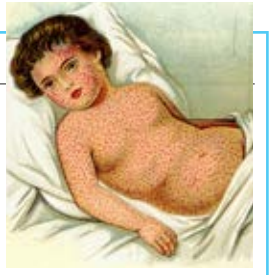
education

ART OF MEDICINE



First to seventh diseases: discarded diagnoses?

A mother brought in her 5 year old child with a rash, asking, "Doctor, is this fifth disease?" Good question, but could it be one of the other six?

"First disease" (measles), first scientifically described around the 10th century, is caused by measles virus.

"Second disease" (scarlet fever), caused by *Streptococcus pyogenes*, was identified in 1553 with a "sandpaper"-like, papular rash starting on the neck and groin.

"Third disease" (rubella or German measles), recognised in 1881, is caused by rubella virus.

In 1900 Clement Dukes claimed the existence of "fourth disease," a generalised maculopapular rash and desquamation. The lack of differentiation from the previous exanthemas and of a causative organism means that its existence remains in doubt.

In 1905 erythema infectiosum (nicknamed "slapped cheek"), caused by parvovirus B19, was called "fifth disease."

Roseola infantum became "sixth disease" in 1910, caused by human herpesvirus 6 or 7, occurs after a sudden high fever (also called exanthema subitum ("sudden rash")).

In 1979 and 2001 a possible "seventh disease" was recognised, also referred to as acute febrile infantile mucocutaneous lymph node syndrome (MCLS). The cause is not clear.

But where does that leave the commonly known exanthema chickenpox?

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PRACTICE UPDATES

Emergency bowel surgery and patient outcomes

More than 30 000 people undergo emergency laparotomy a year. These procedures are associated with high rates of postoperative complications and mortality. The latest report from the National Emergency Laparotomy Audit (NELA) details the outcomes of patients having emergency bowel surgery in England and Wales between December 2014 and November 2015:

- 11.1% of patients died within 30 days after emergency laparotomy—down from 11.7% in year 1
- The average length of stay was 16.3 days—down from 18.1 in year 1
- More than half of patients who survived to leave hospital left within 11 days after surgery, but more than a quarter remained in hospital at day 20 postoperatively.
- Figures based on government costings suggest that the cost of ward care alone for these patients is in excess of £200 million annually.

http://bit.ly/2cttOUf

Ultroid 2 for internal haemorrhoids

The Ultroid 2 uses direct current electrotherapy to treat internal haemorrhoids. It can be an alternative to non-surgical treatments such as rubber band ligation, injection sclerotherapy, or bipolar diathermy, as well as surgical treatments such as haemorrhoidectomy or stapled haemorrhoidectomy, and it does not require the patient to have regional or general anaesthesia, says a new medtech innovation briefing (MIB) by NICE.

Two observational studies of a total of 157 people showed Ultroid 2 was effective at reducing haemorrhoids and had no complications, but evidence is limited. The cost to self paying individuals is £970 for an initial consultation, examination, and first treatment and £720 for each additional treatment.

http://bit.ly/2bS676F

FAST FACT—GALLSTONES

Gallstones are present in around 15% of the adult population and usually do not cause symptoms. Stones occluding or irritating parts of the biliary tree can lead to cholecystitis, cholangitis, pancreatitis, and jaundice. Risk factors to developing gallstones include:

- High body mass index (BMI)
- Recent deliberate weight loss
- Female sex (particularly if a woman has had children, is taking the combined oral contraceptive, or is undergoing high dose oestrogen therapy)
- Diabetes
- Haemolysis
- Cirrhosis

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CLINICAL UPDATE

Living kidney donation

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This is an edited version; the full version is on thebmj.com

CPD/CME
1 CREDIT

Globally each year more than 30 000 people become living kidney donors.[1] In the UK there have been more than 1000 living kidney donations every year since 2009.[2] There are two types of kidney donation, living and deceased. Living donor kidney transplantation offers the best treatment in terms of life expectancy and quality of life [2-9] for most people with kidney failure (see box 1), the prevalence of which is steadily rising. Living kidney donation is constantly evolving, with new ways of maximising recipient opportunities and increasing information regarding long term outcomes associated with donation. This review presents an overview of current practice covering who can donate, to whom, and the possible impact of donation on the donor's health.

Why do non-specialists need to know about this?

Non-specialists might be approached for information about living kidney donation and need to know where to access up-to-date relevant information. Refer interested potential donors to a living donor kidney transplant centre for advice. General practitioners or family physicians may be asked by a specialist team for information about a potential donor undergoing assessment, or to assist with organisation of investigations in the pre-donation stage. Given that the prevalence of living donors in increasing (currently about 1000 per annum in the UK) doctors are increasingly likely to encounter people who have donated and should be aware of what impact donation may have on their health. Some patients prefer to see their regular general practitioner for long term follow-up after donation.[18]

WHAT YOU NEED TO KNOW

- Living donor kidney transplantation is the best treatment for most people with renal failure
- There is no upper age limit and few absolute contraindications to living kidney donation
- A living kidney donor does not always need to be the same blood group as the intended recipient
- Most donors have no long term ill effects from living with a single kidney
- Ensure living kidney donors have annual follow-up including blood pressure assessment, urine analysis for protein, and estimation of renal function

Box 1 | Advantages of living donor over deceased donor kidney transplants

- Living donor kidney transplants reduce the number of individuals on waiting lists for deceased donor transplants and offer the possibility of a transplant to more patients, who would otherwise be dialysis dependent[10]
- Living donor kidney transplants typically last longer, and recipient survival is greater[2-11]
- Living donor transplants are associated with shorter hospital stays, minimising disruption to recipients' lives
- Planned desensitisation of recipients can occur more easily to allow immunologically incompatible transplants
- The elective nature of the surgery permits transplantation in patients who would be unsuitable for emergency surgery
- The recipient costs of living donor kidney transplants are less, because of shorter hospital stays and the decreased incidence of delayed transplant function and early transplant failure.[12 13]
- Living donor kidney transplants are more likely to take place before the recipient has started dialysis (pre-emptive). Shorter periods spent on dialysis are associated with less comorbidity and better post-transplant outcomes.[14 15] Pre-emptive transplants are also associated with cost savings from the avoidance of dialysis[16 17]

Who can donate a kidney, and to whom?

Most living kidney donors donate to relatives or friends, which is termed directed (or specified) donation. Alternatively, individuals can donate a kidney to a recipient with whom they do not have a pre-existing relationship—termed non-directed altruistic donation (or "Good Samaritan" or unspecified donation).[19 20] This was formally legalised in the UK in 2007. Altruistic donors now account for about 10% of all living kidney donations.[2]

In the UK in 2012 the British Transplantation Society and Human Tissue Authority provided guidance on "directed altruistic donation." This term is used to describe organ donation that happens either between individuals who have a genetic relationship but no established emotional relationship, or between a donor-recipient pair who had no pre-existing emotional or genetic relationship. This definition was an attempt to overcome some of the confusion brought about by the use of social media to recruit potential living kidney donors, which caused blurring of the lines between directed and non-directed donations. Terminology varies, however, and a working group from the European Society for Organ Transplantation alternatively describes publicly solicited donors as "solicited specified donors." [21] The stimulus for a potential donor to come forward is the publication of an individual's need for a transplant on social networks or through the media.[20 22]

Historically, all transplants had to occur between ABO blood group and HLA antigen compatible donor and recipient pairs, to prevent hyperacute rejection of the transplanted kidney. However, donors no longer need to have such compatibility. Most transplants are still between compatible pairs, but desensitisation techniques have been developed to reduce anti-donor antibody titres in the recipient to allow immunologically incompatible kidney transplants.[23-25] It is not always possible to lower antibody titres sufficiently to proceed, and such transplants do carry increased risks to the recipient, particularly of infection and rejection in the early post-transplant period. Long term graft survival, though improving,[25] is compromised compared with compatible living donor graft survival. Immunologically matched transplants remain preferable, and in many countries this is achieved via a regional or national living donor kidney exchange scheme (fig 1).[26-30]

What are the risks of living kidney donation?

Short term risks

Mortality in living kidney donation is estimated to be between 0.01 and 0.03%.[40-42] A recent systematic review reported that perioperative complications, such as wound infection and bleeding, occur in about 7.3% of cases.[41] Immediately after nephrectomy, the glomerular filtration rate of the donor roughly halves. However, a year after donation, this is expected to increase to 60-70% of pre-donation levels,[43] due to adaptive hyperfiltration in the remaining kidney.

Longer term risks

Our knowledge of the long term risks of living kidney donation is incomplete, especially for specific donor subgroups (such as those defined by age, ethnicity, socioeconomic position, and with comorbidities). Observational data are limited by duration of follow-up and identifying an appropriate comparative group. In addition, when living donation was first introduced only relatively young and healthy individuals were accepted for kidney donation. As the criteria for donation have expanded to include older donors and those with comorbidities,[44] however, the current donor population is now demographically different from the cohort for whom long term follow-up data are available. This limits the generalisability of findings from studies of early donor populations to currently accepted donors.

Advising donors about risks

In order for a living donor to provide informed consent, potential donors and recipients require information on the known risks, and the limits to our understanding of these risks. When counselling a potential donor, risk must be considered on an individual basis. Establish whether younger, non-white,[45] overweight individuals or those with pre-existing hypertension or impaired glucose tolerance are prepared to make lifestyle changes to minimise long term risks. A small case-control study of long term risks in US army personnel 45 years after unilateral nephrectomy due to trauma reported that mortality was not increased in servicemen with one kidney compared with age matched controls with two kidneys.[46] Other small single centre studies have also reported that the survival of living kidney donors is better than that of the general population.[47 48]

Two recent large cohort studies have reported a higher risk of kidney failure among donors compared with healthy non-donors, but the absolute 15 year reported incidence of kidney failure in both studies was <1%.[49 50] These observational studies had limitations, and criticisms have included concerns regarding the comparability of non-donor controls[51-53] and relatively short follow-up.[54]

A recent US analysis attempted to estimate an individual's risk of renal failure if they did not donate a kidney, and compared 15-year projections with the observed risk among a large cohort of living kidney donors.[55] This concluded that the relative risk for donors was 3.5-5.3 times higher than the predicted risks in the absence of donation.[55] Overall, the absolute risk for donors was <1% over this period, comparable with other observational studies, but the risk was greater in black donors as well as in current or former smokers.

Two meta-analyses have suggested that kidney donors may have a small increase in blood pressure [56] (<6 mm Hg) and in urinary protein,[57] although the quality of research included in both analyses was reported as poor.[58] The data on an increased cardiovascular event rate in donors is equivocal.[40-60] Although the risks of gestational hypertension and pre-eclampsia seem to be higher in pregnancies among donors than among healthy non-donors,[61-63] adverse outcomes for mother or offspring have not been documented.

Work exploring the mental health of living kidney donors is limited, but a recent case-control study from the Netherlands suggested that donation is not associated with short term changes in mental health.[64] Multiple studies suggest that the quality of life of most living kidney donors seems to be at least equal to that of the

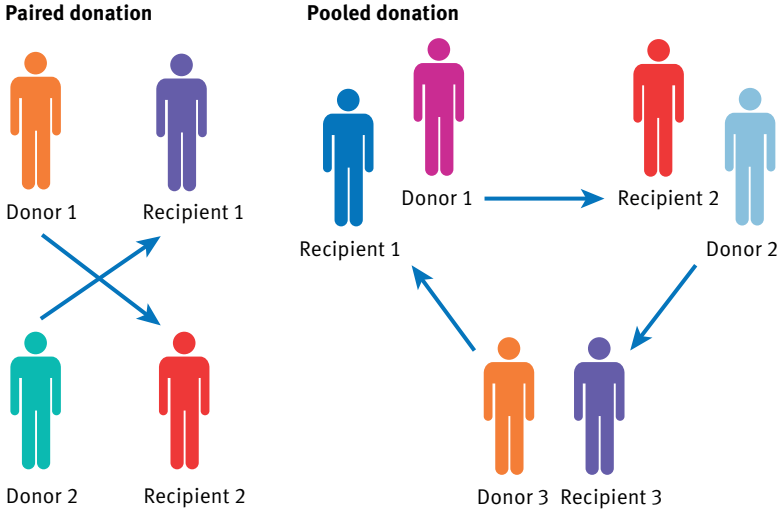


Fig 1 | Paired and pooled living kidney donation. Donor-recipient pairs who are immunologically incompatible and between whom a direct transplant is not viable are registered in the national scheme to achieve a compatible transplant match with other donor-recipient pairs. When two pairs are involved it is termed paired donation; pooled donation comprises more than two pairs. Donor-recipient pairs who have poor compatibility or substantial age-disparity and would like to achieve a better match can also register in this scheme.

Living kidney donation—a donor and family's experience

Our daughter thrived without illness for the first 18 months of her life, but then we noticed a swelling on one side of her stomach and took her to the doctor. A number of scans and x rays later, we were finally given the news that she had completely no function in one kidney and her other kidney was under severe pressure due to hydronephrosis. Our whole family was shocked and traumatised.

First time around

With appropriate drains and stents, our daughter had reasonable kidney function for a number of years, but at the age of 11 years her creatinine levels were creeping up and her consultant discussed dialysis. We raised the option of live donation. We had no idea really at this point what it entailed so had a list of questions to ask: how long the process will take, the likelihood of a match, whether it will take straight away, and numerous others. We wanted to do it to get our daughter healthy again without the dialysis if at all possible. Decision made, we wanted to proceed.

My husband was a slightly better match than me, and was put in contact with the living kidney donor coordinator. At the first appointment, we were told that the process takes approximately nine or 10 months, and all I could think of was whether we had this amount of time, as our daughter's kidney was failing and she was determined not to have dialysis if she could avoid it.

A few weeks later my husband had the first of the tests. A number of weeks later the next and so on. We asked whether a lot of these tests could be run on the same day to avoid disruption and minimise impact on his employment. We were informed that unfortunately the process was slow. Our daughter at this stage was losing a lot of weight and her condition was deteriorating quickly.

After the first date was cancelled four days before the surgery, which was devastating, on 8 August 2007 all went ahead. I was surprised at how well my husband looked that afternoon, and at around 4.30 pm our daughter was back onto the intensive care ward and sitting up looking amazing. The kidney worked straight away and all was good. My husband was discharged the following afternoon and returned to work six weeks later. Our daughter experienced instant improvement in her health, and joked about how tanned she looked, to which I replied "That's normal skin tone."

Our daughter experienced instant improvement in her health

All went well for four years, until a virus known as BK attacked the kidney, and then rejection developed. With appropriate treatment, our daughter's kidney function stabilised but deteriorated again in 2014. She was in need of another kidney. Timing was not good. She was about to enter the final year of her master's degree and was determined to finish it alongside her peers. However, around Christmas we recognised the familiar signs that she had shown many years before—weight loss, vomiting, and extreme tiredness.

general population [65-72] and usually returns to pre-donation levels after donation.

Several studies have reported that potential donors are more willing to accept greater donor risks than potential recipients and transplant professionals.[73] Greater risks seem to be accepted when the intended recipient is closely related and when his or her prognosis is poor.[74 75] In addition, potential donors have been found to be more likely than potential recipients or clinicians to agree that living donation is acceptable when long term donor risks are uncertain.[73]

How are living donors assessed and how long does it take?

National guidelines exist for living kidney donor evaluation.[18-80] Details of the guidance differ between countries,[80] and the international Kidney Disease: Improving Global Outcomes (KDIGO) committee is developing a global, evidence based guideline which is currently available for public consultation.[81]

The primary goals of donor evaluation are to determine the suitability of an individual for donation, to ensure a donor is making an informed choice free from coercion or monetary incentive, and to confirm that the kidney is suitable to be transplanted into the intended recipient.

In the UK the living donor evaluation process typically encompasses the steps outlined in figure 2.

The duration of living donor evaluation varies between and within countries.[82] Potential donors need to be given a suitable period to consider donation, often described as a "cooling off" period.[83] The clinical assessments and investigations can be carried out in one day, and some centres in the UK run one-day assessments.[84] To be a donor, an individual needs to be suitable to undergo surgery under general anaesthesia and to be able to cope with one kidney for the longer term.

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS REVIEW

A living kidney donor was invited to provide an account of her experiences. Jacqueline Johnston had donated a kidney to her daughter, and her husband had also donated previously. Read her account above.

A streamlined process

In January I rang the living donor coordinator to ask if I could be tested—and was informed that all the tests were now carried out in one day! A few weeks later, I arrived on the ward at 8.30 am for my tests to commence. The coordinator had a list of appointments and went to each department alongside me. By 4.30 pm that afternoon I was on my way home, exhausted but delighted to know that in a week or two we would know for sure if my kidneys were healthy enough for donating. They were, and surgery was booked for 23 March 2015 (when our daughter had no lectures due to the Easter break).

All went well, I returned to work after seven weeks, and our daughter graduated from university three months later. She started a PhD in physics that same year.

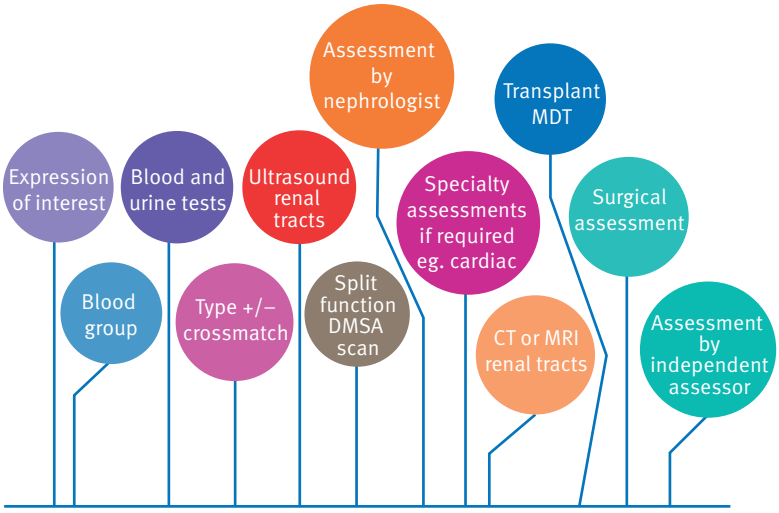
As a family having been through the living donation process twice, we would most certainly recommend the one day testing. The process for my husband was long and drawn out and impacted greatly on family and work life. During the time waiting, we were further traumatised watching our daughter become increasingly unwell, and there was little we could do. On the second occasion, it was a full day in hospital, but by the time I was leaving most of the tests had been conducted, we knew things were progressing quickly, and I only had to take one day off work.

Nine years on, and my husband remains well. One year on, I had my review at the hospital and all is good. Most importantly our daughter's results are excellent and she is living life to the full.

We are truly grateful for the staff that cared for us during both these transplants. As a family we thank them all.

Jacqueline Johnston, donated at Belfast City Hospital, Belfast Health and Social Care Trust

thebmj.com Previous accounts of living kidney donation have been published in *The BMJ*:
- Ferriman A. A patient's journey: Becoming a live kidney donor. *BMJ* 2008;336:1374 (http://www.bmj.com/content/336/7657/1374)
- Thiruchelvam PT, Willicombe M, Hakim N, Taube D, Papalois V. Renal transplantation. *BMJ* 2011;343:d7300 (http://dx.doi.org/10.1136/bmj.d7300)



DMSA = dimercaptosuccinic acid; CT = computed tomography; MRI = magnetic resonance imaging; MDT = multidisciplinary team.

Fig 2 | Steps in the evaluation of potential living kidney donors. Adapted with permission from Graham JM, Courtney AE. Oral presentation: 5 years of 1-days: Outcomes of potential living kidney donors undergoing a 1-day assessment pathway. British Transplantation Society Congress; Scottish Exhibition and Conference Centre, Glasgow 2016[84]

Box 2 | Absolute contraindications to living kidney donation[18-85]

- Active malignancy* or chronic infection
- Nephrolithiasis secondary to a metabolic abnormality
- Uncontrolled hypertension
- Overt proteinuria, glomerular pathology, or an inadequate glomerular filtration rate (GFR)
- Bilateral renal artery atherosclerosis or fibromuscular dysplasia involving the orifices of both renal arteries
- Sickle cell disease

*In some countries donors with certain types of cancer or successfully treated low grade tumour may be considered for kidney donation (such as small (‹4 cm) subcapsular renal cell carcinoma with excision at time of donation and no distant spread, or low grade non-melanoma skin cancer)

Who cannot donate?

Very few absolute contraindications to living kidney donation exist (box 2).[44]

The *United Kingdom Guidelines for Living Donor Kidney Transplantation*[18] specify the minimum measured glomerular filtration rate (mGFR) required for donation in order to ensure that the mGFR of the remaining kidney is predicted to be more than 37.5 mL/min/1.73 m^2 at 80 years of age. The data on which this was based were limited, and there is variation between UK centres in the measurement of GFR.[86]

In most transplant programmes living kidney donors are required to be over 18 years of age,[18] but cases where adolescents have donated do exist.[87] Caution is recommended when accepting donors under 25 years of age as younger people have more time to develop comorbidities and an increased lifetime risk of renal failure.[55] Women who wish to have children need to be counselled regarding the small increased incidence of gestational hypertension and pre-eclampsia among kidney donors,[61-63] and alternative donors are preferred if available. Other relative contraindications to donation include obesity and diabetes, and factors that might affect a potential donor's decision-making capacity (such as cognitive impairment, undertreated psychiatric conditions, or active substance misuse).

In most countries potential donors are prevented from donating if there is evidence of donor coercion, as identified by any member of the donor evaluation team or by an independent assessor or donor advocate.[20 80]

What is the surgical procedure?

Laparoscopic kidney removal is preferred[18] as it is associated with less pain, shorter hospital stay, and earlier return to normal activities.[88] Minimally invasive surgical techniques for donor nephrectomy include robot assisted laparoscopy[89] and a laparoendoscopic single site approach.[41 90] After surgery, living donors tend to stay in hospital for two to three days, and full recovery is expected within 6-12 weeks.[18]

Competing interests: We have read and understood the BMJ policy on declaration of interests, and declare the following interests: AEC is the unpaid chair of the Living Donor Kidney Transplantation 2020 Strategy Implementation Group, a sub-group of the UK's NHS Blood and Transplant Kidney Advisory Group.

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WHAT YOUR PATIENT IS THINKING

Positive language leads to positive wellbeing

Wendy Mitchell offers advice on helping patients who, like her, live with dementia

ROSE LLOYD

This patient describes her experience in the UK. Patients with dementia are generally referred by their general practitioner/family doctor to a memory clinic led by psychiatrists. Various memory tests, including the MMSE, may be performed first to confirm the diagnosis, and later to monitor the patient's progress

No one likes to be given bad news, and a diagnosis of dementia is devastating. How wonderful it would be though if the bad news and negative language stopped at that point.

If someone tells you day after day that you're suffering, you end up believing it. It has a negative impact on your wellbeing. The same would happen if you were told day after day that you are stupid—you end up thinking there might be something in it.

Don't just tell me that I'm getting worse

It would be so useful if clinicians, having given the diagnosis, could then use positive language to help patients think differently from that point forward. Patients have little control over their deterioration, but they do have control over their attitude. With the help of specialists and general practitioners, they could see the more positive side of a bummer of a diagnosis.

Patients often go through the process of taking the mini mental state examination test (a simple test taken at each visit to the memory clinic to assess how much less patients can remember) and are given our score, which has often gone down. How much better it would be for clinicians then to offer advice and support on how patients can develop strategies to help compensate for the part of the brain that is shown as deteriorating. For example, if it's purely deterioration in memory, explore all the options around useful devices—has the patient got a memory aid such as a notice board at home or a notebook? Does he or she set alarms? There are many free apps, such as Mindmate, can help.

If the problem is orientation, find out if the person has a clock that details not only the time of day, but also the date and whether it is am or pm.

Change the way you take a history

Ask simple, clear questions and wait for answers—don't fire questions at patients as it will simply confuse them.

It can be difficult to find the right words to answer open questions such as "What does the pain feel like?" But it is also difficult to answer multiple choice questions—for example, "Is it a dull, sharp, aching or crushing pain"? Patients might only remember the last choice given. Instead, ask: "Is it a dull pain?" and wait for the answer before asking "Is it a sharp pain?" and so on. It may feel unfamiliar and slow to doctors, but it will help.

And as memory is the worst asset of a patient with dementia, please don't rely on it for information.

WHAT YOU NEED TO KNOW

- If someone's memory is deteriorating, avoid negative language; offer positive strategies he or she can use to compensate
- Ask clear questions one at a time rather than multiple choice questions
- Dementia can impact on seemingly small health problems; you may need to have a lower threshold for offering appointments or treatment

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If someone tells you day after day that you're suffering, you end up believing it

What is minor to some might be huge for someone with dementia

Think how the current condition may impact on a patient's life. As an example, chronic foot pain is uncomfortable for most people but not urgent, because they might still be able to drive or ride a bike. For many people with dementia, driving or cycling is no longer possible, so walking is their only mode of transport. In the world of patients with dementia, walking may be the only thing they can now do and enjoy. Not being able to walk may lead to isolation, which then leads on to further problems. Patients might not easily be able to go food shopping. If doctors consider this point they can help patients with an urgent referral for physiotherapy or other treatment, rather than a routine referral, which may entail waiting weeks for an appointment. If treatment is delayed, it could lead to other issues such as further pressure on already stretched healthcare resources.

Competing interests: None declared.

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For series information contact Rosamund Snow, patient editor, rsnow@bmj.com

10-MINUTE CONSULTATION

Recurrent otalgia in adults

Samuel Finnikin[1] Alistair Mitchell-Innes[2]

A 43 year old man presents with right sided earache. He says he's had two or three similar episodes in the past year, which were treated elsewhere with drops. He's not sure if it's always the same ear.

CPD/CME

0.5 CREDIT

EDUCATION INTO PRACTICE

Do you instruct patients on how to use ear drops?

Earache or pain is a common presenting problem, usually caused by otitis media or otitis externa.[1] Although data on the causes of recurrent otalgia are lacking, one year prevalence of otitis externa among UK adults is more than 1%, indicating a substantial burden of disease.[2] Rarely eustachian tube dysfunction, mastoiditis, referred pain, or malignancy can present with recurrent ear pain.

What you should cover

Find out whether the pain is primary (originating from the ear) or secondary (referred). Malignancy tends to cause unilateral symptoms. Cover associated otological symptoms—for example, deafness and otorrhoea—and take a thorough ear, nose, and throat history, including previous conditions or surgery to rule out secondary otalgia. Ask about problems with swallowing, chewing, and facial pain. Symptoms of reduced hearing and tinnitus are less discriminatory for pinning down the diagnosis.

Superficial pain is typical of otitis externa. The patient might find it painful to lie on the affected side or the ear might be itchy or both. Consider conditions associated with otitis externa such as eczema or diabetes. Ask about exposure to water, use of cotton buds,[3] in-ear headphones, or hearing aids, all of which irritate the external ear canal and can predispose to otitis externa.

A deep severe pain suggests acute otitis media, sometimes associated with upper respiratory tract infection. Dizziness might indicate secondary labyrinthitis.

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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.

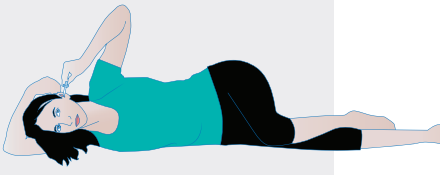
WHAT YOU NEED TO KNOW

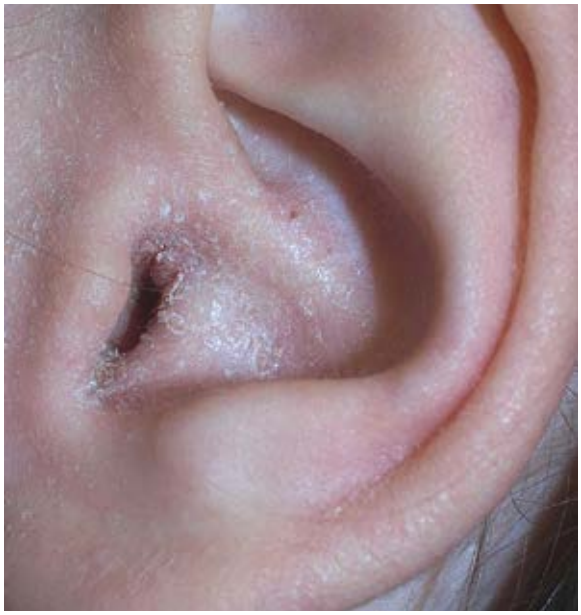
- Otitis externa is the most common cause of recurrent ear pain in adults
- Persistent symptoms in otitis externa can be caused by incorrect use of treatment or failure to deal with predisposing factors
- Simple advice on avoiding predisposing factors in otitis externa and use of ear drops can prevent important morbidity from recurrent problems

How to deliver ear drops

Set aside around five minutes to treat one ear. Consider asking someone to help.

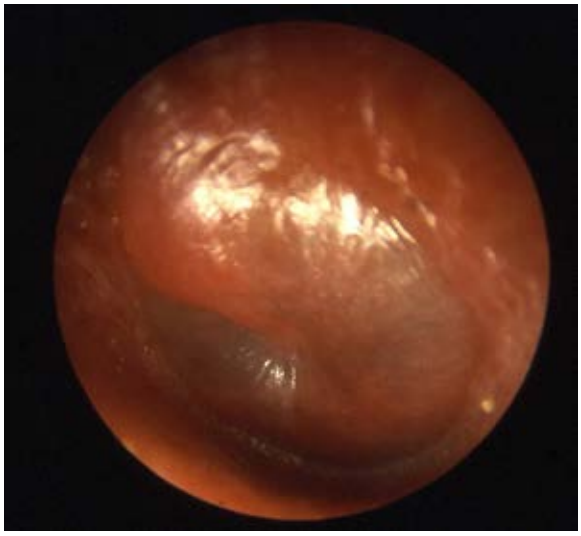
1. Lie down with the affected ear facing upwards
2. Pull the top of the ear upwards
3. Drop the required number of drops into the ear
4. Maintain this position for at least three minutes
5. Gentle pressure on the outer ear (tragus) can help dispel any air bubbles and aid distribution of the drops





KLAUS D PETER, GUMMERSBACH, GERMANY

Fig 1 | Mild otitis externa—dry flaky skin can predispose to otitis externa



B WELLESCHIK

Fig 2 | Typical appearance of a bulging tympanic membrane in otitis media.

Patients with otalgia from eustachian tube dysfunction typically experience intermittent aural fullness or tenderness with crackling or popping.

Constant pain for more than four weeks is suspicious for malignancy, particularly in combination with normal otoscopy and a history of risk factors including smoking and alcohol use.[4 5]

Ask the patient to describe any discharge. Rupture of the tympanic membrane in otitis media typically produces a sticky, mucopurulent, non-offensive smelling discharge. Discharge from otitis externa tends to be serious and smell offensive; both can contain blood. Discharge from cholesteatoma tends to be persistent, offensive, and painless.

Systemic symptoms are unusual with otitis externa, but patients with otitis media can have associated upper respiratory tract infection symptoms. Mastoiditis is uncommon in adults (around one case per 100 000 patient years) but can present with sepsis.[6] Malignancy can be associated with weight loss and local symptoms related to the primary tumour.

What you should do

Examine the ear. Begin with the external ear and surrounding skin and look for erythema, swelling, or skin disease, which suggests otitis externa (fig 1). It might also be painful to move the pinna or press on the tragus.

Gently pull the pinna upwards and backwards and inspect the canal and ear drum with an otoscope. In otitis externa, the canal might be narrowed because of oedema of the walls, debris, and discharge. If there is inflammation or granulation tissue along the inferior canal floor suspect necrotising otitis externa. Look for evidence of a foreign body.

Fluid behind the tympanic membrane causing dullness or a bulging or a perforated drum suggests acute otitis media (fig 2). A bulging drum with mastoid tenderness and post-auricular erythema or fluctuance in a patient with systemic upset suggests mastoiditis. A deeply retracted tympanic membrane, keratinous growth, or persistent wax crust (particularly superiorly) should prompt referral to rule out cholesteatoma, although this is relatively uncommon with an annual incidence of around nine per 100 000 adults.[7] Recurrent infections from cholesteatoma can cause secondary otitis externa with earache.

If the working diagnosis is recurrent otitis externa, provide analgesia and treat the episode with antibiotic drops or a spray as in local antimicrobial guidelines. There is little evidence that any one topical agent is superior, and the risk of ototoxicity should be considered if there is tympanic membrane perforation.[8] If symptoms continue beyond one week, consider microbiology swabs,[9] but continue topical drops until symptoms resolve for a maximum of 14 days.[8] This reduces the risk of secondary fungal infection. Explain how to use ear drops (see box). Refer patients with suspected necrotising otitis externa, or cellulitis involving the external ear, for same day assessment.

Identify and modify predisposing factors. It is standard advice to keep the ear dry. Use of acetic acid spray prophylactically after swimming or showering could be helpful, although its efficacy for reducing future episodes is not proved.[10] Tell patients about the itch-scratch cycle and the importance of "not placing anything smaller than your elbow" in the ear.

Suspect persistent otitis externa in patients whose symptoms are not improving after two weeks of topical treatment. Recurrent or persistent otitis media is unusual in adults. Refer these patients to investigate obstruction of the eustachian tubes and to rule out nasopharyngeal tumours.[11]

Competing interests: None declared.
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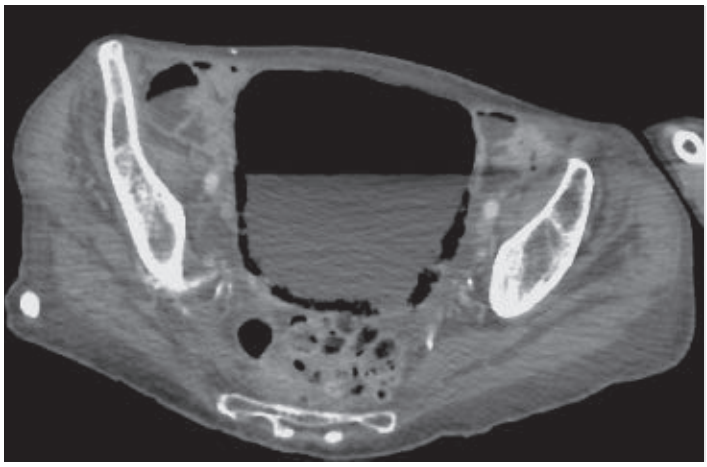
Find this at: http://dx.doi.org/10.1136/bmj.i3917

HOW PATIENTS WERE INVOLVED IN THIS ARTICLE

This article was submitted before we asked authors to involve patients and report any contributions

WHEN TO REFER:

- **Immediate referral:** If necrotising otitis externa is suspected or cellulitis involving the external ear is present
- **Urgent outpatient:** Refractory otitis externa where there is considerable external auditory canal debris or narrowing for aural toilet or wick insertion
- **2 week wait:** If more than four weeks of referred otalgia
- **Soon (4-6 weeks):** If there is unexplained recurrent acute otitis media or suspected cholesteatoma



SPOT DIAGNOSIS

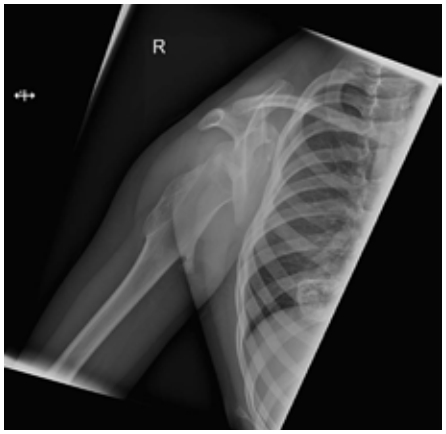
Urinary frequency and dysuria in an older woman

A 66 year old woman with diabetes was admitted to the medical assessment unit with lower abdominal pain and dysuria. The patient was pyrexial (38.8°C) and had a white cell count of 17.1×10^9/L. A urine dipstick test was positive for leucocytes, nitrites, and blood. Computed tomography was performed because of the severity of the lower abdominal pain. What is the diagnosis?

Submitted by Joseph Dalby Sinnott and David C Howlett

Patient consent obtained.

Cite this as: *BMJ* 2016;354:i4587



SPOT DIAGNOSIS

A painless lump in the arm

A 15 year old boy presented to his doctor with a painless palpable lump in his right upper arm. He had had it for "many years," but was now conscious about it. A plain radiograph of the arm showed multiple bony lesions.
What is the diagnosis?

Submitted by Shahrukh Raees Ahmad, Raees Bhatti, and Gulraiz Ahmad

Parental consent obtained.

Cite this as: *BMJ* 2016;354:i4503

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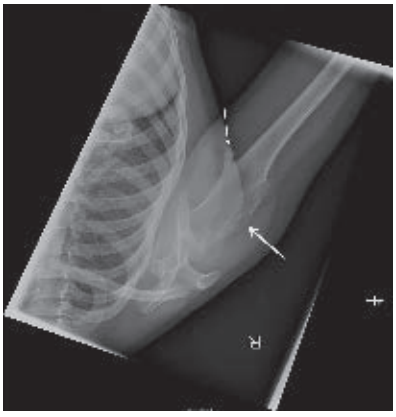
answers

SPOT DIAGNOSIS

A painless lump in the arm

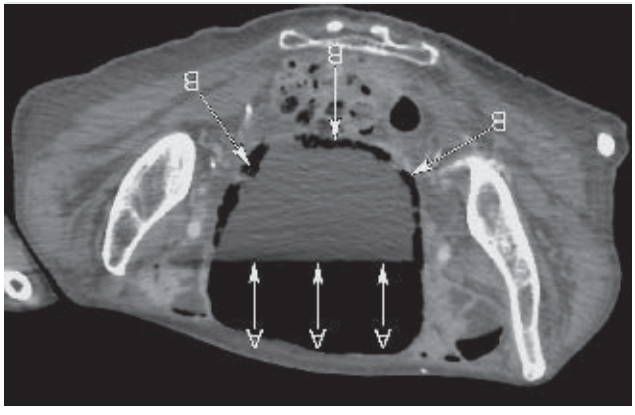
The diagnosis is hereditary multiple exostoses (also known as diaphyseal aclasis). Osteochondromas can be sessile (broad arrow) or pedunculated (fine arrow) and tend to grow in the metaphyseal region projecting away from the epiphysis.



SPOT DIAGNOSIS

Urinary frequency and dysuria in an older woman

The diagnosis is emphysematous cystitis.
Computed tomography (CT) shows a moderately distended bladder with an air/fluid level (A) and extensive air within the bladder wall (B).

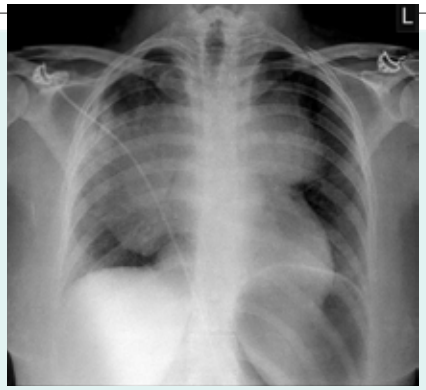


An unusual case of facial swelling

A 24 year old woman presented to hospital with facial swelling and difficulty swallowing shortly after starting a course of co-amoxiclav. Examination showed facio-oral oedema and sinus tachycardia. She was treated for anaphylaxis and discharged after improving clinically but re-presented five days later with respiratory distress. Chest radiography showed large mediastinal masses (figure), and non-Hodgkin's lymphoma (NHL) was diagnosed after biopsy. Co-amoxiclav had not contributed to her facio-oral swelling. She was managed acutely with ventilatory support, intravenous fluids, steroids, allopurinol, and urgent chemotherapy. Superior vena cava syndrome occurs in 3-8% of presentations with mediastinal NHL and can resemble angio-oedema; causes include other intra-thoracic tumours, thrombosis, fibrosing mediastinitis, and post-radiation fibrosis.

Eryl A Davies (eryldavies@doctors.org.uk); Shams Khan, consultant in emergency medicine, Emergency Care Centre, Royal Albert Edward Infirmary, Wigan

Patient consent obtained.Cite this as: *BMJ* 2016;353:i3018



Let nature stop your burn scars

Onions, grapes, Himalayan rhubarb, turmeric, green tea, and honey are among a long list of natural substances that have been used directly or in extracts to promote the healing of burns and to prevent hypertrophic scarring. A narrative review (*Burns Trauma* doi:10.1186/s41038-016-0040-1) finds little that could be classed as evidence for any of them, but identifies several promising candidates for proper trials.

Pulmonary embolism and the danger of smiling

According to a study from Indiana University, US, doctors may be less ready to diagnose pulmonary embolism if patients are able to raise a smile in the emergency department (*Emerg Med J* doi:10.1136/emermed-2016-205874). In fact, patients positive for pulmonary embolism were paradoxically more likely to be positive for smiling than those without pulmonary embolism. And doctors left to their own judgment (gestalt) correctly scored these patients: it was only if they were made to stop and take account of the Wells' score that they were more likely to think that smiling might make a different diagnosis more likely.

Bariatric success in US veterans

Ten years after Roux-en-Y gastric bypass surgery, 1787 patients (73% men, mean age 52) with an initial body mass index of 47 had 21% less of their baseline weight compared with matched subjects who did not have surgery (*JAMA Surg* doi:10.1001/jamasurg.2016.2317). This beneficial association was previously best documented in shorter term studies of younger, predominantly female populations: so this looks like good news for very obese men in their 50s who can get access to bariatric surgery.

Kids with abdominal migraine

"Abdominal migraine" in children has been used since 1921 as a label for episodic abdominal pain of unknown cause in children who often might not experience typical unilateral headaches. A case-control study based on emergency room attendances in Italy and France looked at it the other way round (*Lancet Gastroent Hepatol* doi:10.1016/S2468-1253(16)30038-3) and found that the prevalence of functional abdominal pain in children and adolescents who get migraine or recurrent headache is 32% compared with 18% in a control group.

Ethics committees won't go faster

Ethical approval is a subject that often draws groans from researchers. Almost all applications are eventually granted, but many are sent back for time consuming revisions. To speed things up, an ethics officer intervention was devised to predict weaknesses and deal with them proactively. But when this was tested in a non-randomised comparison cohort study (*BMJ Open* doi:10.1136/bmjopen-2016-011973), it made no difference to the rate of first time approvals or overall time to ethical approval.

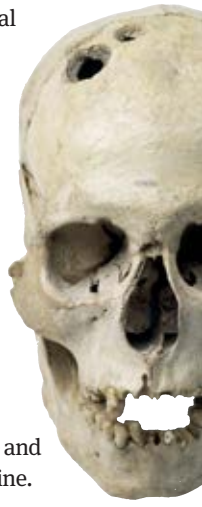
SSRI prescribing in UK

England is no more a Prozac nation now than it was in 2001, according to a survey of general practices contributing to the Health Improvement Network (*Br J Psychiatry* doi:10.1192/bjp.bp.115.166975). The prescribing of selective serotonin reuptake inhibitors (SSRIs) more than doubled between 1995 and 2001, but has flat lined since, although mean duration of use has risen from 112 days to 169 between 1995 and 2010.

Quick-Wee

Getting a "clean catch" urine specimen from babies can be a thankless task. Doctors in an emergency department in Melbourne, Australia, tried the effect of gentle suprapubic cutaneous stimulation using gauze soaked in saline in 40 infants aged 1-24 months (*Emerg Med J* doi:10.1136/emermed-2016-206000). The success rate was 30% within five minutes, and the doctors have labelled their method "Quick-Wee."

4800 year case comparison



You will not find many cases of pseudoarthrosis between a unilateral paracondylar process in the base of the skull and an epitransverse process arising from the transverse apophysis. But investigators in Barcelona managed to find two: one came through their doors and was operated on in 2015, and the other was evidenced by the skeleton of a man trepanned twice around 2800 BC (*Cephalalgia* doi:10.1177/0333102416665227). His kindly neolithic surgical team seem to have used analgesia, because samples of bone and teeth showed metabolites of morphine.

Cite this as: *BMJ* 2016;354:i4880