education

ART OF MEDICINE

I feel for you

Ever noticed feeling irritated or bored by a patient? Perhaps you've felt particularly enamoured, or anxious and defensive? A clinician's emotional response to their patient is termed countertransference. It can take any form—dislike, disgust, attraction. Its presence can cause dread in even the most seasoned clinicians. I remember the anxiety, guilt, and intense feelings of inadequacy that accompanied my first experience of intense countertransference towards a patient.

As I carried my secret around, I casually questioned colleagues about their experiences of countertransference. Most looked bewildered, others horrified. I knew I couldn't be the only clinician who had succumbed to the reality-bending experience that is countertransference. If others had experienced it, they were certainly unwilling to share it. A quick Google search reveals countertransference is a common struggle for many healthcare professionals.

Being vigilant to countertransference can sidestep a myriad of therapeutic pitfalls, including perhaps the most damaging, when the clinician is blindly seduced into re-enacting unhelpful patterns that created the patient's original wounds. I've heard clinicians claim "I'm doing cognitive-behavioural therapy. I don't buy that stuff." One's interest in countertransference is not there to be "bought": it will happen whether you like it or not, and it pays no heed to theoretical orientation.

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We welcome contributions to this column via our online editorial office: https://mc.manuscriptcentral.com/bmj.

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PRACTICE UPDATES

Treating inoperable metastatic melanoma

NICE has published technology guidance on the use of talimogene laherparepvec (or T-Vec) for treating inoperable metastatic melanoma in adults, when systemically administered immunotherapies are unavailable. T-Vec, a genetically modified form of the herpes virus, is particularly effective in patients with less advanced cancers (including stages IIIB and IIIC). It also tends to have fewer side effects than traditional chemotherapy or other immunotherapies.

http://bit.ly/2dmY1Fz

National Clinical Guideline for Stroke

The Royal College of Physicians has updated its guideline for the diagnosis and management of patients with stroke. The guideline identifies three key time-critical factors in optimising outcomes:

- Urgent brain imaging, at most within 1 hour of hospital arrival; centres should also consider stroke-specific magnetic resonance imaging or multimodal imaging
- Prompt expert interpretation of imaging
- Mechanical thrombectomy, which is now considered an effective stroke treatment for selected patients as an adjunct or alternative to intravenous thrombolysis.

The guideline also covers the management of patients with a suspected transient ischaemic attack and blood pressure management in patients with primary intracerebral haemorrhage.

http://bit.ly/2ek7Pgg

FAST FACT—PSYCHOLOGICAL SYMPTOMS IN DEMENTIA

Many behavioural and psychological symptoms will improve spontaneously, or with simple non-pharmacological approaches, within four weeks. Sudden emergence of behavioural and psychological symptoms often has a physical trigger. Behavioural symptoms might also arise as a reaction by the person with dementia to stress in the carer. Other triggers include:

- Pain
- Infections
- Dehydration
- Constipation
- Malnourishment.

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PRACTICE POINTER

Life with a cerebrospinal fluid shunt

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Cerebrospinal fluid (CSF) shunts divert CSF from the brain, usually to the abdominal cavity. They can be used for a variety of conditions including hydrocephalus, idiopathic intracranial hypertension, syrinx, and pseudomeningocoele. Cerebrospinal fluid can be drained directly from the ventricles of the brain with a ventriculoperitoneal shunt (fig 1) or, less commonly, from the spinal subarachnoid space with a lumbo-peritoneal shunt. It is estimated that between 3000 and 3500 shunt operations are performed in the United Kingdom every year,[1] affecting a wide range of patients with both congenital and acquired conditions.

Patients will have different concerns about their shunt. Managing this population may seem challenging for the non-expert, but advice on specific lifestyle alterations can come from non-specialists.

WHAT YOU NEED TO KNOW

- Having a cerebrospinal fluid (CSF) shunt places few limitations on life
- Once stable after the procedure, the shunt should place no or few restrictions on driving, travel, sexual intercourse, sports, and pregnancy
- Support for patients and networking opportunities are available from charity organisations such as SHINE, SBH Scotland, and Headway

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

We selected four patients with CSF shunts for a phone interview. We asked them about the influence that CSF shunts have on their lives. This has allowed us to address some of the issues, such as anxiety about travelling with a shunt, that do not routinely come up in clinical practice. The advice regarding not driving with a high pressure headache was suggested by a patient with previous multiple shunt revisions.

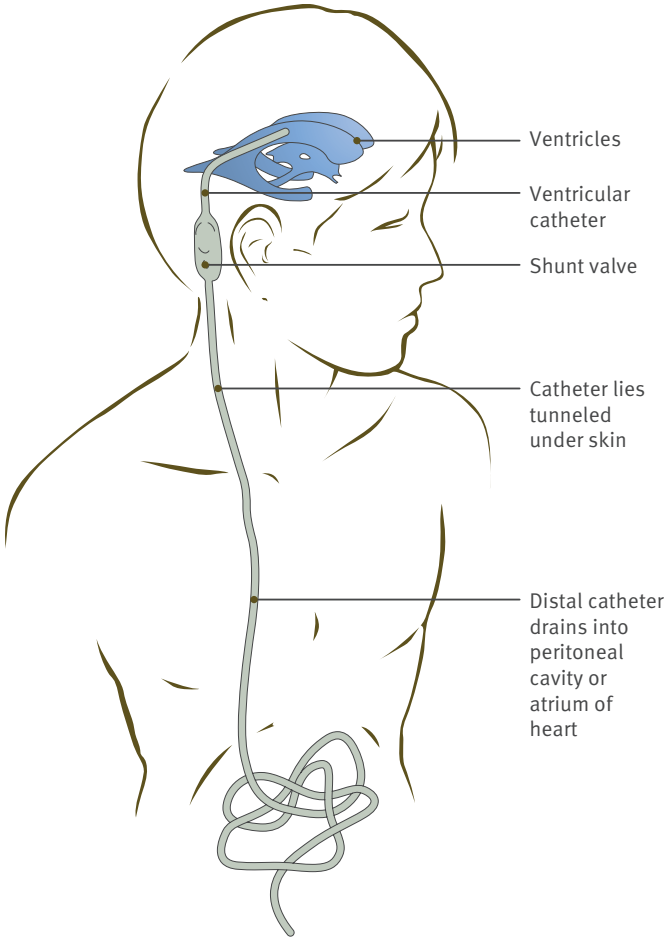

Fig 1 | Diagram of ventriculoperitoneal shunt

Common areas of concern

Driving

UK guidance states that patients must not drive for six months after an operation involving the ventricular end of the shunt.[2] No driving restrictions apply if only the peritoneal part of the shunt is revised, although any associated conditions such as epilepsy should be regarded separately. Often patients will know when they have high pressure headaches (commonly described as being constant and made worse on lying down or bending),[3] and in such cases driving should be avoided until shunt malfunction is ruled out or the symptoms resolve.

Travel

There is no evidence that flying is detrimental or dangerous,[4] but some patients may be concerned about being a long way from their healthcare team. This can be mitigated where possible by choosing destinations within easy reach of neurosurgical centres. Certain

Fig 2| Example of a shunt alert card

conditions such as normal pressure hydrocephalus do not require urgent interventions even if the shunt malfunctions, although this is best discussed with the treating neurosurgeon in advance as recommendations between individual practices vary.

Advise patients to take out adequate international travel insurance and encourage full disclosure with the insurance company regarding the shunt and the presence of associated conditions such as epilepsy. Shunt alert cards (also known as wallet cards) containing information on the type of implanted shunt as well as medical background and contact details of the treating physician are available free from charity organisations and provide rapid identification for medical staff in the case of an emergency (fig 2). Other alerts such as bracelets, necklaces, and "dog tags" can be purchased online.

Sports

Sports related shunt complications are rare. A nationwide survey of US paediatric neurosurgeons named wrestling and soccer as the commonest sports associated with adverse events.[5] While participation in some contact sports (such as boxing) is prohibited, our experience is that an increasing number of neurosurgeons in the UK are advising that the risks of football and rugby with a skull cap are acceptable. A recent literature review concluded that having a CSF shunt is not a contraindication to SCUBA diving.[6]

Sexual activity

There are no restrictions to sexual activity with a CSF shunt. Patients can have sex immediately after surgery if no abdominal incision is made; otherwise, advice commonly given to post-laparotomy patients is to abstain for six weeks.

Pregnancy

Pregnancy with a shunt may present unique and complex challenges, but outcomes are favourable. A survey of 70 mothers with CSF shunts (138

RED FLAGS

- Headache, vomiting, excessive drowsiness, double or blurred vision, and unsteadiness may imply shunt malfunction
- Photophobia, fever, and swelling or redness along the shunt tract may indicate shunt infection
- Localised or generalised abdominal swelling or pain, difficulty breathing, or fluid leak from the abdominal wound may be related to the peritoneal end of the shunt (superficial migration into the subcutaneous tissues or infection)

ADDITIONAL RESOURCES FOR PATIENTS

- SHINE (www.shinecharity.org.uk/)—Charity involved with hydrocephalus, spina bifida, and related issues in England, Wales, and Northern Ireland
- SBH Scotland (www.sbhscotland.org.uk/)—Charity dealing with hydrocephalus and spina bifida in Scotland
- Headway (www.headway.org.uk/)—Charity supporting people with brain injury including post-traumatic hydrocephalus

EDUCATION INTO PRACTICE

Do you know if your patients with CSF shunts carry a shunt alert card?

pregnancies) suggested that miscarriage rates were similar to those of the general population (21%), with higher rates in women with spina bifida.[7] Of the pregnancies resulting in live births, 60% had vaginal delivery and 40% needed caesarean section (only 4% because of shunt complications). Of 105 live births, only one child had hydrocephalus; this was from a mother whose hydrocephalus was acquired (encephalitis). There were 30 puerperal shunt revisions: seven before delivery and 23 in the first six months after. Because of this risk of shunt malfunction and the potential for other shunt related problems (such as headaches, seizures, and abdominal symptoms), ensure pregnant women have access to a multidisciplinary team including an obstetrician, neurologist, and neurosurgeon throughout their antenatal care.

Jobs

Having a shunt in itself is usually not a barrier when choosing a profession, with the exception of physically demanding jobs in, for example, the Royal Air Force, Royal Navy, and Police Service, which in the United Kingdom specifically list hydrocephalus and CSF shunts among the medical conditions that preclude entry.[8-10]

Magnet safety

Programmable shunt valves can be adjusted with an external magnet to alter the rate of CSF drainage. This allows flexibility but risks interactions with background magnetic fields. Generally, domestic appliances (such as electrical shavers, hairdryers, earbud-type headphones, and mobile phones) and walk-through metal detectors are safe. Particularly strong magnetic fields, such as from the iPad 2, can inadvertently re-programme some shunt valves; this can be prevented by keeping devices at sufficient distance from the implant site as specified in the valve manufacturers' information sheets (for example, Medtronic suggests a minimum of 5 cm as the safe distance for the Strata valve[11]). While all shunt valves are MRI compatible—meaning that they will not cause damage to the surrounding structures due to overheating or mechanical shear—exposure of a programmable valve to magnetic resonance imaging will usually require a post-scan check to ensure the correct setting. This is facilitated by prior communication with the MRI and neurosciences departments.

Shunt length

Some parents are anxious that a ventriculoperitoneal shunt inserted in a neonate or small child will require extensions as the child grows. However, this is avoided by placing sufficient tubing in the abdomen at the time of insertion to allow for expansion as the child grows.

General advice for people with CSF shunts

Direct patients to charity organisations (see box of additional resources for patients). These offer support to patients and their carers, provide specialist services, and represent excellent networking opportunities that will help to answer many of the questions patients might have.

Body weight

While minor fluctuations will not affect CSF drainage, large increases in body weight can alter CSF drainage dynamics through raised intra-abdominal pressure, potentially leading to under-drainage and recurrence of symptoms.[12] Furthermore, obesity is an established risk factor for distal (peritoneal) end dislodgement.[13] Conversely, there are reports in the literature of rapid weight loss (such as that seen with bariatric surgery or vigorous exercise) leading to over-drainage or even protrusion of the shunt through the skin.[14 15]

When to worry

Reinforce information about symptoms that may indicate a shunt problem (see box) as some will represent neurosurgical emergencies.[3]

In many instances where there are concerns or new symptoms, a member of the neurosurgical team, commonly a hydrocephalus nurse specialist in the UK, will provide phone advice. For urgent concerns, some neurosurgical units have an "open door" policy, although some may prefer patients to be assessed in their local emergency unit. Check with the treating neurosurgeon if in doubt.

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Giardiasis

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***Giardia* is a leading but treatable cause of infectious gastroenteritis worldwide, with a reported prevalence of 2-7% in high income countries and 2-30% in low income countries.[1] Giardiasis is included in the World Health Organization Neglected Diseases Initiative owing to its burden and association with poverty.[2] Its incidence in the United Kingdom is underestimated because of the lack of diagnostic sensitivity of traditional faecal microscopy[3] and the mistaken belief that it is mostly acquired abroad, so often only people reporting foreign travel are tested. This update discusses the epidemiology, clinical presentation, diagnosis, and management of giardiasis specifically in high income countries.**

What is *Giardia*?

Giardia lamblia (synonyms *G duodenalis* and *G intestinalis*) is a flagellated protozoan. *Giardia* is transmitted through the ingestion of the infective cyst stage shed in human or animal faeces and might be present in faecally contaminated water, food, or fomites. *G lamblia* comprises eight genetic "assemblages" (named A to H), of which only A and B cause disease in humans but which can also infect pets, livestock, and wild animals and show potential for zoonotic transmission.[4] Figure 1 depicts the life cycle and transmission of *Giardia*. The actively multiplying trophozoite form of the organism hatches from the cyst and attaches to the small intestine (fig 2),[5] where it induces epithelial inflammation, villous flattening, and diarrhoea due to malabsorption.[6-8] In the large intestine, the trophozoites differentiate forming new cysts, which are shed in the faeces and contaminate the environment. Cysts present in faeces can remain viable in a variety of environments, particularly water and at lower temperatures: viability can range from 28 to 84 days in lake or river water[9] but is reduced in soil[10] or cattle slurry.[11]

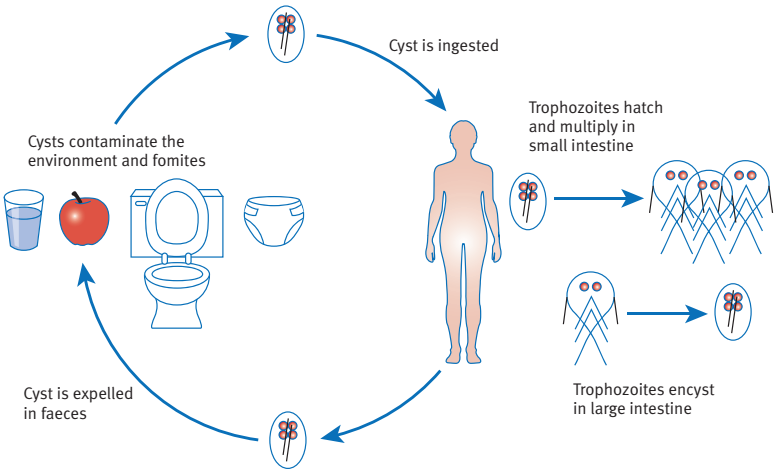

Fig 1 | Life cycle and transmission of *Giardia*

WHAT YOU NEED TO KNOW

- The number of patients detected with *Giardia* will increase as routine testing of stool samples using highly sensitive diagnostic tests becomes more widespread
- Most patients with *Giardia* in the UK acquire their infection in the UK
- Tinidazole and metronidazole are equally effective as first line treatments, although tinidazole has a simpler regimen and fewer side effects
- Second line agents used in cases of treatment failure are unlicensed for giardiasis in the UK but are routinely used in many countries
- Asymptomatic carriage of *Giardia* is common among household contacts, and testing of contacts is indicated in treatment failure and in household clusters

Who gets giardiasis?

Box 1 summarises the risk factors for acquisition of *Giardia* in high income countries. Travel to low income settings is a common risk factor, with the highest risk areas being South Asia and South East Asia, North Africa, the Caribbean, and South America.[25 26] *Giardia* is the most common intestinal pathogen in travellers returning to countries such as the UK with gastrointestinal disorders.[25-27] However, a case-control study in north west England in 2013 found that 75% of cases were acquired in the UK.[12] The highest incidence of giardiasis is in under 5s and adults aged 25-44 years[3-30]: most studies report giardiasis being more common in males,[3-21] and it is more often reported in late summer and early autumn in temperate regions such as the UK and United States.[13 30]

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THE ARTICLE

No patients were involved in the creation of this review.

Box 1 | Risk factors for *Giardia* acquisition in high income countries

- Foreign travel, particularly in low income settings[12-16]
- Toileting young children and changing nappies[12-15]
- Drinking contaminated water or swallowing contaminated water while using swimming pools or other recreational fresh waters[12-19]
- Attending childcare settings[20]
- Eating fresh products raw[18 21]
- Sexual transmission[22]
- Dog ownership (*Giardia* assemblage A)[12]

Some immunodeficiency disorders: X linked agammaglobulinaemia, common variable immunodeficiency[23 24]

The source of many infections is unknown but is likely to be person-to-person transmission through exposure to human faeces, including sexual transmission.[22] In a recent prevalence survey in northwest England, 30% of households in which a family member had a diagnosis of *Giardia* had a second person with a stool sample positive for *Giardia*.[31] Outbreaks have been reported in daycare centres and custodial institutions,[20 32] favoured by overcrowding and poor hygienic conditions.

When to consider *Giardia*?

Giardia infections can be asymptomatic (estimated in 5-15% of infected people),[33] but typical symptoms include diarrhoea, flatulence, abdominal pain, and bloating.[33] In the early stage of disease, diarrhoea is often explosive, especially in the morning, and the stool is difficult to flush away. Blood in the stool is unusual[34] and would suggest the presence of another pathogen. Patients sometimes mention "eggy burps" of uncertain cause. Later, the diarrhoea becomes more intermittent, with periods of normal bowel function interspersed with the diarrhoea. Weight loss due to malabsorption occurs in more than 80% of patients, with a typical loss of 5 kg in adults over four or more weeks[35]; chronic infection in children might result in failure to thrive.[36] Intestinal lactase deficiency occurs in up to 40% of patients with giardiasis and might persist for several weeks after parasite eradication.[8] This manifests as diarrhoea that is worse after consumption of food or drugs containing lactose. Rarer symptoms include vomiting and fever.[33] Patients often present with diarrhoea but without typical symptoms of giardiasis and the condition is diagnosed unexpectedly by microbiological examination of a stool specimen. Examination is usually unremarkable apart from features of weight loss, but patients with prolonged symptoms might have features of malabsorption, including pallor due to anaemia. Diagnosis is often delayed, sometimes for months, owing to the insidious onset and relapsing clinical course.

Giardia and irritable bowel syndrome

The symptoms of giardiasis can resemble irritable bowel syndrome (IBS).[37] An Italian study of 137 patients investigated in secondary care for IBS or dyspepsia found

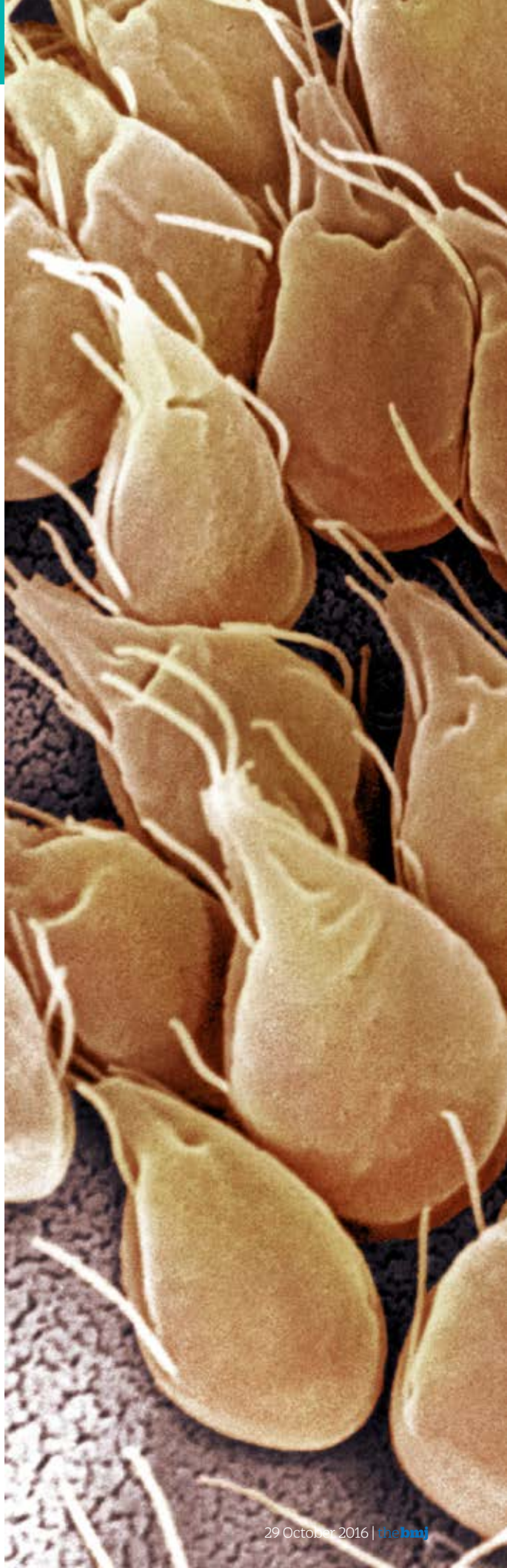

Fig 2 Trophozoites under electron microscopy

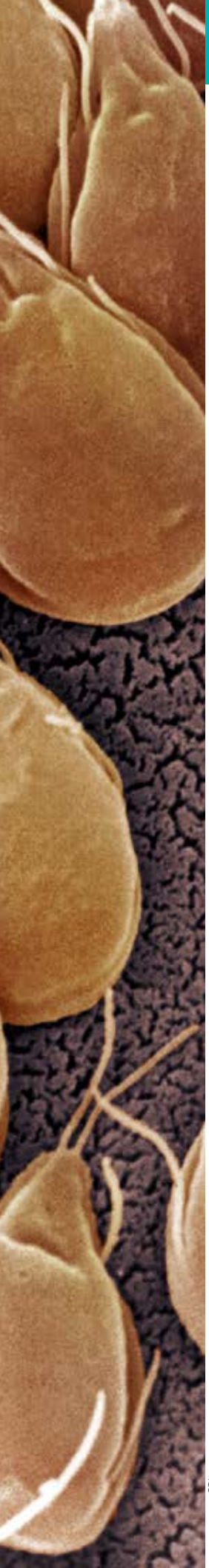
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Table 1 | Comparison of diagnostic tests for *Giardia*[42-51]

Specimen type by patient group	Usual test (target)	Relative diagnostic performance for *Giardia*		Comments
		Sensitivity (%)	Specificity (%)	
Any patient with community acquired or unexplained diarrhoea				
Most preserved or unpreserved stool	Ova, cysts, and parasites (OCP) examination by microscopy of unconcentrated and concentrated preparations from which permanent stained smears can be made (cysts; trophozoites may be seen, although some preservatives may affect their morphology)	31*	100*	May not detect low level, chronic infection. Provides differential diagnosis of many (but not all) parasites. Smaller parasites will be missed (eg, *Cryptosporidium*; microsporidia). Labour intensive; high level of skill required; cheap. Most useful where burden of illness and intensity of infection is high
Formalin or SAF preserved† or unpreserved stool	Enzyme immunoassay (cyst antigens)	85-100	≥95	Only provides diagnosis of specific parasites included in assay; often in combination with *Cryptosporidium* and sometimes *Entamoeba histolytica*. Useful for high throughput testing; kit cost maybe offset by use of low skilled staff
Formalin or SAF preserved† or unpreserved stool	Immunochromatographic lateral flow (cyst antigens)	95.8-100	97.1-100	Only provides diagnosis of specific parasites included in assay. Useful where there is low capacity for complex testing; expensive
Formalin or SAF preserved† or unpreserved stool	Immunofluorescent microscopy (cysts)	94-100	100	Only provides diagnosis of specific parasites included in assay. Useful where other highly sensitive and specific tests are not available, for confirmation of equivocal results, and where the burden and intensity of infection is low. Labour intensive; moderate level of skill required; fluorescent microscope needed; expensive.
Unpreserved stool or only those in specified preservatives†	Nucleic acid amplification based (PCR)	90-100	75-100	Only provides diagnosis of specific parasites included in assay. Useful for high throughput testing. Kit cost maybe offset by decreased staff time. Improves diagnosis where burden of illness and intensity of infection is low. Rapidly becomes negative after successful treatment. Sensitivity and specificity can vary according to sample processing, amplification approach, and molecular marker chosen
Patients where *Giardia* is suspected but not detected in stool				
Duodenal or jejunal biopsy or aspirate collected through intubation or string test (Entero-test)	Microscopy (trophozoites) or nucleic acid amplification based (DNA), flattening of villi (histology)	Will probably be supplanted in most cases by sensitive PCR stool assays, but occasionally useful in areas where this and antigen assays are not available		

SAF=sodium acetate-acetic acid formalin solution.
*Using PCR as reference test.[50]
†Other preservatives may interfere with assay performance. Refer to kit insert.

Giardia in 6.5% of patients.[38] However, this finding was not replicated in a larger study[39] and guidance from the UK National Institute for Health and Care Excellence recommends that faecal testing for ova and parasites is not routinely required to confirm the diagnosis of IBS in people who meet the diagnostic criteria for IBS.[40 41] Clinicians should be alert to the possibility of both diagnoses. If there is any doubt, or where there is a relevant exposure history for giardiasis (box 1) consider parasitological examination of a stool sample.

How should suspected giardiasis be investigated?

Giardiasis is usually diagnosed by laboratory analysis of stool samples (table 1), either by traditional microscopy (ova, cysts, and parasites (OCP) examination) for visualisation of cysts (or more rarely, trophozoites) or by stool antigen detection assays.[3-43] The sensitivity of antigen detection assays is superior to microscopy for the diagnosis of giardiasis, but sensitivity between different formats varies (table 1). Not all laboratories routinely test stool samples for the micro-organism, so specifically request examination of samples for *Giardia* and document travel or other risk factor history. Owing to variable shedding, three stool specimens (ideally taken two or three days apart) might need to be examined when traditional microscopy is used. If the result is negative, three more specimens should be submitted at weekly intervals,[51] with a minimum of six negative results required for microscopic exclusion of infection.[52] There is evidence of improved detection of *Giardia* in single stool samples using PCR over microscopy of several stool samples or antigen detection assays.[46 47] At present PCR is only offered as a first line test in a few UK hospital laboratories, and clinicians are advised to discover what tests are available in their local laboratory. In secondary care when giardiasis is highly suspected but stool results are negative, diagnosis can be made through duodenal aspiration and biopsy, which have been shown to detect infection in the absence of cysts on stool microscopy.[39 48] Serological tests for circulating IgG and IgM antibodies to *Giardia* are not appropriate for clinical diagnosis.

What treatments are available for giardiasis?

Unlike many causes of infectious gastroenteritis, giardiasis is treatable (table 2). Many drugs have been evaluated in reviews and several meta-analyses,[53-59] including a Cochrane Review in 2012 that examined 19 trials for the effectiveness of the four agents most commonly used to treat giardiasis—metronidazole, tinidazole, albendazole,

Box 2 | Advice on *Giardia* for patients and carers

General

- Wash your hands carefully with soap and hot water and dry them thoroughly each time you go to the toilet or before preparing food
- Do not share towels
- Remain off work until free of diarrhoea for 48 hours if you work with food or in social care or healthcare and have direct contact with patients or clients

Young children with *Giardia*

- Ensure scrupulous hygiene when changing nappies
- Supervise children's hand washing
- Keep young children away from playgroups, childminders, or nursery until free of diarrhoea for 48 hours

Household contacts of a *Giardia* case

Testing is not advised unless the original patient remains unwell despite treatment or if someone else becomes unwell

Table 2 | Current treatment options for *Giardia* in UK*

Drug	Use in pregnancy	Use in children	Licensed in UK
Metronidazole	Avoid first trimester if possible	Yes	Yes
Tinidazole	Avoid first trimester if possible	Yes	Yes
Albendazole	No	Yes	No
Nitazoxanide	No	Yes	No
Paromomycin	Yes	Yes	No
Mepacrine (quinacrine)	No	No	No

*Many are unlicensed in the UK (see text for indications for these in secondary care practice).

and nitazoxanide.[54] In most analyses, the 5 nitroimidazoles metronidazole and tinidazole have similar efficacies, with parasitological cure rates and symptom relief in more than 90% of patients.

Symptomatic patients

The *British National Formulary*[60] currently recommends a five day course of metronidazole as preferred treatment in the UK. Most specialists prescribe a single dose of tinidazole, which is licensed for this indication, has similar efficacy to a multiple dose metronidazole regimen, and is better tolerated.[57] Repeat either course if unsuccessful, together with exclusion of reinfection (from a household or sexual contact) or lactose intolerance. Advise patients to avoid milk and milk products for at least two weeks (some clinicians advise up to six weeks) to evaluate whether persisting symptoms truly represent treatment failure rather than temporary lactose intolerance. Giardiasis is associated with prolonged symptoms that can have a detrimental impact on quality of life.[61 62] Second line agents such as albendazole or nitazoxanide are routinely available in some countries but are not licensed for the treatment of giardiasis in the UK. Specialist advice is recommended if second line agents are required.

Confirmation of treatment failure is best provided by PCR, which offers improved detection in single stool samples over microscopy.[63 64] Treatment success is indicated by complete resolution of symptoms or lack of detection of *Giardia* DNA by PCR one week after treatment.

Treatment failure might be due to host factors or to true drug resistance, which is well recognised and increasingly common, particularly in travellers returning from South Asia and South East Asia.[16-65] However, tinidazole or metronidazole should still be used as first line treatment for travellers returning from these areas despite cross resistance between these drugs.[65] Patients with treatment failure should be discussed with or referred to a specialist, who should exclude underlying problems such as coeliac disease, inherited disaccharidase deficiency, and immunodeficiency disorders, particularly of total and IgA antibody production.[23-61] Combination treatment with the above agents may be used under specialist care.

EDUCATION INTO PRACTICE

Do you request specific *Giardia* testing in patients presenting with relapsing diarrhoea, negative results on bacterial stool culture, and no history of overseas travel?

Asymptomatic patients

Asymptomatic carriage of *Giardia* is common in contacts of cases, and household clusters do occur. In a recent study in north west England, routine testing of all household contacts of 91 primary *Giardia* cases found a contact positive for *Giardia* in 27 households (30%): of the 212 contacts, 41 (19%) were positive, most of whom were asymptomatic.[31] In the absence of research as to whether treatment of asymptomatic carriage is effective in curtailing transmission, management is based on expert opinion.[53] Asymptomatic carriage is generally not treated, but treatment is rational in failed treatment of a case or in household clusters. In these situations a pragmatic alternative may be to offer blind treatment to all household contacts based on their preference. Wider availability of sensitive PCR diagnostic tests may allow a more targeted approach to contact treatment in future.

Can *Giardia* infection be prevented?

Individual cases require investigation, usually by environmental health officers, to prevent onward spread and identify likely exposures. In the UK, surveillance is underpinned by statutory notification of *Giardia* diagnoses by hospital laboratories to the local public health system.[70-72] Prevention of secondary transmission is mainly through antiparasitic treatment of cases and advice on the prevention of person-to-person spread through stringent personal hygiene (box 2). Exclusion on the basis of the absence of diarrhoea for 48 hours applies to children in nurseries, food handlers, and those caring for vulnerable adults.[73] Microbiological evidence of stool clearance is not usually required, but this might be considered in outbreak situations.

Giardia cysts are more resistant to chlorine disinfection than most bacteria, and outbreaks have been reported linked to contaminated mains drinking water, swimming pools, and paddling pools.[17 19] Adherence to guidelines for swimming pool management[74] reduces the risk of giardiasis to a minimum. Outbreaks caused by drinking water are uncommon in the UK[75] because of the full treatment of public water supplies (filtration and disinfection), but they are a risk where treatment is inadequate. Travellers should check that water disinfection filters or systems they use are certified to remove *Giardia*.

Competing interests: None declared.

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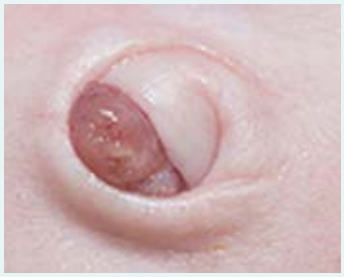
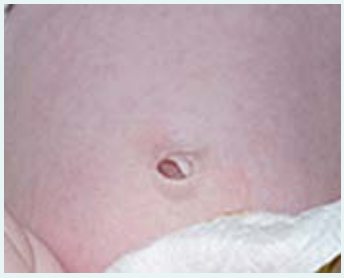
CASE REVIEW

A baby with a discharging umbilical lesion





An 8 week old boy was referred by his general practitioner with a persistent oozing red umbilical lesion (figure). He was born by normal vaginal delivery, with no complications during the pregnancy or at birth. The child had no medical history. He was bottle fed and putting on weight as expected.

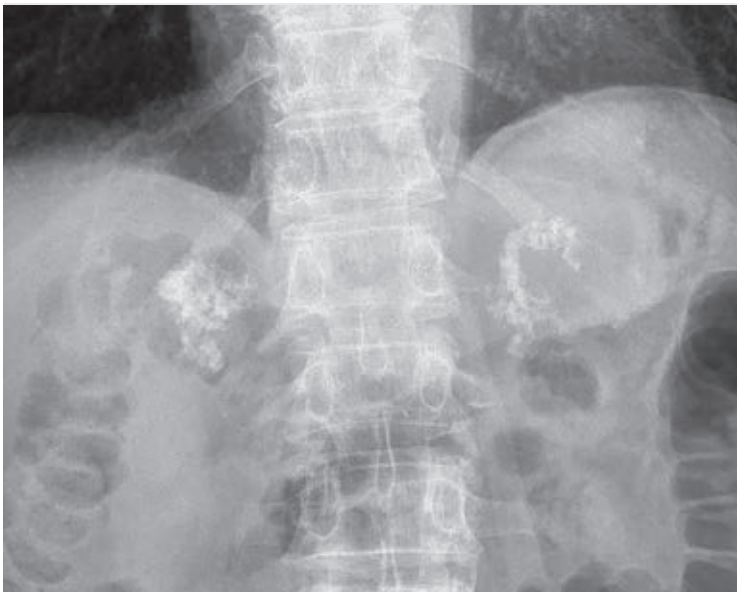
On examination, the child was systemically well. A red lesion with a serous discharge was observed at the umbilicus. There was no surrounding cellulitis or clinical evidence of infection.

1 What is the most likely diagnosis?
2 What are the important differential diagnoses to consider?
3 What is the most appropriate management of this condition?

Submitted by Leigh N Sanyaolu, Muhammad Javed, and Nick Wilson-Jones

Parental consent obtained.

Cite this as: *BMJ* 2016;355:i5587



SPOT DIAGNOSIS

An incidental finding

A 68 year old man presented with abdominal pain and underwent abdominal radiography. What finding is present on the radiograph?

Submitted by H L Adams and David C Howlett

Patient consent obtained.

Cite this as: *BMJ* 2016;355:i5419

If you would like to write a Case Review for inclusion in the Endgames section please see our updated author guidelines at http://bit.ly/29HCBAL and submit via our online editorial office at http://bit.ly/29yyGSx

answers

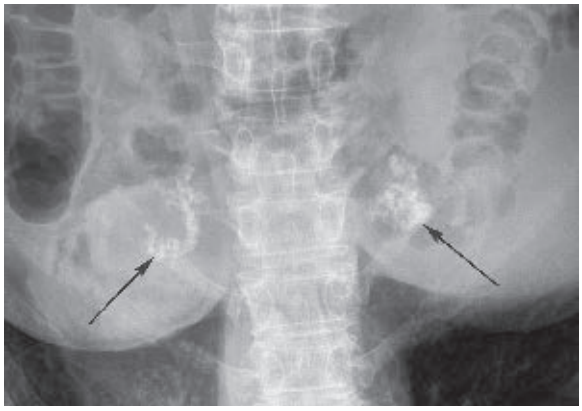
CASE REVIEW

A baby with a discharging umbilical lesion

1 The most likely diagnosis is an umbilical granuloma.
2 The important differential diagnoses to consider are congenital abnormalities of the gastrointestinal and urinary tracts. These malformations are related to abnormalities of the omphalomesenteric duct (OMD) and urachus, respectively, which may develop during embryogenesis.
3 Management options for umbilical granulomas include conservative management, salt treatment, chemical cauterisation with silver nitrate, and surgical excision.

SPOT DIAGNOSIS

An incidental finding



The radiograph shows calcification of the adrenal glands bilaterally.

An unusual cause of a mass in the groin

A healthy 61 year old man presented with left groin and thigh pain on exercise. Examination showed a deep rounded mass in the left femoral triangle that exhibited arterial pulsation. Ultrasound results ruled out an aneurysm, but T2 weighted magnetic resonance images confirmed a large left psoas bursa (A) arising from an osteoarthritic hip joint that was clearly displacing the femoral vessels, their prominent pulsation easily mistaken for an underlying aneurysm. The magnetic resonance image also demonstrates an ipsilateral obturator bursa (deep to A), and an indirect right inguinal hernia (B). Psoas bursa remains a differential diagnosis of a pulsatile groin mass (figure).

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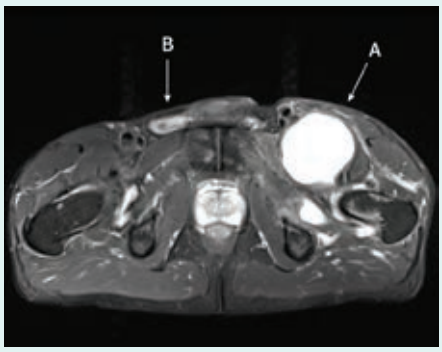
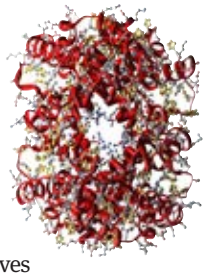
Patient consent obtained.

Cite this as: *BMJ* 2016;355:i5147



Glycated haemoglobin depends on cell age



The most commonly used measure of blood glucose control in diabetes is the percentage of haemoglobin in circulation that is glycated—that is, HbA_{1c}. But in about a third of people this measure gives a false indication of actual blood glucose levels over the preceding 23 months. A team at Harvard University has found that this is almost entirely due to variations in the turnover rate of red blood cells (*Sci Transl Med* doi:10.1126/scitranslmed.aaf9304). Older cells inevitably pick up more glucose. The team proposes that the individual turnover rate for red blood cells (which is stable and measurable) might need to be measured before relying on HbA_{1c} as an indicator of glucose control.

Does allopurinol reduce the risk of stroke?

Observational studies have come up with conflicting data about an association between allopurinol taken to prevent gout and ischaemic stroke. The latest study, based on a 5% random sample of Medicare beneficiaries from 2006 to 2012, comes out definitely in favour of allopurinol (*BMC Neurol* doi:10.1186/s12883-016-0692-2). An association with reduced risk of stroke is evident after six months of allopurinol use, and the hazard reduction increases with longer duration of use. However, allopurinol can also cause interstitial nephritis and aplastic anaemia, so is of questionable value for the primary prevention of stroke in whole populations.

White cell counts and appendicitis

Numerous tools have been developed to help clinicians rule in or rule out appendicitis in children. Some of these techniques require a white blood cell and neutrophil count and involve venepuncture and a delay in management, which can add to a child's distress. Clinicians at a large Canadian hospital assessed the utility of the white blood cell and neutrophil count in 180 children as part of two commonly used scores, the paediatric appendicitis score and Alvarado score (*BMC Pediatr* doi:10.1186/s12887-016-0687-6). The authors conclude that the white blood cell and neutrophil count can be omitted in children with low scores for other variables, allowing a proportion to be sent home safely.

Outcomes that matter for patients with cancer

SISAQOL stands for Setting International Standards in Analysing Patient-Reported Outcomes and Quality of Life Endpoints Data. This may sound like a lot of jargon, but it is a better-late-than-never attempt to encourage cancer triallists to measure and report the outcomes that really matter to patients. The leading proponents discuss what they hope to achieve in *Lancet Oncology* (doi:10.1016/S1470-2045(16)30510-1).

Neurologists keep it simple

"Keep it simple: vascular risk factors and focal exam findings correctly identify posterior circulation ischaemia in 'dizzy' patients." Minerva was pleased to see this title for a study (*BMC Emerg Med* doi:10.1186/s12873-016-0101-6) in which good old fashioned history and examination trump fancy brain imaging. In a series of 1216 patients with dizziness who attended the emergency department of a leading American hospital, 100 were diagnosed as having posterior circulation ischaemia by means of vascular risk assessment and neurological examination alone. Computed tomography angiography did not add diagnostic precision.

Home based rehab for heart failure

Rehabilitation programmes after hospital admission for heart failure can improve exercise capacity and quality of life but can be difficult to attend for patients in their 70s and 80s with multiple morbidities. A systematic review of similar interventions delivered at home (*Int J Cardiol* doi:10.1016/j.ijcard.2016.06.207) shows similar benefits with no evidence of increased risk of hospital admission or death. An ideal system would offer both options.

Unintentional injury in Oxfordshire

Oxfordshire may be regarded as an affluent, leafy English county, but it contains many pockets of social deprivation. A study of attendance rates in the emergency departments of its two hospitals shows that for most types of unintentional injury, there is a strong positive association with low socioeconomic class (*J Epidemiol Community Health* doi:10.1136/jech-2016-207581). For sports other than football, however, the association is reversed.

Cite this as: *BMJ* 2016;355:i5673