PRACTICE

GUIDELINES

When to suspect child maltreatment: summary of NICE guidance

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This is one of a series of *BMJ* summaries of new guidelines, which are based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists. Further information about the guidance, the Guideline Development Group, and further research needed is in the full version on bmj.com.

Why read this summary?

Maltreatment of children is common, with 538 500 reported referrals to social services departments in England[1] and 43 411 in Wales[2] in the year ending 31 March 2008, although these probably underestimate the true scale of the problem. Child maltreatment includes neglect; physical, sexual, and emotional abuse; and fabricated or induced illness. It may present in various ways to different healthcare professionals, who have a "duty . . . to be proactive in safeguarding children"[3] but often find it difficult to act on what they find.

Child maltreatment has short and long term harmful effects on a child's health and wellbeing; emotional, interpersonal development; and behaviour; and in extreme circumstances it may lead to death. Children may present with both physical and psychological symptoms and signs that constitute alerting features of one or more types of maltreatment, which may also be observed as part of the interaction between the parent or carer and the child.[4] The effects of maltreatment may continue throughout adulthood and include physical disability or disfigurement as well as the profound psychological consequences of anxiety, depression, substance misuse, and self destructive or antisocial behaviours, which may lead to difficulties in forming or sustaining close relationships, sustaining employment, and parenting capacity.[3]

Child maltreatment is under-recognised and inconsistently reported to children's social care by healthcare professionals in England and Wales.[5] The recent death of Baby Peter is yet another reminder of the consequences of missing the alerting features of child maltreatment.[6] The recently published guidance from the National Institute for Health and Clinical Excellence (NICE) aims to raise the awareness of healthcare professionals to the alerting features of child maltreatment.[7] It also aims to support healthcare professionals who are not specialists in child protection in identifying children who may be being maltreated and who require further multiagency assessment[8] to confirm or exclude child abuse or neglect. The scope of this guidance does not cover family and social risk factors, which may in themselves be alerting features. The guidance should not be used as a definitive diagnostic tool to prove or disprove maltreatment. This article summarises key points in the NICE guidance.

Key points

NICE recommendations are based on systematic reviews of best available evidence. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. For this guidance, the Guideline Development Group used a formal Delphi consensus process when the group did not reach a congruent opinion.

Alerting features

The guideline recommendations refer to "alerting features" in the following categories.

Physical features

Physical features include any serious or unusual injury with an absent or unsuitable explanation, and particularly in the following categories: abrasions, bites, bruises, burns, cold injuries, cuts, lacerations, ligature marks, petechiae, scalds, scars, and strangulation marks. They also include various sites of internal injury including fractures, spinal and intracranial injuries (including subdural haemorrhage), intra-abdominal and intrathoracic injuries, eye injuries (including retinal haemorrhage), and oral injuries. The recommendations describe specific attributes of these injuries and of the child that should lead the healthcare professional to consider or suspect child maltreatment; in so doing, the recommendations draw attention to the age and developmental stage of the child and the suitability of the explanation given by the parents or carers.

Sexual abuse

Several recommendations concern alerting features that may indicate possible sexual abuse, with particular attention to the child's age and sexual development. These features include anogenital injuries, symptoms, and signs; sexually transmitted infections, pregnancy; and sexualised behaviours.

Definitions

The alerting features in this guidance have been divided into two categories, according to the level of concern, with recommendations either to "consider" or to "suspect" maltreatment

CONSIDER means maltreatment is one possible explanation for the alerting feature or is included in the differential diagnosis	**SUSPECT** means serious level of concern exists about the possibility of child maltreatment but not proof of it

Using the guidance

If you encounter an "alerting feature" (as described in the guidance) it is good practice to follow the process outlined below

Listen and observe
Take into account the whole picture of the child or young person. Sources of information that help to do this include:
- Any history that is given
- Report of maltreatment, or disclosure from a child or young person or third party
- Child's appearance, demeanour, or behaviour
- Symptom
- Physical sign
- Result of an investigation
- Interaction between the parent or carer and child or young person

Seek an explanation
Seek an explanation for any injury or presentation from both the parent or carer and the child or young person in an open and non-judgmental manner
An **unsuitable explanation** is one that is:
- Implausible, inadequate or inconsistent: - With the child or young person's presentation, normal activities, medical condition (if one exists), age or developmental stage, or account compared with that given by parent and carers
  - Between parents or carers
  - Between accounts over time
- Based on cultural practice, because this should not justify hurting a child or young person

Record
Record in the child or young person's clinical record exactly what is observed and heard from whom and when
Record why this is of concern

CONSIDER child maltreatment
If an alerting feature prompts you to consider child maltreatment:
- Look for other alerting features of maltreatment in the child or young person's history, presentation, or interactions between the child and parent or carer now or in the past
And do one or more of the following:
- Discuss the case with a more experienced colleague, a community paediatrician, child and adolescent mental health service colleague, or a named or designated professional for safeguarding children
- Gather collateral information from other agencies and health disciplines
- Ensure review of the child or young person at a date appropriate to the concern, looking out for repeated presentations of this or any other alerting features
At any stage during the process of considering maltreatment the level of concern may change and lead to excluding or suspecting maltreatment

SUSPECT child maltreatment
If an alerting feature or considering child maltreatment prompts you to suspect child maltreatment refer the child or young person to children's social care, following Local Safeguarding Children Board procedures

Exclude child maltreatment
Exclude child maltreatment if a suitable explanation is found for the alerting feature
This may be the decision after discussion of the case with a more experienced colleague or gathering collateral information as part of considering child maltreatment

Record
Record all actions taken and the outcome

Chart amended with permission from NICE[6]

When to suspect maltreatment of a child

Clinical presentations

Clinical presentations include *(a)* unusual patterns of use of medical services and attendance at medical services; *(b)* discrepant clinical picture (including fabricated or induced illness); *(c)* poor school attendance attributed to ill health; as well as *(d)* some particular indicators of ill health (apparent life threatening event; hypernatraemia; ingestion of substances including poisoning; nasal bleeding; and near drowning).

Neglect

Neglect includes abandonment and several aspects of failure of provision and failure of supervision. Many of these features must be persistent for a healthcare professional to consider or suspect neglect. Aspects of neglect through failure of provision may include a child who persistently presents as dirty or smelly, with unsuitable clothing, severe infestations, with untreated tooth decay (when NHS treatment is available); whose home conditions are unhygienic or unsafe; or who receives inadequate provision of food or medication. Other aspects of neglect through failure of provision may include lack of adherence to necessary medical advice and persistent failure to engage with relevant child health promotion programmes, such as immunisation, health and development reviews, and screening. Failure of supervision may be indicated by injuries—for example, a burn, sunburn, an ingestion of a harmful substance, or an animal bite.

The child's emotional, behavioural, and interpersonal functioning

This section includes a child's particular behaviours, emotional states, patterns of interpersonal functioning,

Obstacles for health professionals in identifying child maltreatment

- Concern about missing a disorder which is treatable
- Discomfort of disbelieving, thinking ill of, suspecting, or wrongly blaming a parent or carer
- Fear of losing a positive relationship with a family already under the care of the health professionals
- Divided duties towards adult and child patients and breaching confidentiality
- An understanding of the reasons why the maltreatment might have occurred and a belief that the parent or carer did not intend to harm the child
- Fear of loss of control over the child protection process and doubts about the benefits
- Stress
- Personal safety
- Fear of complaints

and other aspects of the child's functioning. These behaviours comprise a wide range of features including aggression; fearfulness; dissociation; low self esteem; indiscriminate contact or affection seeking; self harm; running away from home; body rocking; aspects of eating and feeding; and soiling and wetting behaviour. Patterns of potential concern include age inappropriate behaviour; marked change in emotional or behavioural state; and repeated, extreme, or sustained emotional responses by a child that are out of proportion to a situation and are not expected for his or her age and developmental stage.

Interactions between parent and child

Several aspects of interactions between a child and the parent or carer may be harmful, especially when persistent. They include emotional unavailability and unresponsiveness from the parent or carer; hostility towards and rejection and scapegoating of a child; interactions and expectations that are inappropriate for the age of the child, including inappropriate threats or methods of disciplining; exposure to domestic abuse; using the child to fulfil the parent's or carer's needs (for example, involving the child in marital disputes); and failing to promote the child's socialisation by isolation or lack of stimulation or education, or by involving the child in unlawful activities.

Terminology

The terms "consider" and "suspect" have been used in the guidance to indicate the level of concern with respect to the various alerting features. These two terms reflect the action(s) to be taken by the healthcare professional when encountering the particular alerting feature (figure). The associated actions are intended to direct healthcare professionals to resources or ways of thinking that will enable them to overcome barriers to recognising maltreatment. "Consider" means that maltreatment is one possible explanation for the alerting feature or is included in the differential diagnosis.

The actions recommended in the figure will lead

the healthcare professional to exclude maltreatment, to continue to keep the case under consideration, or to move to a stage of heightened concern where they suspect maltreatment.

"Suspect" means a serious level of concern about the possibility of maltreatment but is not proof of it. This may trigger a child protection investigation, which may indicate the need for starting child protection procedures and/or offering supportive services to the family or may lead to alternative explanations for the reported concerns being identified.

The guidance takes account of alternative causes of the alerting features, both in the recommendations and the processes associated with considering and suspecting child maltreatment.

Overcoming barriers

Child maltreatment is a sensitive and emotive subject. Healthcare professionals face many obstacles to recognising and responding to possible maltreatment (box). This guidance aims to empower and help them to overcome these obstacles, to encourage the appropriate course of action to protect the child or young person from further harm, and to reduce both delay in timely action and the high cost of abuse and neglect to individuals and to society.[3] Support, supervision, education and training of 'front line staff' will be essential if this guidance is to be implemented successfully. Improving the quality of recognition should result in the right child being referred to specialist services for further assessment and protection from further maltreatment.

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RATIONAL TESTING
Assessing candiduria in a critically ill patient

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Candiduria is common and often benign, but it may be the only clue to disseminated candidiasis in critically ill patients

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The patient

A 56 year old man was admitted to the intensive care unit from a general surgical ward with pancreatitis, diagnosed on the basis of clinical findings and a high amylase concentration thought to be secondary to alcohol abuse. He had no relevant medical history. In the general surgical ward he had been initially treated with ampicillin, gentamicin, and metronidazole to cover the likely bacterial pathogens. His early clinical course in intensive care was complicated by persistent fevers to 39.5°C, haemodynamic instability, acute renal failure, and adult respiratory distress syndrome. Mechanical ventilation was needed. A subclavian central line, arterial line, and indwelling catheter were required for supportive care. Computed tomography soon after admission to intensive care did not show any collection within the pancreas. On his admission to intensive care, antimicrobial treatment was broadened to meropenem because of persistent inflammation. Because of several risk factors for disseminated candidiasis (pancreatitis, broad spectrum antibacterial agents, and central venous catheterisation), intravenous fluconazole 400 mg daily was added on day 3 in intensive care to cover *Candida* empirically.

The patient had persistent neutrophil leukocytosis, and blood cultures grew no organisms. On day 14 in intensive care, a catheter specimen of urine showed >500 white blood cells and 10^5 organisms/ml of a yeast that produced negative results on the germ tube test.

What is the next investigation?

The next laboratory investigation in this patient depends on the likely clinical importance of the candiduria. Candiduria is uncommon in otherwise healthy individuals but is found in 19-44% of critically ill patients,[1-3] and the probability of candiduria increases progressively with the duration of the stay in the intensive care unit.[1] In critically ill patients, candiduria may precede or be a marker of life threatening systemic infection; in a recent observational study of patients in intensive care from France, for example, about 8% of candiduric patients had candidaemia.[4] Because 40-50% of affected patients die from disseminated candidiasis,[5] and in the absence of accurate tests for this condition, many doctors in intensive care have a low threshold for administering empirical systemic antifungal treatment.[6] This results in many patients being treated unnecessarily. Moreover, although fluconazole is effective for treating candiduria in the short term, the rate of relapse is high.[7]

The diagnostic possibilities related to candiduria for this patient are:

- Perineal contamination due to the use of broad spectrum antimicrobial agents;
- Colonisation of the lower urinary tract or the urinary catheter, facilitated by disruption of mechanical barriers by the indwelling catheter and changes in local bacterial flora by the use of broad spectrum antimicrobials;
- A marker of upper renal tract disease, which usually occurs in the context of structural urinary tract abnormalities or diabetes, and is sometimes complicated by the formation of fungal balls or bezoars[8];
- A manifestation of disseminated infection; candiduria may be the only evidence of disseminated candidiasis in a critically ill patient.[8]

Unfortunately, no diagnostic tools distinguish these syndromes reliably.

Formal identification and testing for antifungal susceptibility

For this critically ill patient with persistent intra-abdominal infection refractory to broad spectrum antibacterial agents, disseminated candidiasis with seeding of the kidneys and "spill" into the urine is a strong possibility, and more information regarding the *Candida* isolate is required to guide treatment. Microbiology laboratories differ in the extent of the routine workup of a yeast isolated from a non-sterile site, and formal identification and susceptibility testing may need to be requested specifically. A germ tube test is a relatively rapid way of distinguishing *C albicans* (germ tube positive) from other non-*albicans* species of *Candida* (for example, *C parapsilosis*, *C glabrata*, *C tropicalis*, and *C krusei*). This test consists of incubating the organism in sheep serum for two hours and checking whether blastoconidia, the initial outgrowths produced in fungal germination, are present. The high specificity of this test is marginally compromised by *C dubliniensis*, which is also germ tube positive. Some germ tube negative organisms have reduced susceptibility to fluconazole (*C glabrata*, for example) or are inherently resistant (*C krusei*, for example) to this agent. For this patient with a potentially important germ tube negative yeast, formal identification and testing for antifungal susceptibility are needed so that optimal antifungal treatment can be administered.

A heavy growth of *Candida* from urine is not necessarily more likely to be clinically important (in contrast to bacterial growths), given the poor correlation between colony counts and disseminated infection.[9] Experimental models of disseminated candidiasis indicate that *Candida* casts in urine are a useful marker of

disseminated infection, but these are not routinely sought in the microbiology laboratory.[10]

Blood cultures

Blood cultures remain the diagnostic mainstay for the diagnosis of candidaemia, although their sensitivity is about 50%.[11] To optimise yield from blood cultures, two or three blood samples must be drawn because the total volume of blood is an important determinant of overall sensitivity. Negative blood cultures do not exclude the possibility of disseminated candidiasis, and should not influence the use of systemic antifungal agents if such agents would be used on clinical grounds alone (as in this case).

Non-culture tests

Non-culture tests are not universally available at present but are likely to be used increasingly in the future.

- 1,3-β-D glucan is a soluble antigen found in some (but not all) medically important fungal genera, such as *Candida* and *Aspergillus*. In this patient, positive results on testing for glucan may support a diagnosis of disseminated candidiasis, although the specificity of this test may be suboptimal in patients in intensive care units[12]
- Polymerase chain reaction on blood to detect *Candida* may provide evidence of disseminated infection, but this is not widely used because assays have not been standardised
- Testing for combined *Candida* mannan antigen and antibody is potentially useful,[13] but not all species of *Candida* contain mannan, and these tests require considerable laboratory resources.

Other microbiological data

The presence of *Candida* at multiple non-sterile sites is a risk factor for disseminated candidiasis, and some clinicians use this as a trigger for empirical antifungal treatment. Routine surveillance cultures for *Candida* at non-sterile sites to guide antifungal therapy is relatively expensive and time consuming and is not widely practised.

Outcome

There was no evidence of pyelonephritis on ultrasonography. The indwelling catheter was changed. The germ tube negative yeast was identified as *C glabrata* with a minimal inhibitory concentration of 32 mg/l, suggesting reduced susceptibility to fluconazole (the precise designation is susceptible dose dependent, indicating a higher fluconazole dosage is needed for successful treatment). Probable disseminated *C glabrata* candidaemia with "spill" into the urine was diagnosed. Increasing fluconazole from 400 mg/day to 800 mg/day was inappropriate because the infection had arisen despite fluconazole. His renal impairment provided a relative contraindication to the administration of liposomal amphotericin B, so treatment was changed to caspofungin, an echinocandin, which was given as a 70 mg loading dose followed by a maintenance dose of 50 mg/day. The echinocandins are broad spectrum antifungal agents with rapid candidacidal activity that can be safely used in patients with renal and hepatic impairment. Computed tomography on day 19, carried out because of slow clinical progress, showed a small collection of fluid in the pancreas. A percutaneous aspirate also grew *C glabrata* with the same minimal inhibitory concentration. Signs of sepsis slowly resolved with echinocandin treatment, and the patient was eventually discharged from intensive care. The use of a relatively simple microbiological test for formal identification and testing of antifungal susceptibility on a urinary isolate enabled timely and appropriate antifungal treatment to be administered.

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LEARNING POINTS

- Distinguishing the causes of candiduria (perineal contamination, colonisation of the lower urinary tract, upper tract infection, and "spill" into the urine from blood borne *Candida* infection) requires a compilation of clinical, microbiological, and radiological data
- Though candiduria is most often of little clinical consequence and does not need treating, in some clinical contexts such as critically ill patients, it may be the only manifestation of life threatening disseminated *Candida* infection, which needs aggressive systemic antifungal treatment
- Asymptomatic candiduria in clinical contexts where disseminated infection is unlikely does not usually require treatment. A change of indwelling catheter may be appropriate
- Fluconazole is the agent of choice for infection confined to the renal tract because of its water solubility and high urinary concentrations
- When candiduria is a manifestation of disseminated infection, treatment should be directed to the primary site(s) of infection, and a triazole, echinocandin, or a lipid preparation of amphotericin B are the agents of choice

LESSON OF THE WEEK
A case of mistaken mesial temporal identity

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Re-examine a diagnosis of epilepsy when there is worsening control and investigations are normal

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The accurate diagnosis and treatment of paroxysmal events can be difficult. It requires a detailed eye witness account and a clear description of the circumstances of the event, including location, development, tempo, and duration. Even with this information, a definitive diagnosis may not be attainable.

Case report

A 45 year old left handed man presented with a four year history of paroxysmal events. He was referred by his neurologist for consideration of epilepsy surgery. Previous medical history was unremarkable. The first episode of loss of consciousness occurred while the patient was with friends. It was preceded by a brief period of severe chest pain with profuse sweating, which lasted less than a minute. A 12-lead electrocardiogram was normal. The second episode occurred two years ago and was also preceded by chest pain. During this episode, the patient felt weak, lay on the ground, and lost consciousness. Duration was uncertain, but on regaining consciousness he was sweating profusely. He interpreted these episodes as cardiac in origin as he has a strong family history of coronary artery disease. He was seen by a cardiologist who noted a normal cardiac examination, ambulatory electrocardiogram, exercise stress test, and transthoracic echocardiogram.

He had no further episodes until about nine months before referral. The first new episode started with a sensation of a sweaty smell followed by constricting chest pain for approximately 30 minutes, after which he lost consciousness. His wife described him as being in a

profound sleep with heavy snoring. He recovered about 30 minutes later, initially shouting as if waking from a bad dream, but without subsequent confusion. There was neither urinary incontinence nor tongue biting. He was seen by a neurologist who felt these episodes were epileptic in origin; no treatment was recommended as the episodes had been infrequent. He had a further episode five days later and was seen by a second neurologist who made a putative diagnosis of mesial temporal lobe epilepsy and prescribed carbamazepine 200 mg twice daily. These now stereotyped episodes continued to occur increasingly frequently, despite an escalating regimen of anti-epileptic medications. He would perceive a sweaty smell and feel a severe constricting left-sided chest pain, sometimes radiated to the jaw, associated with profuse sweating. He was uncomfortable, would try to sit down, and would breathe heavily. A few seconds later he might lose consciousness for up to 30 minutes, snore loudly and shout on waking. Episodes of chest pain without loss of consciousness were interpreted as complex partial seizures, and the episodes with loss of consciousness were interpreted as partial seizures with secondary generalisation. An MRI brain scan and routine electroencephalogram were reported as normal.

At this stage he was taking sodium valproate 2000 mg, carbamazepine 600 mg, lamotrigine 150 mg, and clobazam 30 mg daily. Despite this, the partial seizures continued on an almost daily basis, and the generalised episodes recurred at least every seven days. When first seen, the patient was feeling lethargic and drowsy. On direct questioning he reported no history of myoclonic jerks, events suggestive of complex partial seizures, or convulsive episodes. There were no clear triggers for the episodes, and all occurred early in the morning or during the night. He subsequently underwent a further MRI brain scan, which was normal, and a 24 hour electroencephalogram, which was mildly encephalopathic in keeping with his medication. It was felt that the diagnosis of epilepsy was unlikely and that these episodes were cardiac in origin, despite normal cardiac investigations. The patient underwent a MRI scan of his cervical spine looking for a possible cervical disc herniation, which can atypically present as ischaemic chest pain.[1]

The scans were normal. The patient was referred to a cardiologist for further evaluation, and the anti-epileptic medication was slowly withdrawn, resulting in a substantial improvement in his cognition. After cardiological assessment, including an echocardiogram that showed no evidence of structural heart disease, and a 12 lead electrocardiogram that was normal (fig 1), he had an implantable loop recorder
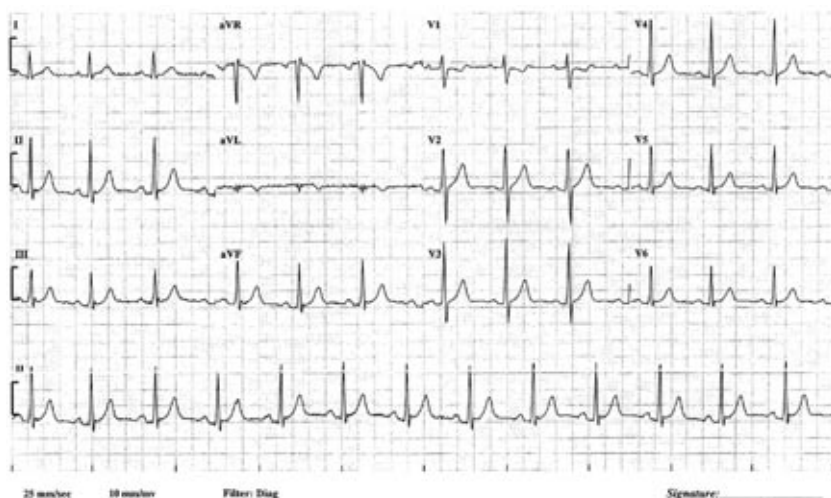

Fig 1 | Twelve lead electrocardiogram done at initial cardiology assessment showing normal sinus rhythm

(Reveal) inserted. Six days later, he had an episode, and the Reveal electrocardiogram tracing showed the development of ventricular tachycardia, degenerating over a three minute period to ventricular fibrillation, with spontaneous termination and resumption of sinus rhythm (fig 2).

Coronary angiography revealed only early non-obstructive plaque disease throughout the left coronary artery. During the angiogram, severe coronary artery spasm developed in the atrioventricular circumflex, which responded fully to intracoronary nitrates. The device was removed, and a dual-chamber implantable cardioverter-defibrillator was implanted. A cardiac MRI scan was not performed prior to the insertion of an implantable cardioverter-defibrillator as it was believed that it would be unlikely to alter management. He was started on sotalol, a β blocker with anti-arrhythmic properties, and diltiazem, a calcium channel antagonist, to prevent coronary artery vasospasm.

At last follow-up six months later he was well and asymptomatic off all anti-epileptic medication.

Discussion

The differential diagnosis of paroxysmal events is extensive and often summarised as "fits, faints, and funny turns." The diagnosis of epilepsy is clinical, based mainly on the eye witness account, although this may be misleading.[2] About 20% of patients attending a seizure clinic with refractory epilepsy do not have epilepsy.[3] In this case, the sensation of a smell at the start of each episode, the termination of the attack with a loud shout, and the prolonged duration of some of the episodes suggest a diagnosis of complex partial seizures with secondary generalisation, possibly arising from the temporal lobe. Some patients report a distinct and identifiable smell during an epileptic seizure, but they are often unable to identify it clearly. In this case, an unambiguous smell of sweat suggests the presence of autonomic disturbance associated with a primary cardiac problem and not an epileptic olfactory aura. Additional characteristics of the attack, such as profuse sweating and chest pain, suggest an alternative diagnosis. Chest or abdominal discomfort, however, can occur in partial seizures with associated autonomic dysfunction, leading to diagnostic uncertainty. The severity and quality of the chest discomfort seem disproportionate in this case to that expected for a partial seizure with associated visceral pain and autonomic features.

While a cardiac diagnosis appears much more likely with the benefit of hindsight, there may have been subtle differences in the history elicited by the primary neurological team that were more indicative of episodes of epileptic aetiology. The main differential diagnoses of epilepsy are primary cardiac events, neurocardiogenic (vasovagal) syncope, and psychogenic non-epileptic attacks. In one study, conducted at a tertiary epilepsy unit, 26% of patients attending for refractory epilepsy were found to have an alternative diagnosis[4] (including syncope and psychogenic attacks), and another study by a cardiology service found 42% of those with apparent refractory epilepsy had an alternative, cardiological, diagnosis.[5] Gastaut estimated that up to a third of patients who were given an initial diagnosis of epileptic seizures had an underlying cardiovascular condition.[6] In particular, cardiac arrhythmias can masquerade as seizures and were found to be the cause of collapse in 20% of patients in one study.[7]

Transient cardiac asystole can present as intractable epilepsy[8] and may occur in association with epileptic seizures, leading to diagnostic difficulties.[9-11] Cardiac syncope, secondary to structural cardiac abnormality, ischaemia, or arrhythmia, has an overall mortality of 30% at five years[12] and can be difficult to confirm if the resting 12 lead electrocardiogram is normal.[13] An exception to this is the long QT syndrome, which can present with episodes of sudden collapse,[14 15] but importantly the resting electrocardiogram is usually abnormal, although this can vary over time. The yield from 24 hour ambulatory electrocardiogram monitoring in patients with infrequent episodes of collapse is typically poor.[16] The implantable loop recorder is of tremendous diagnostic value, with a high yield in this patient group.[17]

Fig 2 | Implantable loop recorder traces showing the development of ventricular tachycardia degenerating to ventricular fibrillation

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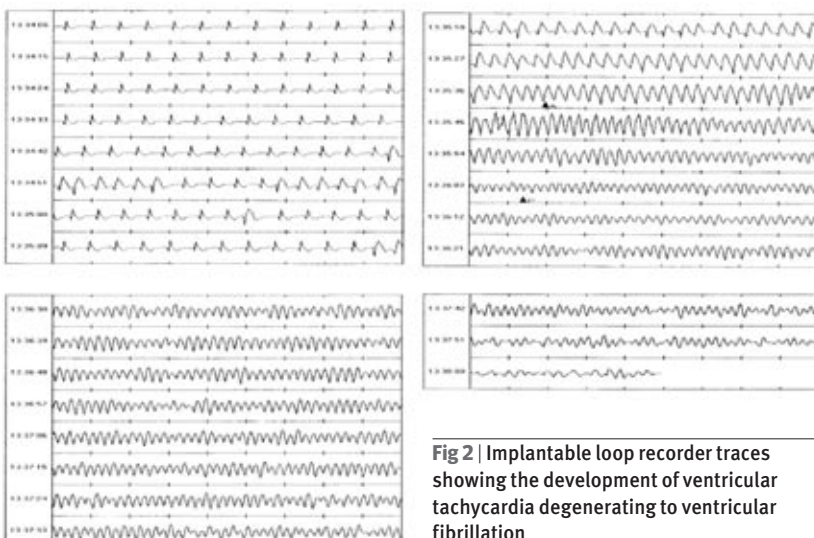
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10-MINUTE CONSULTATION

Acne vulgaris

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This is part of a series of occasional articles on common problems in primary care. The *BMJ* welcomes contributions from GPs

A 17 year old woman comes to see you with a 12 month history of pimples and pustules on her face, with a few blackheads and no scarring. She says they are making her feel very self conscious and are affecting her A level studies and social life.

What issues you should cover

- What other symptoms or signs does she have? Seborrhoea, irregular menses, weight gain, or hirsutism should alert you to polycystic ovary syndrome.
- Is she worried that her diet is causing her acne? Currently no conclusive evidence exists to confirm that foods such as chocolate contribute to acne, so it is a good opportunity to dispel myths and to discuss healthy eating in general.
- Does she have any particular skin care regime? Often people with acne use aggressive cleaning products, which can aggravate the problem or cause irritation.
- Is she taking any prescribed or over the counter treatments? Some treatments, particularly antiepilepsy drugs, steroid creams, anabolic steroids, and some hormonal treatments, can cause or worsen acne.
- Would she consider hormonal treatment for acne? This would also give you the opportunity to discuss her sexual health, if appropriate.
- How does the acne affect her mood and social life? Acne can lead to low self-esteem and depression, so you could ask her how it affects her mood and whether it stops her doing anything she would normally enjoy doing.

What you should do

- Assess and record the severity of the acne so that the effects of treatment can be compared with your baseline evaluation. There is no standard acne grading system, but the Leeds revised acne scoring system uses several useful photographs (see Further reading). A pragmatic approach is to record the acne as mild, moderate, or severe (table).
- Explain to her that acne is a very common but treatable skin condition and is caused by inflammation of the oil glands around hair follicles, usually triggered by the hormones of puberty. Point her to a website for more information (see Further reading).
- Advise her to use a mild cleanser, an oil free moisturiser, and non-comedogenic make-up, if she wears any; to avoid touching her face; and not to pick the spots, which can worsen acne and lead to scarring.
- Although the evidence for an association between acne and smoking or alcohol misuse conflicts, take the opportunity to give her general advice on health promotion about these habits where necessary.
- Arrange further investigations for polycystic ovarian syndrome if indicated, such as blood tests for endocrine hormone alterations or ultrasonography of the ovaries (see Further reading for advice on referral).
- Advise her that early treatment prevents scarring and that any treatment needs to be tried for at least six weeks before its effectiveness can be assessed.

Grading of acne severity and treatment

	Mild acne	Moderate acne	Severe acne
Description	Open and closed comedones (whiteheads and blackheads), a few papules and pustules	Comedones, more frequent papules and pustules, but minimal scarring; can be subdivided into mainly comedonal or mainly inflammatory acne	Comedones, more pustules, and pustules plus nodular abscesses with more extensive scarring
First line treatments	• Topical retinoid • Benzoyl peroxide (BP) • BP + topical antibiotic	Comedonal: • BP + topical retinoid Inflammatory: • BP + topical antibiotic	As for moderate acne, plus referral to a dermatologist for oral isotretinoin
Second line treatments	• Azelaic acid	• Oral antibiotic + BP ± topical retinoid • Azelaic acid • Consider combined oral contraceptive pill for female patients	As for moderate acne, plus referral to a dermatologist for oral isotretinoin

First line treatments

- Topical retinoids, the first line treatment for mild acne, have comedolytic, anti-comedogenic, and anti-inflammatory effects and are good in early and established acne and as maintenance therapy. The most common side effects are dryness and irritation, which can be avoided by application on alternate days initially. In theory retinoids are teratogenic, so women should be advised about this.

- An alternative to topical retinoids is benzoyl peroxide. It is highly effective at reducing antibiotic sensitive and resistant propionibacterium acnes so is good for inflammatory acne and is more effective than topical antibiotics. It has mild comedolytic activity but no anti-comedogenic action. It can cause dryness and irritation, so start with a low strength cream formulation and titrate up. Advise that it can bleach clothes.

- Topical antibiotics are also helpful in mild to moderate inflammatory acne but should be used as combination formulations with benzoyl peroxide to help reduce the risk of bacterial resistance.

Second line treatments

- Topical azelaic acid 20% works in a similar way to benzoyl peroxide and retinoids but is less irritating. It is likely to be much less effective than retinoids and benzoyl peroxide but is helpful in patients with post-inflammatory pigmentation.

- For moderate acne a generic tetracycline (but not minocycline, because of the risk of skin pigmentation and other more serious adverse effects) is recommended for at least six weeks, in combination with topical treatment. Combining an oral antibiotic with benzoyl peroxide helps to reduce the risk of bacterial resistance. Advise female patients that tetracyclines are contraindicated in pregnancy and that they should take adequate measures to avoid conceiving. Tetracyclines should not be prescribed to children aged under 12 years, because of potential staining of teeth enamel.

- Hormonal treatment may improve acne in some women. There is little evidence that any is better than the others. Given the potential for adverse effects, particularly venous thromboembolism (VTE), you should consider the risk-benefit ratio when prescribing hormonal treatment. Any hormonal treatment is contraindicated in women with focal migraine or a higher than normal risk of VTE. Co-cyprindiol has a product licence for severe acne and can improve acne in up to 90% of female patients. Because of concerns about the risk of VTE, the advice is that this be given for 3-4 cycles after the acne is completely resolved then withdrawn (repeat courses may be given for recurrence). However, a recent paper by S Franks and colleagues (see Further reading) has shown that this is not necessary, as there is no good evidence to confirm an increased VTE risk, and there are moves to change this recommendation.

- Consider referral if the above described treatments do not result in the desired outcomes (see box).

Guidance on referral to a specialist (based on NICE guidance, May 2001)

Consider referral if the patient has:

- Severe acne or painful nodulo-cystic acne, with potential or actual scarring. Such acne is likely to benefit from isotretinoin, an oral retinoid that is very effective but can have serious side effects, ranging from dry skin, lips, and eyes to teratogenicity and possible mood changes. It can be prescribed only by a dermatologist

- Severe social or psychological problems as a result of the acne

- Moderate acne after six months of trying treatment in primary care, or

- A suspected underlying endocrine cause, such as polycystic ovary syndrome.

FURTHER READING

American Academy of Dermatology. AcneNet: a comprehensive acne information resource. www.skincarephysicians.com/acnenet

British Association of Dermatologists. Acne: patient information leaflet. www.bad.org.uk/site/793/default.aspx

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Best Health. Acne (spots). http://besthealth.bmj.com/btuk/conditions/1000216872.jsp

Talk Acne. Acne support site: a free information and support site for acne sufferers and their families. www.talkacne.com

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