education

FROM THE JOURNALS Edited highlights of Richard Lehman's blog on http://bmj.co/Lehman

Vasectomy and prostate cancer

The first time I can remember thinking about risk and individuals in relation to medical choices was in 1973, when I was a student with a very old school urologist. A study had just appeared linking vasectomy with an increased risk of prostate cancer. I asked the urologist if he did vasectomies and how he might discuss this with patients. He said it was not a very popular procedure among normal chaps but attracted certain sorts of *Guardian* readers, teachers, and social workers. He would tell them to read up about it and make up their own minds. As far as he was concerned, the risk seemed small and was uncertain for any individual. Setting aside his remarks about *Guardian* reading etc, I think time has proved him right. It's our job to encourage educated people to do their own reading about elective surgery before they submit to it, and to weigh the pros and cons in the light of their own preferences; and we need to help the less educated to do it as well. As for the observed association between prostate cancer and vasectomy, this is largely or wholly artefactual, according to this new systematic review and meta-analysis of the observational evidence: so we can add that to the decision aid.

JAMA Intern Med doi:10.1001/jamainternmed.2017.2791

Idarucizumab

According to the Wikipedia article on the nomenclature of monoclonal antibodies, their names are supposed to give you a clue as to the system they work on, as well as how they are manufactured. The clue for idarucizumab lies in the "ci," which stands for circulation. That's as close as it gets. It might be a mab that makes your toes warmer at night, or lowers your blood pressure, but in fact it's the mab that reverses the anticoagulant effect of dabigatran. In clinical trials it did just that, given at a dose of 5 g. To give us a chance of remembering what it does, it should be renamed dabigatranumab.

N Engl J Med doi:10.1056/NEJMoa1707278

Vitamin D and upper respiratory tract infections in kids

It's become fashionable to scoff at the alleged non-skeletal benefits of vitamin D. Here's a trial that compared doses of 400 IU or 2000 IU of oral vitamin D to see if the higher dose would reduce the incidence of upper respiratory tract infections in preschool children during the winter months in Canada. Scoffers, rejoice: the high dose made no difference.

JAMA doi:10.1001/jama.2017.8708

Weight gain before 55 and healthy ageing in health professionals

Healthy ageing is not something that doctors know a lot about, as we generally only look after the unhealthy. In an analysis of follow-up data from those two familiar American cohorts, the Nurses' Health Study (female only, begun in 1976) and the Health Professionals' Study (all male, begun in 1986), healthy ageing is defined as being free of 11 chronic diseases and major cognitive or physical impairment. My guess is that most nurses and health professionals gain a bit of weight between the ages of about 20 and 55. And such people fare much the same as those who manage to stay the same weight. "Among those who gained a moderate amount of weight, 3651 women (24%) and 2405 men (37%) achieved the composite healthy aging outcome. Among those who maintained a stable weight, 1528 women (27%) and 989 men (39%) achieved the composite healthy aging outcome." Oh, but you must not be so complacent, says the last of the Key Points: "Among women and men, moderate weight gain from early to middle adulthood was associated with significantly increased risk of major chronic diseases and mortality." Significant? A 2%-3% associational risk difference for an individual?

JAMA doi:10.1001/jama.2017.7092

"Telemedicine" for managing inflammatory bowel disease

We're still in the early stages of discovering how the information revolution can work in both directions for the benefit of patients. It's taking a long time to determine what information from them helps us, and what information from us helps them. Or when and how. Generally speaking, "less is more," as illustrated by this Dutch trial of a system whereby patients aged 18-75 with inflammatory bowel disease reported their symptoms (nothing else) once a month to the specialist clinic. They were fed back advice on how to manage symptoms, and whether to report in more frequently, or less. At 12 months, there was no difference between the intervention (called myIBDcoach) and usual care for patient satisfaction, mean numbers of flares, corticosteroid courses, emergency visits, and need for surgical intervention. But the myIBDcoach group had fewer clinic visits or hospital admissions. I will call this frugal telemedicine, before anyone else does. That way it will annoy me less.

Lancet doi:10.1016/S0140-6736(17)31327-2

CLINICAL UPDATES

Diagnosis and early management of inflammatory arthritis

Joanna Ledingham,[1] Neil Snowden,[2] Zoe Ide[3]

[1]Queen Alexandra Hospital, Portsmouth, UK
[2]Pennine MSK Partnership, Integrated Care Centre, Oldham, UK
[3]National Rheumatoid Arthritis Society, Maidenhead, UK

Correspondence to: J Ledingham jo.ledingham@porthosp.nhs.uk

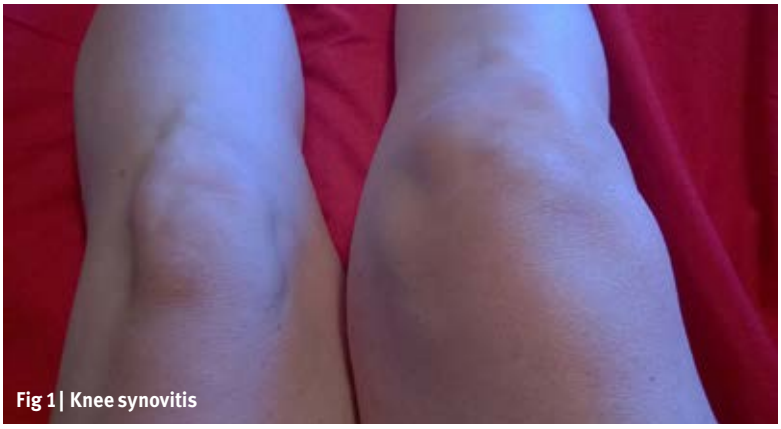


Fig 1 | Knee synovitis

Autoimmune inflammation affects the joints of people with inflammatory arthritis. No definitive cause has been identified, despite extensive research.

CPD READING
0.5 HOURS
LEARNING MODULE

http://learning.bmj.com for linked learning module

About 80-100 adults in 100 000 develop inflammatory arthritis every year.[2 3] Rheumatoid arthritis is the most common inflammatory arthritis, affecting approximately 500 000 people in the UK.[4] Spondylo-arthropathies, including psoriatic arthritis, reactive arthritis, and ankylosing spondylitis, are slightly less common.[5] Inflammatory arthritis primarily affects people of working age, and within 10 years of diagnosis around 40% of people with rheumatoid arthritis are unable to work.[6]

Guidelines[7] and quality standards[8] from the National Institute for Health and Care Excellence recommend early aggressive treatment for rheumatoid arthritis. This approach has been shown to be cost effective,[9] and management principles for rheumatoid arthritis are broadly applicable to all forms of inflammatory arthritis. This clinical update, aimed at non specialists, provides information on the diagnosis and early management of inflammatory arthritis.

HOW PATIENTS WERE INVOLVED IN THIS ARTICLE

Zoe Ide, a patient with rheumatoid arthritis, actively contributed to this article and has provided details of her experience as a patient. Her particular focus was on the aspects of patient care that need attention alongside a timely diagnosis. These include fatigue management, supporting ability to work, psychological wellbeing, and signposting to patient organisations.

WHAT YOU NEED TO KNOW

- Consider inflammatory arthritis in anyone with acute or subacute onset of joint pain, early morning stiffness, and soft tissue swelling
- Early diagnosis and treatment with disease modifying anti-rheumatic drugs (DMARDS) and corticosteroids improves function and symptomatic and radiographic outcomes
- Patients need rapid access to specialist advice during flares
- Prescription and monitoring of DMARDs can be shared between specialists and non-specialists if pathways and communication are clear
- Specialists are best placed to guide changes in DMARDS or steroid treatment

How do patients with inflammatory arthritis present?

Consider inflammatory arthritis in patients who develop joint symptoms, especially if they have a family history of inflammatory arthritis, psoriasis, or inflammatory bowel disease, or a personal history of conditions detailed below.

Most patients present with joint swelling, pain, tenderness, stiffness, and warmth in the joints. Symptoms can be acute, developing over days or weeks, can fluctuate, but can also develop more slowly, with no initial obvious joint swelling (arthralgia). Systemic features including fatigue are common. Other pointers include sudden onset of disabling, severe joint pain and/or joint pain that rapidly and progressively increases. Septic arthritis will usually present as a mono-arthritis, can be difficult to distinguish from other inflammatory arthropathies, and requires urgent specialist review (within 12 hours). Avoid prescribing antibiotics before referral to optimise the chances of identifying organisms and antibiotic sensitivity.[10]

Rheumatoid arthritis—usually presents with symmetrical inflammation of the small joints, typically the metacarpophalangeal, proximal interphalangeal, and metatarsophalangeal joints. Rheumatoid arthritis can be associated with other autoimmune diseases, such as thyroid disease, inflammatory lung disease, bronchiectasis, and eye disorders such as sicca syndrome, scleritis, and episcleritis.[11] In older patients, rheumatoid arthritis more often presents with polymyalgia and with large joint involvement.[12]

Spondylo-arthropathies—patients typically have an asymmetrical pattern of large joint disease, with fewer joints affected than in rheumatoid arthritis. In psoriatic arthritis, the distal interphalangeal joints can be affected.[13 14] Spinal inflammation might occur in any of the spondylo-arthropathies and typically causes pain and stiffness that is worse at night and in the morning, and which eases with activity and non-steroidal anti-inflammatory drugs (NSAIDs).[5 15] Patients can also present with iritis.[16] Linked psoriasis and inflammatory bowel disease often predate the onset of inflammatory arthritis but can develop many years after the onset of an arthropathy.[15] Symptoms of reactive arthritis can develop after gastrointestinal or asymptomatic genito-urinary infections.[17]

How is inflammatory arthritis diagnosed?

Diagnosis is clinical, based on the presence of joint pain, early morning stiffness (>1 hour), and soft, often warm swelling around joints (fig 1).

Other differential diagnoses for inflammatory arthritis include crystal arthropathies (gout and pseudogout), which tend to present with more acute onset inflammation (within hours) in a single joint, and osteoarthritis, which presents without the inflammatory features described above.

Acute inflammatory mono-arthritis is most often caused by crystal arthritis,[10] but sepsis should be considered/excluded. Self limiting viral arthritis can be hard to differentiate clinically from early rheumatoid arthritis. Commonly there is no definite diagnosis during the early weeks of disease.[18]

Blood tests

Check inflammatory markers (erythrocyte sedimentary rate, C reactive protein, plasma viscosity) and rheumatoid factor. Normal or negative results do not exclude inflammatory arthritis. Rheumatoid factor is negative in up to a third of patients with rheumatoid arthritis, and in most patients with spondylo-arthropathies.[19 20]

Full blood count, urea and electrolytes, liver function tests, and bone biochemistry help guide treatment and identify relevant comorbidities.

Imaging techniques

Imaging is not routinely recommended before referral. Ultrasound can help clarify a diagnosis of peripheral joint inflammatory arthritis and is available in many early arthritis clinics.[18] An example of the effects of uncontrolled inflammatory arthritis is shown in fig 2.

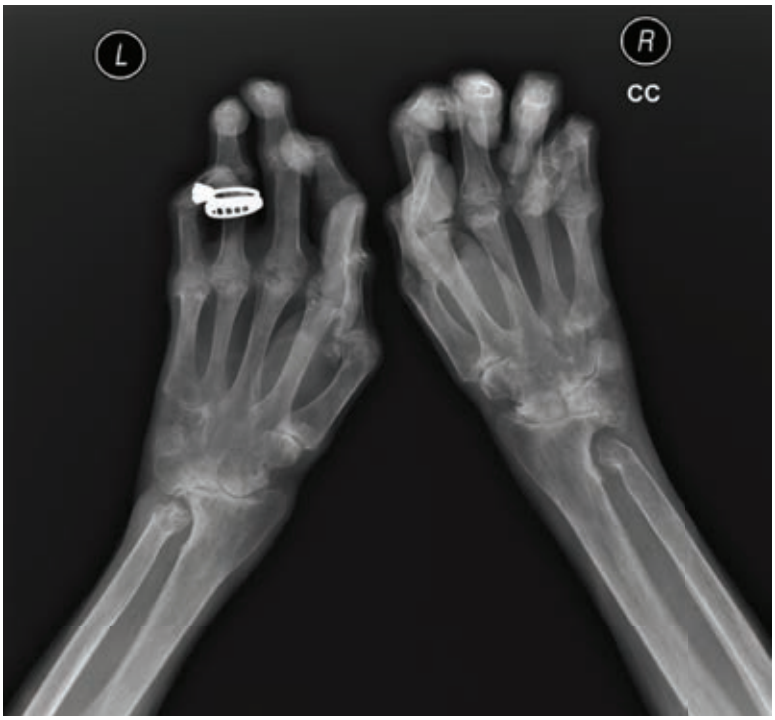


Fig 2 | Radiographs showing severe, irreversible changes secondary to aggressive inflammatory arthritis

When to refer?

Refer patients to a specialist immediately if there are clinical features of a potential inflammatory arthritis; NICE recommends referral within three working days.[8] Avoid prescribing steroids before referral, so that a diagnosis can be confirmed and appropriate treatment started as quickly as possible. Rheumatology departments usually offer urgent appointments if they are aware that you suspect inflammatory arthritis. UK national audit data show that patients can be seen within 12-48 hours.[18 21]

What is the evidence for early referral and treatment of inflammatory arthritis?

Systematic reviews of 92 studies support early disease modifying anti-rheumatic drugs (DMARDs) treatment of inflammatory arthritis, within three months of symptom onset, to improve function and reduce disability and long term joint damage.[22 23] This is referred to as the three month "window of opportunity."

Systematic reviews of 15 studies also support a management strategy of frequent review and escalation of treatment to minimise inflammation ("treating to target"). Early use of multiple DMARDs produces the best outcomes.[25 26] Using this strategy, randomised controlled trials show that remission (absence of joint inflammation) can be achieved in about 65% compared with 10%-20% of those treated less intensively.[27]

UK registry data suggest that the need for joint replacement surgery in people with rheumatoid arthritis is declining by about 5% per year, despite an ageing population.[28] Intensive reduction of inflammation might almost normalise cardiovascular risk, which is doubled in association with rheumatoid arthritis.[29 30]

PATIENT EXPERIENCE OF EARLY INFLAMMATORY ARTHRITIS

I started to experience a general feeling of "achiness" at the end of a busy summer weekend. On Monday I was unable to lift my left arm without pain, and was stiff and tender around my shoulders. The sudden lack of function worried me so I visited my doctor. He moved the arm through its range, explained that I had sprained the shoulder, and told me to "stop swinging from the chandeliers." Painkillers and rest were the cure.

Over the next few months there would be weeks when I felt completely normal, with a day or so when similar symptoms in shoulders, hips, and knees would return. The pain on these "off" days was worse in the morning. I remember during these episodes standing all the way into work on the bus and train, an hour's journey, to avoid movement. Being in my thirties at the time, with a busy life and stressful job, I ignored what was happening, pushing through with painkillers and sometimes alcohol.

When my feet started to hurt and getting out of bed was tortuous, I updated my doctor. He examined my feet by sight and took blood, which showed a high rheumatoid factor and raised inflammation but "nothing significant." It was explained that he could refer me to a rheumatology specialist, but once there I would be managed in the same way as he would do at the surgery, on painkillers with a watching brief. I agreed to see if I got better or worse.

I ignored what was happening, pushing through with painkillers

I reluctantly returned to my doctor some time later when it became difficult to manage stairs and a knuckle had swelled. Luckily, that day I saw a locum who examined me, reviewed my history, and referred me immediately to secondary care. I was seen by my first rheumatologist 18 months or so after visiting my doctor for the first time.

What treatments are used to manage early disease?

Management of all forms of inflammatory arthritis requires treatment of inflammatory symptoms and modulation of inflammation using DMARDs until remission is achieved. NICE recommends that DMARDs are started within six weeks of referral to secondary care.[8]

Bridging treatment until remission—offer analgesics or NSAIDs in the first instance to control inflammatory symptoms (pain and stiffness). Specialists often offer intramuscular, intravenous or oral corticosteroids for their rapid effect.[31]

DMARDs—are initiated by rheumatologists. The ways in which DMARDs modulate inflammation are complex and not fully understood. Key information for the most commonly prescribed DMARDs is provided in the infographic.

NICE recommends early use of combinations of DMARDs for the management of rheumatoid arthritis.[7 8]

Systematic reviews suggest that intensity of treatment and reduction of inflammation are more important than any particular drug regime in reducing pain and disability, allowing some choice of treatment.[27]

The most commonly used DMARDs are methotrexate, sulphasalazine, hydroxychloroquine, and leflunomide, as they have been shown in randomised controlled trials and observational studies to have the best efficacy and tolerability.[34]

DMARDs can take 8-12 weeks to be effective.[37]

What adverse effects might patients experience?

Most adverse reactions occur within the first three months of treatment.[33] Minor adverse effects, such as nausea, mouth ulcers, and abdominal symptoms often settle with time, dose adjustments, or with additional treatments. Many patients tolerate DMARDs reasonably well.[38]

How are patients on DMARDs monitored?

Most DMARDs can cause pneumonitis. Consider pneumonitis in any patient developing acute breathlessness without an obvious cause. All patients on DMARDs, with the exception of those on hydroxychloroquine, need to be monitored for complications of the bone marrow, kidney, and liver. Recently updated guidance simplifies blood monitoring protocols,[33] however monitoring schedules vary for individual patients depending on co-morbidities.

In the early stages of inflammatory arthritis, NICE recommends that patients are reviewed by a specialist approximately monthly.

Minor changes in blood test results are common and usually do not require an adjustment in DMARD dose. British Society for Rheumatology guidelines recommend discussing any notable new abnormalities with the rheumatology unit either urgently or within one working day. Inform the rheumatology unit if DMARDs are discontinued.

How to adapt routine care for those taking DMARDS

Infection—latest guidelines advise that patients stop most DMARDs if they have severe infections involving admission to hospital and/or requiring parenteral antibiotics.[33] In view of the serious interaction of trimethoprim with methotrexate, these drugs should not be co-prescribed.

Prevention—offer influenza and pneumococcal immunisation to all patients taking DMARDs due to the increased risk and severity of these infections through immunosuppression. Hepatitis B vaccination should be offered to high risk groups, ideally before starting DMARDs. Discuss vaccination for shingles (which is usually recommended) with specialists.[43 44] Avoid other live vaccines.

Surgery—DMARDs do not need to be stopped routinely when patients undergo surgery.[33]

What other aspects of patient care need attention?

Patients often suffer profound fatigue, sleep disturbance, and problems with joint function in addition to joint symptoms.[45 46] Psychological problems have also been identified in approximately 20% of patients.[47 48]

How should flares be managed?

Flares can occur at any time and most patients will experience at least one flare within a three year period.[51] Flares are usually managed in the short term with corticosteroids (usually intramuscular or intra-articular) but also with escalation of DMARD treatment so refer patients back to rheumatology. Frequent flares lead to more joint damage and disability.[52]

What is the prognosis for patients with inflammatory arthritis?

Modern treatments are very effective in controlling joint inflammation and this can translate into improved survival; emerging epidemiological evidence suggests that recently diagnosed cohorts might have no excess mortality.[54]

Ask about a patient's ability to work (where relevant) and their mental health, in line with national initiatives. Supply fit notes and make referrals to occupational health teams when required.[57 58]

Since 2014, NHS Rheumatology services in England and Wales participated in the National Clinical Audit for Rheumatoid and Early Inflammatory Arthritis. The key messages from this audit are that patients wait too long for referral and specialist assessment, leading to delays in treatment.

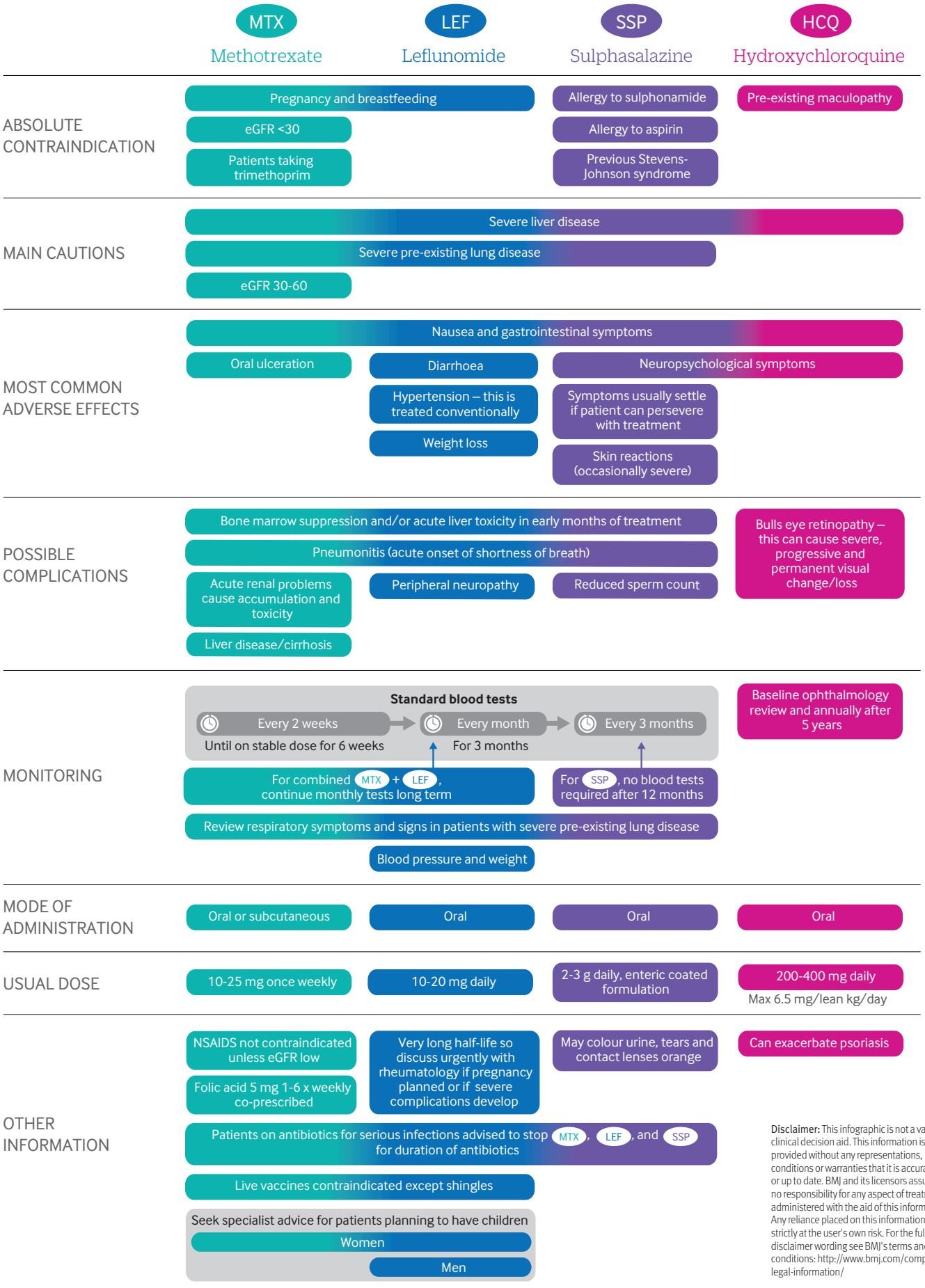
Competing interests: None declared.

Cite this as: *BMJ* 2017;358:j3248

Find the full version with references at http://dx.doi.org/10.1136/bmj.j3248

EDUCATION INTO PRACTICE

- How would you assess whether patients in your practice with symptoms suggestive of inflammatory arthritis are being referred to a rheumatologist within the three working days recommended by NICE? What might the barriers be?
- Before reading this article, did you know about the other symptoms that patients with inflammatory arthritis experience, such as profound fatigue and sleep disturbance? How might you address these with your patients?
- How familiar are you with requirements for DMARD monitoring? What systems do you have in place to monitor results before issuing DMARD prescriptions? Are there any changes you might make?



Disease modifying anti-rheumatic drugs (DMARDs) for symptoms of inflammatory arthritis

Investigating palpitations: the role of Holter monitoring and loop recorders

Charbel Abi Khalil,[1 2 3] Fadi Haddad,[4] Jassim Al Suwaidi[1 3]

[1]Department of medicine and genetic medicine, Weill Cornell Medicine-Qatar, Doha, Qatar
[2]Department of medicine and genetic medicine, Weill Cornell Medicine, New York
[3]Adult cardiology department, Heart Hospital, Hamad Medical Corporation, Doha, Qatar
[4]Hôtel-Dieu de France medical center, Saint-Joseph University, Beirut, Lebanon

Correspondence to: Charbel Abi Khalil cha2022@med.cornell.edu

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

0.5 HOURS

See http://learning.bmj.com for linked learning module

A 62 year old man complains of palpitations four times in the last week. He felt his heart beating very quickly and was short of breath. Symptoms were variable in their timing and duration; however two episodes followed alcohol intake. On direct questioning, he did not have chest pain or syncope. He is on amlodipine for hypertension. On examination, his blood pressure is 160/90 mm Hg; his heart rate is regular at 82 beats/min. Heart sounds and respiratory examination are normal.

Palpitations are a common presentation in primary care and can be distressing. In a patient presenting with palpitations, note the type and severity of symptoms, the timing of palpitations, and comorbid medical conditions. Suggestions for history and examination are in box 1.

There is a lack of robust data on possible aetiology in patients presenting with palpitations to primary care. In a prospective evaluation of 184 patients referred to a cardiac clinic for palpitations, around one third were diagnosed with arrhythmias. The remainder experienced stress related symptoms and had either extrasystoles or an awareness of sinus rhythm.[4] In a prospective study in 190 patients presenting with palpitations to a tertiary medical centre in the United States, 43% received a cardiology and 31% a psychiatric cause of their palpitations[5]; the remaining participants were found to have non-cardiac aetiologies.

WHAT YOU NEED TO KNOW

- Palpitations are a common presentation in primary care, but more than half of cases are harmless (eg, extrasystoles)
- Assess frequency and severity of symptoms, perform a physical examination and a 12 lead resting electrocardiogram (ECG), and order blood tests
- Offer Holter monitoring to patients if the resting ECG is normal, and adapt its duration to the frequency of symptoms

What is the next investigation?

Basic tests

Initial blood tests might include a full blood count, thyroid, and kidney function tests, blood sugars, and electrolytes. These tests give an indication of common metabolic causes of arrhythmias. Hyperthyroidism and thyrotoxicosis have been associated with atrial fibrillation and ventricular arrhythmias.[6] Electrolyte imbalance (calcium, potassium, and sodium) and kidney failure can predispose to arrhythmias.

To investigate possible cardiac causes, offer to perform a 12 lead electrocardiogram (ECG). Many common arrhythmias such as atrial fibrillation/flutter and atrioventricular blocks can be readily diagnosed on analysis of the resting ECG results. Additionally, predisposing arrhythmogenic conditions can also be detected, such as abnormalities of repolarisation, a short PR interval, and a long QT.[7] Most patients are in sinus rhythm when the ECG is done; however this does not exclude the presence of an arrhythmia.

Holter monitoring

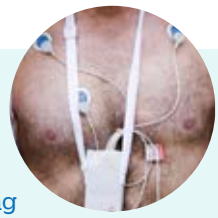
A Holter monitor is a portable battery operated device typically fixed to the patient's belt or hung around the neck. It continuously records ECG results from two or three leads using electrodes on the skin for 24 hours, 48 hours, or up to two weeks with newer devices.[8]

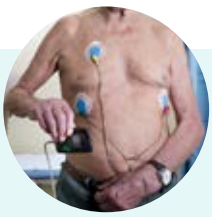
Guidelines from the American College of Cardiology (ACC)/American Heart Association (AHA) recommend Holter monitoring in patients with palpitations and syncope (in any groups), near syncope (episodic dizziness or lightheadedness in patients with known cardiac disease), and recurrent palpitations[9] if the resting ECG is normal.

The duration of monitoring is determined by the frequency of palpitations.[9] For patients who experience daily symptoms, a 24 hour Holter monitor is adequate, whereas 48 hour recording is advisable for near daily symptoms. Seven day monitoring is required for patients with infrequent weekly symptoms. Patients might be asked to keep a diary of their symptoms to improve correlation with abnormalities in heart rhythm.

Cardiologists analyse the output of Holter monitoring using specific software and write a report. Typically, the following parameters are given in the report:

- Heart rate (maximal, minimal, and average)
- Frequency of atrial and ventricular extrasystoles
- RR interval
- Changes in ST segment





Device type	Holter monitoring	External loop recorders	Implantable loop recorders
Frequency of symptoms	Daily, near-daily	Weekly	Rare (almost monthly)
Recording time	24 hours, 48 hours or one week	Up to four weeks	Up to three years
Availability and cost	Usually available in primary and secondary care. Less expensive	Available only in specialised cardiac centres. More expensive than Holter monitoring	Available only in specialised cardiac centres More expensive compared with other monitoring strategies
Patient convenience/ practicality	Non-invasive. No action needed from the patient	Non-invasive. Patients need to activate the recorder when symptoms occur	Minimally invasive procedure
Use and limitations	Suitable for patients with frequent symptoms.Limited recording capacity	Higher likelihood of detecting arrhythmias due to prolonged monitoring. Not suitable for syncope or in other conditions when patients cannot activate the device. ECG data can be transmitted continuously over wireless network to a remote monitoring system for evaluation	Minimally invasive procedure. Both automatic and patient activation methods supported

Ambulatory devices for electrocardiogram (ECG) monitoring

- Arrhythmias if any
- Representative samples of the ECG tracing at different times during the recording.

Holter monitoring can be used for several prognostic and diagnostic purposes, for example in known cardiac patients with an increased risk of arrhythmia and in some neurology patients. It is also used to monitor the progress of those with known arrhythmia. Box 2 outlines these uses.

Other ambulatory monitoring options

If initial Holter monitoring records no arrhythmia, a second monitoring is not recommended. Instead, loop recorders that allow longer monitoring than Holter devices should be considered. The table lists key features of these devices.

Guidance from the ACC/AHA, the European Society of Cardiology, and the National Institute for Health and Care Excellence recommends monitoring with loop recorders in patients with recurrent episodes of syncope or palpitations where a cardiac cause is suspected, and where the 12 lead ECG and Holter monitoring have not established a diagnosis. Evidence suggests greater diagnostic yield with longer monitoring offered by these devices; however information on patient acceptability and impact on clinical outcomes is lacking.

Two types of loop recorder are used: external loop recorders and implantable loop recorders.[14] These are both usually available in specialist centres or secondary care. The decision to perform one or another is driven mainly by frequency of symptoms, ability of the patient to trigger the recording, and availability of the device.[15]

Box 1 | What to consider in history and examination for palpitations

Frequency and regularity—Palpitations that last for a few seconds and occur randomly and episodically are often due to premature beats. Rapid and irregular palpitations are commonly reported in atrial fibrillation

Associated symptoms—Ask about dizziness and loss of consciousness, which might suggest idiopathic ventricular tachycardia in patients with structurally normal hearts[1]

Precipitating factors—Ask if palpitations are precipitated by exercise or substances such as caffeine, alcohol, or cocaine. Supraventricular arrhythmias can be induced by exercise and might occasionally appear at the end of intense physical activity[2]

Comorbid medical conditions—A coexisting psychiatric illness might indicate the likelihood of anxiety, whereas a history of heart disease might suggest arrhythmias

Cardiovascular examination—Murmurs or abnormal heart sounds might reveal valvular or structural heart disease. Look for signs of congestive heart failure[3]

Box 2 | Indications of Holter monitoring to detect arrhythmias in patients without palpitations or syncope

High risk cardiac patients such as those with recent myocardial infarction and a low left ventricular ejection fraction, hypertrophic cardiomyopathy, arrhythmogenic right ventricular cardiomyopathy, or congenital heart disease[10 11]

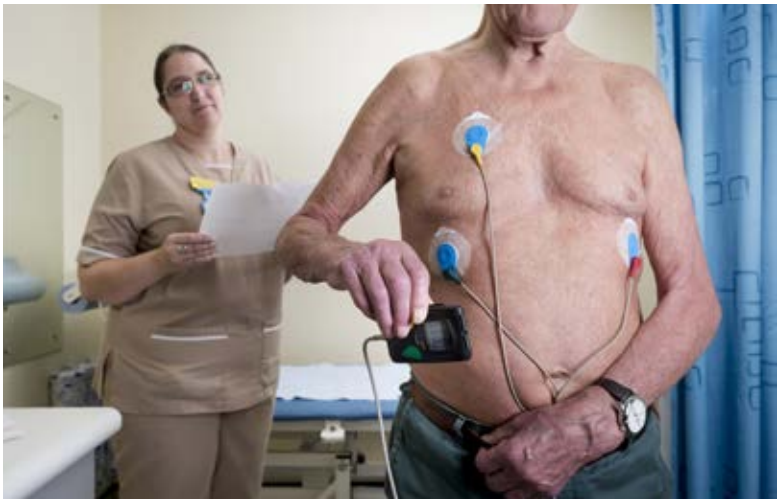
Monitoring of previously diagnosed arrhythmias after treatment or intervention

Detection of occult atrial fibrillation in patients presenting with stroke of uncertain aetiology[12]

Monitoring rate control in patients with treated atrial fibrillation[13]

Detection of new onset arrhythmias in selected patients under pro-arrhythmogenic drugs

Patients with pacemakers or implantable cardioverter defibrillators where dysfunction is suspected, especially when new symptoms such as syncope or palpitations appear


SPL

External loop recorders, also called cardiac event recorders, can be helpful for infrequent palpitations with up to four weeks between symptoms. The recorder can be activated by the patient when symptoms occur, but newer devices can monitor continuously. Prospective studies in patients with palpitations show that the likelihood of diagnosing an arrhythmia with longer monitoring using an external loop recorder ranged from 66% to 83% as compared with ~39% with 48 hour Holter monitoring.[15 16] However, these results should be viewed with caution in the absence of a meta-analysis including head to head comparison of both devices.

Personal mobile technology is increasingly used to perform external loop monitoring. Patients can obtain a recording by attaching a device to their smartphone and resting their fingers on the monitor when symptoms occur. Immediate interpretation is possible using an application downloaded from the internet.

Implantable loop recorders are pen drive sized devices inserted under the skin and are capable of recording events for as long as three years. They are of value in patients with infrequent unexplained syncopes, and allow correlation to a potential arrhythmia. In an observational study of 85 patients with unexplained syncope and normal 24 hour ambulatory or in-hospital ECG monitoring, an implantable loop recorder was able to detect arrhythmia in 42% of the patients during a mean period of 10.5 months.[17] There were no sudden deaths during follow-up however, which questions use of this costly and invasive monitoring. These findings were recently confirmed by a systematic review of four randomised studies in 579 adults with unexplained syncope.[18] These recorders led to higher rates of diagnosis compared with conventional monitoring, which included physician follow-up or use of external loop recorders. However, there was no evidence of a difference in long term mortality or quality of life in the two groups.

Although the diagnostic yield of an external loop recorder might be lower than implantable loop recorders, external loop recorders are preferred as a first approach.

Longer term monitoring with external loop recorders is more likely to diagnose an arrhythmia than 48 hour Holter monitoring

When to refer

Consider urgent or immediate referral

Refer patients with palpitations to a cardiology clinic if any of these are present:

- A history of cardiac disease or premature death in the family, or
- an abnormal resting 12 lead ECG or
- palpitations associated with occasional chest pain, syncope, or lightheadedness.

Immediate referral to the emergency department is advised in patients with persistent chest pain, symptoms of congestive heart failure, or injury caused by a loss of consciousness.

Evaluate in primary care

In all other circumstances, evaluate the patient in primary care as described above. Patients with palpitations are often unnerved by irregular heartbeats and have concerns that their heart could stop at any moment. In patients with a normal resting ECG, explain that monitoring for a longer duration might be needed to detect abnormalities in heart rhythm that could be causing episodic symptoms. Offer Holter monitoring for a duration adapted to the frequency of symptoms.

In most patients who have a normal physical examination and resting ECG and no history or suspicion of cardiac disease the Holter report might show extrasystoles or sinus tachycardia. Reassure the patient that these are unlikely to be serious.

A secondary referral to a cardiologist is advised when an arrhythmia or a severe conduction disorder is detected on Holter monitoring. Common conditions include atrial fibrillation and flutter, atrial tachycardia, atrioventricular nodal re-entrant tachycardia, ventricular tachycardia, second or third degree atrioventricular blocks, a long QT interval, and a long RR interval.

Competing interests: None declared.

Cite this as: *BMJ* 2017;358:j3123

Find the full version with references at http://dx.doi.org/10.1136/bmj.j3123

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

A patient with arrhythmia who has had monitoring with Holter and loop recorders reviewed this paper. She agrees it is important to stress that not all arrhythmias can be detected on typical Holter recording, and further monitoring with loop recorders might be needed. She also shared how some patients might not like to wear such a monitor, particularly for extended periods of time. In response to her comments, we shared more information on these devices and specific indications for their use, which the general practitioner might discuss with their patients.

EDUCATION INTO PRACTICE

- Think about the last time you referred a patient presenting with palpitations to a specialist without asking for a Holter monitor first. How frequently were they suffering from extrasystoles or panic attacks that could have been managed in primary care?
- Have you had patients inquire about Holter monitoring? How would you explain to them about the test, when it is to be used, and the results?

CASE REVIEW

An uncommon right iliac fossa mass in an older woman

A 74 year old woman was referred to the general surgery clinic after she found a lump in her lower abdomen, which she had noticed 4-5 weeks previously. She also reported a feeling of not completely emptying her bowels, and reduced frequency of bowel opening.

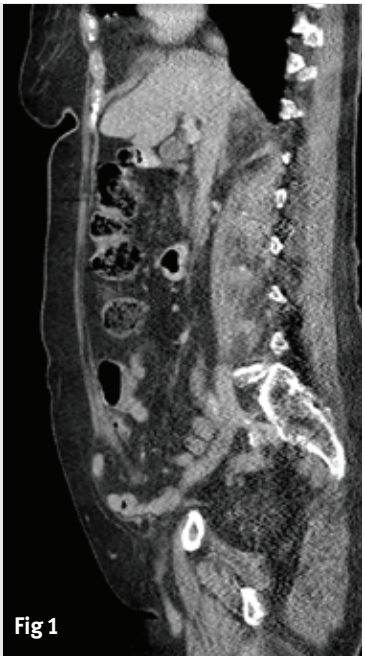


Fig 1

She had noticed no blood or mucus in the toilet bowl, and had not had abdominal pain, lower urinary tract symptoms, or vaginal discharge. She had lost two stone (12.7 kg) in weight over a few months, but she attributed this to a recent diagnosis of diabetes mellitus. Her surgical history was a total abdominal hysterectomy and bilateral salpingo-oophorectomy in 1996 for menorrhagia. On examination, she had a large non-tender soft swelling in the right iliac fossa but no evidence of inguinal, femoral, or pfannenstiel incisional hernia. Blood tests were unremarkable, and a colonoscopy identified only mild diverticular disease. A computed tomography (CT) scan of her abdomen and pelvis was taken (fig 1).

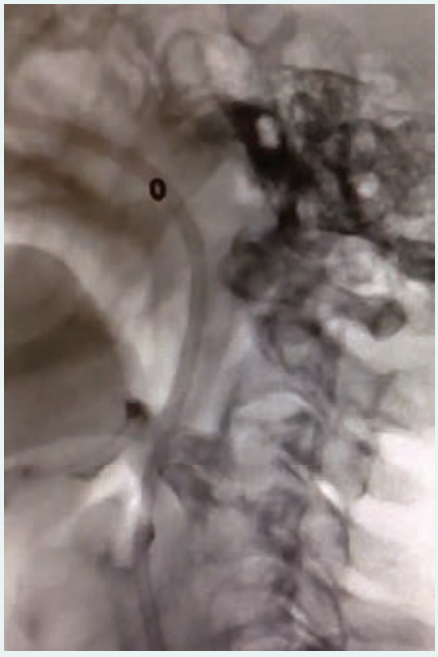
1 What is the differential diagnosis?
2 How is this diagnosis defined by the anatomy of the abdominal wall?
3 What are the treatment options?

Submitted by Thomas H Newman, Eline A Caine, Kathryn Lynes, Joseph Sebastian

Patient consent obtained.

Cite this as: *BMJ* 2017;358:j3279

If you would like to write a Case Review for Endgames, please see our author guidelines at http://bit.ly/29HCBAL and submit online at http://bit.ly/29yyGSx



SPOT DIAGNOSIS

Dysphagia and choking in an older man

An 87 year old man presented with a one year history of difficulty swallowing, with episodes of choking and aspiration that progressively increased in frequency. Laryngeal examination showed extra luminal obstruction from behind. Lateral radiograph of the neck and computed tomogram of the cervical spine were taken. A video fluoroscopic swallow study was also performed (above). What is the diagnosis?

Submitted by Tun Hing Lui Patient consent obtained.

Cite this as: *BMJ* 2017;358:j3344

answers

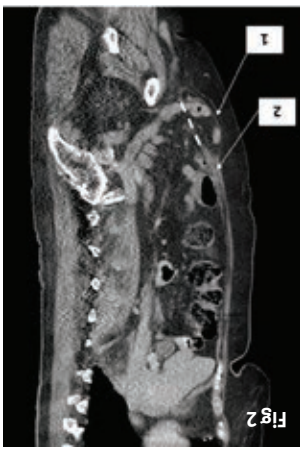


Fig 2

CASE REVIEW

An uncommon right iliac fossa mass in an older woman

1 This is a Spigelian hernia. The differential diagnoses include alternative abdominal wall hernias (eg, incisional, paraumbilical) and soft tissue lesions (eg, lipoma, abdominal wall tumour). Spigelian hernias commonly present without a mass.
2 A Spigelian hernia is the protrusion of an abdominal viscus, peritoneum, or preperitoneal fat through a defect in the Spigelian aponeurosis, located between the rectus abdominis medially and the semilunar line laterally (fig 2: 1. Herniał sac containing bowel. 2. Right rectus abdominis. Neck of the hernia indicated by dotted line).
3 Management is either conservative or surgical, with both open and laparoscopic techniques being well established.

SPOT DIAGNOSIS

Dysphagia and choking in an older man

Dysphagia secondary to oesophageal compression by anterior cervical osteophytes.

CPD READING
0.5 HOURS

You can record CPD points for reading any article. We suggest half an hour to read and reflect on each.

LEARNING MODULE

Articles with a "learning module" logo have a linked BMJ Learning module at http://learning.bmj.com.

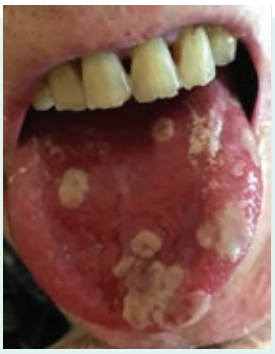
Oral lesions in an immunocompromised patient

A 79 year old man receiving palliative care for squamous lung cancer developed white, circular, plaque like lesions on his tongue (right). These were painful and associated with a reduced sense of taste, which contributed to the man's poor appetite and weight loss. Initial treatment for oral candidiasis was unsuccessful. Oral swabs were positive for herpes simplex virus type 1 with a raised viral load. The patient was treated with oral valaciclovir and his oral lesions and associated symptoms of pain and anorexia resolved after six days of treatment. Oral infections are common in immunocompromised patients and it is important to consider differential diagnoses and appropriate testing to provide effective, targeted treatment. This can lead to substantial improvements in pain, wellbeing, and quality of life.

Rosie Simms (rosie.simms@doctors.org.uk); Catherine Doherty; Clare White, Northern Ireland Hospice, Belfast, Northern Ireland

Patient consent obtained

Cite this as: *BMJ* 2017;358:j3193



STEPHANIE GRIMES stephaniegrimes@doctors.org.uk

Botanical sources of levodopa

Several plants, including the broad bean, contain appreciable quantities of levodopa. A randomised controlled trial (*Neurology* doi:10.1212/WNL.0000000000004175) investigated whether the powdered seeds of one of them, *Mucuna pruriens*, had a worthwhile effect in people with Parkinson's. The researchers hoped it might be a source of the drug for people too poor to buy tablets. Although a single dose was as effective in relieving motor symptoms at 90 and 180 minutes as standard preparations of levodopa, the trial produced no data about longer term benefits or harms.

Bullying among teenagers

Cyberbullying involves repeated personal attacks using instant messaging, social media, emails, and text messages. The fact it can be anonymous makes it particularly unpleasant. However, a large questionnaire survey of 15 year olds in England finds that, on its own, cyberbullying is rare (*Lancet Child Adolesc Health* doi: 10.1016/S2352-4642(17)30011-1). It seems mainly to be used as an extra way to pick on people who are already being victimised.

Obesity and epilepsy

Linking data from the Swedish birth registry with a national patient registry revealed that the risk of epilepsy in children was higher in those whose mothers had been overweight or obese during pregnancy (*JAMA Neurol* doi:10.1001/jamaneurol.2016.6130). The association showed a dose-response relation and could not be accounted for by complications related to obesity in pregnancy or in the neonatal period. Here is yet another reason to help young women avoid becoming overweight.

Failure of the imagination

The need to invent kinder and more accurate names for heart failure was pointed out long ago. As it stands, the term is almost meaninglessly broad, covering everything from an asymptomatic reduction in ejection fraction to acute pulmonary oedema. Patients, understandably enough, dislike "failure" as a label for their condition and often interpret it too pessimistically. An essay (*Postgrad Med J* doi: 10.1136/postgradmedj-2017-135118) calls our inability to come up with something better a failure of imagination.

Delayed puberty

The definition of delayed puberty is statistical—lack of sexual maturation by an age 2 standard deviations or more above the population mean—so it's inevitable that 2.5% of children experience it. A review in *Paediatrics* (*Paediatrics* doi: 10.1542/peds.2016-3177) struggles to find any serious long term consequences. Inconsistent evidence that delayed puberty might carry an increased risk of metabolic and cardiovascular disorders is balanced by hints of a protective effect against breast and endometrial cancer in women and testicular cancer in men.

Citation bias

Publication bias—the tendency for positive results to be written up and published while negative results remain unavailable—is a well known distorting influence on the scientific record. Its close cousin, citation bias, is just as bad. A meta-analysis finds that articles with statistically significant results are cited nearly twice as often as articles with non-significant results (*J Clin Epidemiol* doi:10.1016/j.jclinepi.2017.06.002). Minerva is ashamed to learn that citation bias was more prominent in the biomedical sciences than in any other scientific discipline.

Screen time

It's not surprising that sedentary activities such as watching television or using computers or playing video games are associated with adiposity. Even so, the findings of a cross sectional survey of UK schoolchildren are depressing (*Arch Dis Child* doi:10.1136/archdischild-2016-312016). Strong relations between the amount of time spent looking at a screen and markers of risk for type 2 diabetes, particularly insulin resistance, are already apparent at the age of 9 to 10.

Cite this as: *BMJ* 2017;358:j3518