposure particularly sunbathing, sunburn and tanning. Use a combination of clothing, sunscreen and behaviour changes for protection.
- Information about this is available on the CRUK and BAD sites (see Useful information box, p30)
- Do not use sun beds or tanning lamps

The British Association of Dermatologists² suggests referring:

- A new mole appearing after the onset of puberty which is changing shape, colour or size
- A long-standing mole which is changing shape, colour or size
- Any mole which has three or more colours or has lost its symmetry
- A mole which is itching or bleeding
- Any new persistent skin lesion especially if growing, pigmented or vascular in appearance, and if the diagnosis is not clear
- A new pigmented line in a nail especially where there is associated damage to the nail
- A lesion growing under a nail

For patients whose lesions are not particularly concerning, it is acceptable to take photographs of the mole against a ruler or a marker scale, and monitor it for eight weeks for any changes.

NICE³ and SIGN⁴ have both published guidelines on the management of melanoma. Lesions which are suspicious for melanoma should not be removed in primary care.

Patients should be referred urgently to secondary care with a history recording the duration of the lesion, change in size, colour, shape and symptoms.

The referral examination should cover the site, size (maximum diameter), elevation (flat, palpable, nodular) and other description such as irregular margins, irregular pigmentation and if ulceration is present.

MANAGEMENT

Surgery

As surgery is the only curative treatment for melanoma, suspected lesions should be photographed, excised completely with a 2 mm margin of skin and a cuff of fat, and sent to a pathology laboratory for histological examination.

The pathologist's report should include a macroscopic description of the specimen and a microscopic description including the Breslow tumour thickness (from the

granular cell layer of the epidermis, to the nearest 0.1 mm), the single most important prognostic variable.

Metastases are rare for melanomas < 0.75 mm, the risk for tumours 0.75–1 mm thick is about 5%, rising to about 40% for melanomas > 4 mm.

There appears to be a survival benefit in having a second wide local excision of normal skin around the scar of a confirmed melanoma excision, perhaps through ensuring removal of all the melanoma including micrometastases.

The size of this normal skin margin is usually determined by the Breslow thickness of the melanoma, but may be influenced by discussion within the skin cancer multidisciplinary team (SCMDT) and with the patient.

A staging technique, sentinel lymph node biopsy, to diagnose subclinical regional lymph node involvement is sometimes undertaken at the same time as the wide local excision, but it has no proven therapeutic value.

Other routine investigations including blood tests and radiological imaging are not required for asymptomatic patients with primary melanoma.

All patients with a new diagnosis of melanoma should be discussed at a SCMDT meeting to enable planning of investigations, and palliative surgical and non-surgical treatments for stage III and IV melanoma.

Metastatic disease

There is no evidence of a survival benefit for adjuvant radiotherapy in patients with melanoma, although local control of metastatic disease may be improved. Standard chemotherapy also appears not to confer a significant survival advantage.

Newly introduced human monoclonal antibodies which upregulate cytotoxic T-cell-mediated cancer cell death, and agents which block the BRAF gene mutation (present in about half of melanoma cases) may offer limited survival advantage. In December 2012, NICE issued technology appraisals on the use of ipilimumab as a possible

treatment for patients with previously treated stage III or IV (unresectable or metastatic) melanoma,⁵ and also on vemurafenib for locally advanced or metastatic BRAF V600 mutation-positive melanoma.⁶

Premalignant lentigo maligna/in situ melanomas

These lesions have no potential for metastatic spread and the aim should be to excise the lesion completely with a clear histological margin. No further treatment or follow-up is then required.

FOLLOW-UP

Depending on the Breslow depth, standard UK practice is for melanoma patients to be followed up for between one and five years after treatment of primary cutaneous melanoma. The three main reasons for follow-up are to:

- Detect recurrence when further treatment can improve the prognosis
- Detect further primary melanomas
- Provide support, information and education

Most first relapses occur in the five years following diagnosis, but there is a significant risk of later first relapse, and both patients and their doctors should be aware of this. »

FIGURE 3

Melanomas can occur at sites other than sun-exposed skin. Here a lentigo maligna melanoma of the right great toe has involved the nail folds, Hutchinson's sign



key points

SELECTED BY

Dr Peter Saul

GP, Wrexham and Associate GP Dean for North Wales

Malignant melanoma arises from the melanocyte pigment cells in the skin. Non-cancerous proliferation of melanocytes results in moles and freckles, while cancerous growth of melanocytes results in melanoma. Melanoma is rare in childhood, but from the teens onwards, the incidence steadily rises with age. Exposure to ultraviolet light radiation is the main risk factor for developing melanoma.

The first sign of a melanoma is usually an unusual looking freckle or mole. It may have a variety of colours including tan, dark brown, black, blue, red, light grey, or occasionally may lack pigment. Some melanomas are itchy or tender, and more advanced lesions may bleed easily or crust over.

The British Association of Dermatologists suggests referring: a new mole appearing after the onset of puberty, or a long-standing mole, which is changing shape, colour or size; any mole which has three or more colours or has lost its symmetry; a mole which is itching or bleeding; or any new persistent skin lesion especially if it is growing, pigmented or vascular in appearance, and if the diagnosis is not clear. A new pigmented line in a nail, especially where there is associated damage to the nail, or a lesion growing under a nail should also be referred.

Lesions which have a high index of suspicion for melanoma should not be removed in primary care. Patients should be referred urgently to secondary care with a history recording the duration of the lesion, change in size, colour, shape and symptoms. Surgery is the only curative treatment for melanoma, suspected lesions should be photographed, excised completely with a 2 mm margin of skin and a cuff of fat. There appears to be a survival benefit in having a second wide local excision of normal skin around the scar of a confirmed melanoma excision, perhaps through ensuring removal of all the melanoma including micrometastases.

There is no evidence of a survival benefit for adjuvant radiotherapy in patients with melanoma, although local control of metastatic disease may be improved. Once the melanoma has been treated, patients should be able to return to a normal lifestyle, taking a few sensible precautions to minimise the risk of developing a further melanoma.

Newly introduced human monoclonal antibodies which upregulate cytotoxic T-cell-mediated cancer cell death, and agents which block the BRAF gene mutation (present in about half of melanoma cases) may offer limited survival advantage. NICE has issued technology appraisals on the use of ipilimumab as a possible treatment for patients with previously treated stage III or IV (unresectable or metastatic) melanoma, and also on vemurafenib for locally advanced or metastatic BRAF V600 mutation-positive melanoma.

ADVICE TO PATIENTS

Having a melanoma can make it difficult to obtain life or health insurance, or a mortgage, particularly for the first five years after diagnosis. There is no evidence that melanoma at or near the time of pregnancy adversely affects prognosis. Once the melanoma has been treated, patients should be able to return to a normal lifestyle, taking a few sensible precautions to minimise the risk of developing another melanoma, see box 1, p29.

Sun protection and self-examination advice should be shared with blood relatives as they may be at increased risk of developing melanoma. It is especially important to protect children from the sun, as exposure during childhood seems to be particularly damaging.

CONCLUSIONS

Melanoma is a cancer which is becoming increasingly prevalent. The primary care team is vital in the rapid detection and urgent referral of all patients in whom melanoma is a strong possibility (rather than carrying out a biopsy in primary care), as complete surgical excision offers the best chance of cure.

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- 4 Scottish Intercollegiate Guidelines Network. SIGN 72. Cutaneous melanoma. Edinburgh July 2003, updated February 2004. ISBN 1899893 88 1. SIGN. Edinburgh. 2004
- 5 National Institute for Health and Clinical Excellence. TA 268. Ipilimumab for previously treated advanced (unresectable or metastatic) melanoma. NICE. London. 2012
- 6 National Institute for Health and Clinical Excellence. TA 269. Vemurafenib for treating locally advanced or metastatic BRAF V600 mutation-positive malignant melanoma. NICE. London. 2012

Useful information

The British Association of Dermatologists
www.bad.org.uk/site/574/default.aspx

Cancer Research UK
www.cancerresearchuk.org/cancer-help/type/melanoma/

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editor@thepractitioner.co.uk