Routine stress testing after PCI

If I ever need a percutaneous coronary intervention (PCI) for coronary artery disease, I think I’d be pleased at the offer of a stress test a year later to make sure everything was tickety-boo. Unfortunately, although this might make me more likely to have another angiogram or further revascularisation, it doesn’t seem to make any difference to the chances of me dying, having a myocardial infarction, or being admitted to hospital for unstable angina in the following year.

That’s according to a randomised controlled trial of 1706 high risk patients undergoing PCI who were allocated to usual care or a stress test (nuclear stress testing, exercise electrocardiography, or stress echocardiography) a year later. The authors argue that the study demonstrates the benefits of a “less is more” approach: “if more invasive strategies or testing are performed less frequently, it will result in better patient outcomes,” they say.

Who wants a brew?

Coffee drinking health stories seem to get all the attention, so here’s something for those who prefer a nice cup of tea. A prospective cohort study of almost 500,000 people from the UK Biobank has found a small association between tea drinking and reduced all-cause mortality risk over an 11 year follow-up. Even heavy tea drinkers seem to do well: relative to no tea drinking, the hazard ratio of drinking 10 or more cups of tea per day was 0.89 (95% confidence interval 0.84 to 0.95). Better put the kettle on.

Will a medical scribe make you more efficient?

One of the things I’ve always wished for (safe in the knowledge that it’ll never happen) is a medical scribe: if only there was someone here with me who could document the consultation, write those referral letters, and maybe even reply to some emails, I’d be free to see more patients and reach the holy grail of unused appointment slots and a mid-morning coffee break.

Rudely awakening me from this dream is a study from a hospital in Oregon, where scribes are available to physicians at their request. They found that the time from clinician encounter to signing the medical record for that encounter was longer for physicians using scribes, and being allocated a scribe didn’t reduce medical record closure times. But I’m not going to give up on my dream.

The study showed being allocated a scribe didn’t reduce medical record closure times

so easily: this was a different setting, using endpoints that don’t tell the whole story, and with various possible confounders that could account for the results.

State of GRACE 2.0

There are so many risk scoring systems in use these days that it’s hard to keep up with their various pros and cons. For patients diagnosed with unstable angina or a non-ST-elevation myocardial infarction, NICE recommends GRACE (Global Registry of Acute Cardiac Events) as an example of an established risk scoring system that predicts six month mortality and which can be used to guide management.

A new evaluation of the GRACE 2.0 score in over 400,000 consecutive patients with non-ST-elevation acute coronary syndrome in the UK and Switzerland finds that it doesn’t perform as well in female patients compared with male patients. Researchers found an “underestimation of in-hospital mortality risk in female patients, favouring their incorrect stratification into the low-to-intermediate risk group (GRACE risk ≤3%) in which the score indicates to withhold early invasive treatment.” The redeveloped machine learning based GRACE 3.0 has, say the authors, corrected this and now “shows excellent discrimination and good calibration.”

SGLT2 inhibitor impact for any severity of heart failure

This new meta-analysis of two trials of SGLT2 inhibitors in people with heart failure with mildly reduced or preserved ejection fractions gives them a big thumbs up as “foundational therapy for heart failure, irrespective of ejection fraction or care setting.” It found reduced risks of cardiovascular death, first hospital admission, and all-cause mortality (hazard ratios of 0.87, 0.72, and 0.92, respectively).

Although the analysis is unfunded, the declaration of interests statement for the study comes in at 622 words (nearly as long as this whole page), and there are question marks over the generalisability of the studies included in the meta-analysis, where women were under-represented and only 3.4% of the participants were black.

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FROM THE JOURNALS  Edited highlights of weekly research reviews

Tom Nolan, clinical editor, The BMJ, London; sessional GP, Surrey
GUIDELINES
Gout: diagnosis and management—summary of NICE guidance
Julie Neilson,1 Alexandra Bonnon,1 Alastair Dickson,2 3 Edward Roddy,4 5 on behalf of the Guideline Committee

Guidance on urate lowering therapies (ULTs) focuses on the diagnosis and management of gout.

Gout is a painful and debilitating condition with long term complications, including joint damage and renal stones. Although gout flares are often treated with NSAIDs, colchicine, or steroids, those with gout often continue to have flares which could have been prevented with lifestyle modification or urate lowering medication. However, only a third of people with gout receive urate lowering therapies (ULTs), and only a third of those have their serum urate level managed effectively. Only a third of people with gout receive urate lowering therapies, and only a third of those have their serum urate level managed effectively.

This article summarises the recommendations from the new National Institute for Health and Care Excellence (NICE) guideline, focusing on the diagnosis and management of gout. NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. Evidence levels for the recommendations are in the full version of this article on bmj.com.

Diagnosis and assessment
Most people with gout receive a clinical diagnosis in primary care, confirmed by clinical investigation.

Signs and symptoms
- Suspect gout in people presenting with any of the following:
  - Rapid onset (often overnight) of severe pain together with redness and swelling, in one or both first metatarsophalangeal (MTP) joints
  - Tophi.
- Consider gout in people presenting with rapid onset (often overnight) of severe pain, redness, or swelling in joints other than the first MTP joints (for example, midfoot, ankle, knee, hand, wrist, elbow).
- Assess the possibility of septic arthritis, calcium pyrophosphate crystal deposition, and inflammatory arthritis in people presenting with a painful, red, swollen joint.
- If septic arthritis is suspected, refer immediately according to the local care pathway.
- Consider chronic gouty arthritis in people presenting with chronic inflammatory joint pain.
- In people with suspected gout, take a detailed history and carry out a physical examination to assess the symptoms and signs (see the first recommendation).

Diagnosis
- Measure the serum urate level in people with symptoms and signs of gout to confirm the clinical diagnosis (serum urate level ≥360 μmol/L (6 mg/dL)). If serum urate level is <360 μmol/L during a flare and gout is strongly suspected, repeat the serum urate level measurement at least two weeks after the flare has settled.
- Consider joint aspiration and microscopy of synovial fluid if a diagnosis of gout remains uncertain or unconfirmed.
- Consider imaging the affected joints with radiography, ultrasound scanning, or dual energy computed tomography (CT).

Recommendations

WHAT YOU NEED TO KNOW
- Urate lowering therapy (ULT) should be given using a treat-to-target management strategy (aiming for a serum urate level <360 μmol/L (6 mg/dL)) to provide therapeutic cure.
- People without a major cardiovascular disease can be offered either allopurinol or febuxostat as first line treatment.
- Explain to people that treatment is lifelong.
- Consider annual monitoring of serum urate level in people who are continuing ULT.

Further information about the guidance, a list of members of the guideline development group, and the supporting evidence statements are in the full version on bmj.com.
Treat-to-target with ULTs is considered best practice, compared with only treating symptoms

Information and support
People with gout (and their families and carers) require information and support to understand their condition and provide self-management options.

- Provide tailored information to people with gout and their family members or carers (as appropriate) at the time of diagnosis and during subsequent follow-up appointments.
- Explain:
  - The symptoms and signs of gout
  - The causes of gout
  - That the disease progresses without intervention because high levels of urate in the blood lead to the formation of new urate crystals
  - Any risk factors for gout they have, including genetics, excess body weight or obesity, medicines they are taking, and comorbidities such as chronic kidney disease (CKD) or hypertension
  - How to manage gout flares and the treatment options available
  - That gout is a lifelong condition that benefits from long term urate lowering therapy (ULT) to eliminate urate crystals and prevent flares, shrink tophi, and prevent long term joint damage
  - Where to find other sources of information and support such as local support groups, online forums, and national charities.

Treatment for gout flares
Recurrent flares are a common manifestation of gout, which can be severely painful and sudden in onset. Treatment is required to provide rapid relief.

- Offer a non-steroidal anti-inflammatory drug (NSAID), colchicine, or a short course of an oral corticosteroid for first line treatment of a gout flare, taking into account the person’s comorbidities, co-prescriptions, and preferences.
- Consider adding a proton pump inhibitor for people with gout who are taking an NSAID to treat a gout flare.
- Consider an intra-articular or intramuscular corticosteroid injection to treat a gout flare if NSAIDs and colchicine are contraindicated, not tolerated, or ineffective.

Diet and lifestyle
- Explain to people with gout that there is not enough evidence to show that any specific diet prevents flares or lowers serum urate levels. Advise them to follow a healthy, balanced diet.
- Advise people with gout that excess body weight or obesity, or excessive alcohol consumption, may exacerbate gout flares and symptoms.

Management of gout with urate lowering therapies
Gout is a long term condition in which an elevated serum urate level leads to monosodium urate crystal formation, and consequently recurrent flares of severe joint pain and inflammation, tophi, and chronic arthritis. Urate lowering therapy suppresses the serum urate level, prevents formation of new monosodium urate crystals and dissolves existing crystal deposits, causing gout flares to cease, tophi to shrink, and prevents long term joint damage.

The committee noted that treatment with urate lowering therapy (ULT) for gout is suboptimal, with only around a third of people with gout receiving ULT. Treat-to-target with ULTs is considered best practice, compared with only treating symptoms.

Febuxostat was found to be more effective than allopurinol at reducing flares and lowering serum urate, but allopurinol was found to have fewer adverse events.

- Offer ULT, using a treat-to-target strategy, to people with gout who have:
  - Multiple or troublesome flares
  - Chronic kidney disease (CKD) stages 3 to 5 (glomerular filtration rate (GFR) categories G3 to G5)
  - Diuretic therapy
  - Tophi
  - Chronic gouty arthritis.

- Discuss the option of ULT, using a treat-to-target strategy, with people who have had a first or subsequent gout flare who are not within the groups listed above.

- Offer either allopurinol or febuxostat as first line treatment when starting treat-to-target ULT, taking into account the person’s comorbidities and preferences.

- Offer allopurinol as first line treatment to people with gout who have major cardiovascular disease (for example, previous myocardial infarction or stroke, or unstable angina).

- Aim for a target serum urate level <360 μmol/L (6 mg/dL).

- Start with a low dose of ULT and use monthly serum urate levels to guide dose increases, as tolerated, until the target serum urate level is reached.

- Ensure people understand that ULT is usually continued after the target serum urate level is reached and is typically a lifelong treatment.

- Start ULT at least two to four weeks after a gout flare has settled. If flares are more frequent, ULT can be started during a flare.

- Consider annual monitoring of serum urate level in people with gout who are continuing ULT after reaching their target serum urate level.

Preventing gout flares when starting or titrating urate lowering therapy
- Discuss with the person the benefits and risks of taking medicines to prevent gout flares when starting or titrating ULT.

- For people who choose to have treatment to prevent gout flares when starting or titrating ULT, offer colchicine while the target serum urate level is being reached. If colchicine is contraindicated, not tolerated, or ineffective, consider a low dose NSAID or a low dose oral corticosteroid.

Referral to specialist services
- Consider referring a person with gout to a rheumatology service if:
  - The diagnosis of gout is uncertain
  - Treatment is contraindicated, not tolerated, or ineffective
  - They have CKD stages 3b to 5 (GFR categories G3b to G5)
  - They have had an organ transplant.

Competing interests: See bmj.com.
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Find the full version with references at http://dx.doi.org/10.1136/bmj.o1754

GUIDELINES INTO PRACTICE
- When and how will you offer treat-to-target urate lowering therapy (ULT) to people with the aim of achieving a target serum urate level <360 μmol/L?
- How will you provide annual monitoring of serum urate level for people with gout who are continuing ULT?
Urate lowering therapy (ULT) suppresses serum urate level, prevents formation of new monosodium urate crystals, and dissolves existing crystal deposits. This can cause gout flares to cease, tophi to shrink, and prevent long term joint damage. This graphic summarises the recommendations from the 2022 National Institute for Health and Care Excellence (NICE) guideline, focusing on ULTs.

**Who have:**
- Multiple or troublesome flares
- Chronic kidney disease (Stages 3 to 5)
- Tophi
- Diuretic therapy
- Chronic gouty arthritis

**Who have:**
- First or subsequent gout flare
- Not within the groups listed to the left

**Offer ULT**

**Consider ULT**

**Long term treatment**

**First line treatment**
- Offer either allopurinol or febuxostat

**Second line treatment**
- Consider switching to allopurinol or febuxostat

**Timing**
- Start ULT at least 2 to 4 weeks after a gout flare has settled
- If flares are more frequent, ULT can be started during a flare

**Monitoring**
- Consider annual monitoring of serum urate level in people who are continuing ULT after reaching their target serum urate level

**Consider rheumatology referral if treatment is contraindicated, not tolerated or ineffective**

**Offer colchicine**
- While target serum urate level is being reached

**Contraindications**
- If colchicine is contraindicated or not suitable:
  - Consider a low dose NSAID
  - Consider a low dose oral corticosteroid

**In June 2022, this was an off-label use of NSAIDs and corticosteroids**

**Also consider adding a proton pump inhibitor**
- Taking into account individual risk factors for adverse events

**Do not offer an IL-1 inhibitor unless NSAIDs, colchicine, and corticosteroids are unsuitable or ineffective**

**Refer to rheumatology before prescribing**

**Treatment choice**

**Febuxostat**
- Target serum urate levels likely to be achieved quicker
- Fewer appointments required to up-titrate as there are only two doses which are given

**Allopurinol**
- Fewer adverse events
- May be cheaper in subsequent years after the first, depending on the proportion of people receiving different doses of the two drugs
- Should be offered first line to people who have major cardiovascular disease

**Target serum urate level**

- **Aim for below 360 micromol/litre (6 mg/dL)**
- Consider below 300 micromol/litre (5 mg/dL)
  - for: Tophi or chronic gouty arthritis
  - Ongoing frequent flares despite serum urate level below 360 micromol/litre (6 mg/dL)

**Consider rheumatology referral if diagnosis of gout is uncertain**

**Consider rheumatology referral if they have had an organ transplant**

**Discuss benefits and risks of treatment**

**Progression**
- Explain that the disease commonly progresses without intervention because high levels of urate in the blood form new urate crystals

**Timescale**
- Explain that gout is a lifelong condition that will benefit from long term treatment

**Side effects**
- Discuss the risks of taking medicines to prevent gout flares when starting or titrating ULT

**Preventing gout flares when starting ULT**

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Despite widespread use of mobile devices for medical photography, there is a distinct lack of published resources offering technical and practical advice to help clinicians and patients take images of a suitable quality for clinical use. Since covid-19, however, specialties such as dermatology and wound care now consider photographs a mandatory part of the referral pathway, and a basic understanding of medical photography principles has quickly become a requirement for many clinicians.

Similarly, many patients now send images to their healthcare provider as part of a “virtual consultation.” Clinicians need to understand not only how to take good medical photographs in the consulting room, but also how to support their patients to do this remotely.

**WHAT YOU NEED TO KNOW**

- Covid-19 has accelerated the use of medical photography, with many specialist services requesting it as part of the referral process
- Poor quality images may lead to misinterpretation and a delay in diagnosis or treatment, but training in medical photography for clinicians and patients is limited
- Ways to improve the quality of images captured with mobile devices include taking both overview and close-up images, increasing light, and holding devices at an appropriate distance from the subject.

**HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE**

A patient co-author (MT) provided insight on concerns and perceptions having previously had medical photographs taken. He was able to provide substantial contributions to the patient photography resources created for clinicians to share with patients.

**PRACTICE POINTER**

A good medical photograph should convey information on lesion location, size, colour, texture, and depth.

Use a plain, colourless background, and remove any clothing within the image.

Ensure your smartphone is more than 10 cm from the subject.

At least 10 cm

Ensure your smartphone is perpendicular to the subject and the subject is in the centre of the frame.

Turn the camera flash ON, or take the picture using as much daylight as possible.

Use your smartphone’s rear camera and not the front facing camera.

Take a minimum of two photographs; an overview demonstrating the lesion location and a closer view.

Fig 1 | Quick reference guide to the key principles of medical photography, for both patients and clinicians.
What is a good medical photograph?

The intrinsic nature of a good medical photograph is judged not by its level of artistry but on its ability to accurately document a clinical condition while preserving patient confidentiality and privacy. A good medical photograph should convey information on lesion location, size, colour, texture, and depth. For example, a photograph of a rash should provide an idea of distribution, colour, and whether it is raised or flat on the skin. This is also the case for a burn assessment, where a photograph demonstrating depth can determine the potential for wound healing and will subsequently guide the initial treatment.

When undertaking medical photography, users must therefore consider what information is required in the photograph and how best to capture it. While different medical specialties will have their own preference as to what constitutes a good image, applying the basic principles of medical photography should enable a clinician or patient to take better quality photographs and reduce the risk of medical error from inaccurate interpretation.

Accuracy in capture

The limitations of image quality in mobile device technology raise the question whether smart phones are suitable for medical photography. The answer is it depends. There are many factors to consider, in particular the purpose of capture and whether a standardised or non-standardised approach is required. A correlation study comparing on-site wound evaluation versus remotely viewed digital images in plastic and reconstructive emergency surgery concluded that efficiency in clinical decision making is less based upon the quality of imaging but on the timing and method of delivery.

On the other hand, a case-control study evaluating the importance of standardisation in preoperative and postoperative photographs concluded that poor photographic technique can result in potentially significant error and misrepresent surgical outcomes. Low quality images may therefore still result in high accuracy and concordance rates where standardisation is not a prerequisite for assessment, but may be misleading in instances where standardisation is paramount, such as demonstrating preoperative and post-surgical facial aesthetic surgery.

There are also medicolegal considerations: poorly taken medical photographs have been found to provide no evidential value in family law cases and, worse still, been described as misrepresenting fact. The question then becomes whether a mobile device makes poorer photographic technique more likely. A cross-sectional survey evaluating the accuracy of dermatological diagnoses based on photographs taken with a mobile device demonstrated multiple false positives and a drop in diagnostic specificity to 50% when compared with face-to-face diagnosis.

It is difficult to draw any conclusions about the efficacy of medical photography using mobile devices as there are such varying degrees of user proficiency. Diagnostic specificity may be improved by training general practitioners to acquire greater diagnostic knowledge through medical photographs.

Specialties such as dermatology and wound care now consider photographs a mandatory part of the referral pathway.
Key principles of medical photography

Consider these five key principles when undertaking medical photography with a smartphone (see also fig 1):

- **Lighting**
- **Focus**
- **Location and severity**
- **Colour**
- **Perspective.**

**Lighting**

To achieve correct exposure, a photographer must balance three key settings: aperture, shutter speed, and ISO (box). These variables may have a negative impact on the resulting image: an image shot with a slow shutter speed may cause motion blur, an image shot with a high ISO may cause “grain”, and an image captured with a large aperture will have a shallow depth of field (area in focus).

These settings are selected automatically on most mobile devices, so how can users maximise image clarity without the ability to change them? The answer lies in increasing the quantity of light. By simply adding more light to the room, photographing the lesion closer to a light source, or using flash, the camera will be able to use a faster shutter speed and a lower ISO. Users must also be aware that the angle of light can affect accuracy (fig 2). Some smartphone manufacturers offer the ability to manually adjust exposure settings, but the benefits of image capture in full manual mode may not outweigh the complexity of adjusting the settings. Most mobile device cameras have a fixed aperture lens, so the adjustment of aperture and subsequent effects on the image are not discussed.

**Focusing**

Most out-of-focus images can be attributed to the user breaching the camera lens minimum focus distance. This is the shortest distance at which the lens can focus and is measured from the device lens to the subject (see fig 3).

The minimum focus distance varies between devices, with some having better macro (close-up) capability than others. It is good practice to avoid moving the device closer than a hand’s width to the subject (about 10 cm). While this may seem to limit a device’s ability to provide close-up detail, the high resolution of camera phones allows sufficient detail to be retained for clinical evaluation. Some devices have two or more lenses including a telephoto lens.

The zoom function on the device should be used cautiously as it may result in digital zoom by cropping into the image as opposed to optical zoom, which retains image quality by using the telephoto lens.

**Location and severity**

In most situations, consider taking an overview or “wide” photograph as well as a close-up. This can help to provide additional clinical context: to help identify a biopsy site and reduce the risk of wrong site surgery. For a patient with a widespread rash, an overview picture front and back with sensitive body areas

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**Fig 3** The minimum focus distance at which a mobile device camera can focus is usually around 8-12 cm. When photographing small lesions, it is tempting to breach this distance to show the lesion close up. This results in focus past the area of interest (left image). With the increase in resolution of modern devices, photographing the lesion further away and then zooming in retains sharpness and clarity (right image zoomed to 100%).

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**Common terms in mobile device photography**

- **Aperture**—The hole within a lens through which light travels to the camera sensor. The larger the aperture the more light that enters the camera. The smaller the aperture the larger the depth of field will be (amount of the image in focus). The aperture is often fixed in mobile device cameras.
- **Shutter speed**—The length of time a camera shutter is open to expose light to the sensor. A slow shutter speed allows more light to enter the camera. Any movement during the period the shutter is open will result in motion blur.
- **ISO**—The camera sensor’s sensitivity to light. A high ISO setting requires less light to expose the image, but results in more “noise” or “grain” in the image.
- **White balance**—This is the process of removing unwanted colour casts by balancing the colour temperature of a light source to ensure that what the eye sees as white is rendered white in the photograph. Most devices default to an automatic white balance setting. To aid the device in calculating the correct colour temperature of a scene, use a plain white or neutral background, use flash or daylight, and remove clothing.
- **Flash**—In medical photography, the more light the better. If the photograph is being taken in a room with little or no daylight, ensure the flash is set to on.
- **High dynamic range (HDR)**—This merges multiple shots into a single image to expose both light and dark areas. This should be set to off as it can lead to inaccurate colour rendition and exposure.
- **Scene optimiser**—This uses artificial intelligence to recognise the environment and apply automatic colour and contrast adjustments. This should be set to off as it can result in over-saturated colours and increasing or decreasing contrast.
- **Live photo**—This shoots multiple frames to produce a short video. This should be set to off as it results in larger file sizes, which slow upload speeds and double the data collected.
covered (if not involved) can be useful in monitoring the response to treatment. Combine the overview photograph with close-up images in case the resolution of the overview photograph is insufficient when zooming in.

**Colour**
Achieving colour accuracy is often imperative in medical photography. In telepathology or teledermatology, colour can provide valuable information leading to a quick diagnosis. To achieve accurate colour reproduction, a white balance must be set which takes into account the colour temperature of the light source and eliminates any unwanted colour casts. Most mobile devices default to an auto white balance setting, which sets a colour temperature by using a combination of artificial intelligence and machine learning. This has the potential to be problematic for medical photography as mobile device cameras have been shown to produce substantial colour errors.  

Accurate analysis of skin tones has also been found to be difficult, with the Gender Shade study in 2018 showing that artificial intelligence and machine learning technology produces unfair bias against people with darker skin tones.  Automated facial analysis algorithms and datasets were found to have substantial disparities in gender classification, with classifiers performing best for lighter skin tones.  While this is based on facial analysis, the same types of bias may persist in other computer vision tasks such as automatic white balancing. Manufacturers are introducing development tools such as the Monk Skin Tone (MST) Scale,  which should assist devices in more accurately documenting diversity in skin tones. However, there are ways for users to directly improve the devices’ auto white balancing:

- Use a plain white background (avoid a coloured background and remove any brightly coloured clothing in the frame)
- Use a single light source such as flash or daylight and avoid a combination of varying colour temperatures (such as daylight plus tungsten light).

These actions will help a device’s auto white balance to set a more accurate colour temperature and reduce unwanted colour casts (see fig 4). We also suggest increasing the light levels using daylight or flash: flash is preferable but may not always be practical (such as when taking an overview picture with a mobile device at a distance from the subject).

Ultimately, the information the user wants to convey in the image determines the emphasis placed on achieving accurate colour reproduction. For example, a quantitative study on diagnostic accuracy for common skin lesions based on colour versus grey-scale dermoscopic images found that morphologic characteristics, and not colour, were the primary diagnostic clue.  Colour accuracy may therefore be secondary to the accurate documentation of morphology.

**Achieving correct perspective**
An incorrect perspective can lead to misinterpretation of size and location. Accepted practice is that photographs are taken with the patient in an anatomical position.  Some lesions or conditions may require various angles of capture to document the full extent of the condition. For analysis of scale, a measurement scale/ruler should be placed adjacent to the lesion. The appearance of a lesion can also be distorted by the “camera to subject” distance and/or angle. The patient (or mobile device) should be moved to ensure that the camera is perpendicular to the subject, ensuring that the area of interest falls within the centre of the frame and that the edges of the lesions are clearly defined. To assist in demonstrating depth or protrusion, consider taking additional images from varying angles.

**Competing interests** None declared.

**Patient consent obtained.**

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Find the full version with references at doi: 10.1136/bmj-2021-067663

**Fig 4** Using a brightly coloured background can deceive the camera’s auto white balance (AWB) setting into determining the scene may be “warmer” or “cooler” than it is in reality. This leads to inaccurate colour reproduction (left images). To assist the device’s AWB system, use a plain white or colourless background, use flash or daylight, and ensure there are no mixed light sources (right images)

**EDUCATION INTO PRACTICE**

- How do you support patients to take photographs for virtual consultations currently?
- How can you share learnt medical photography techniques with colleagues?
- What changes will you make when taking medical photographs as a result of reading this article?

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**Table 1**

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**Table 2**

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<th>Use a plain white background (avoid a coloured background and remove any brightly coloured clothing in the frame)</th>
<th>Use a single light source such as flash or daylight and avoid a combination of varying colour temperatures (such as daylight plus tungsten light).</th>
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CASE REVIEW Persistent itching of the eyelids and scalp

A woman in her mid 50s presented with a month long history of persistent itching in both eyelids. She had received a diagnosis of blepharitis and conjunctivitis, and treatment with topical antibiotic and corticosteroid therapy, but she had seen no improvement in her symptoms. On slit lamp examination, the right eye conjunctiva was erythematous, and numerous lice and nits (eggs) were seen attached to the base and shaft of the eyelashes (figure). Lice and nits were also visible on the forehead and right temporal scalp, under operating microscopy. On light microscopy, the parasites were seen to be wingless, crab-like lice with a distinct head, a pair of slim weak anterior legs, and two pairs of thick strong posterior legs. The nits firmly adhered to the eyelashes. Examination of the eyebrows, occipital region, nape, upper back, and axillae hairs was unremarkable.

1 What is the most likely diagnosis?
2 What further investigations are needed?
3 How is this condition treated?

Submitted by Bangtao Yao, Xiaoli Yue, and Gang Liu

Patient consent obtained

Cite this as: BMJ 2022;378:e070166

LEARNING POINTS

1. Consider testing for sexually transmitted infections in patients presenting with Phthirius pubis infestation.
2. Phthirius palpebrarum is sometimes misdiagnosed as conjunctivitis or blepharitis.
3. Lice and nits on the eyelids can be treated by manual removal with fine forceps.
4. Usual treatments for genital lice (eg, lindane 1%, malathion shampoo 1%, phenothrin) should not be applied to the eyes.

PETIENT OUTCOME

Patient was started on 1% lindane cream for the eyelids, and face. She was referred to the dermatology department for the scalp.

CASE REVIEW Persistent itching of the eyes and scalp

(A) Lice and nits (arrows) attached to the base and shaft of the eyelashes, observed on slit lamp examination. (B) Light microscopy showed the adult P. pubis and (C) nits adhered to eyelashes (>40 magnification)
A man with multiple dome shaped dark red papules on the scrotum

This is angiokeratoma of Fordyce on the scrotum of a man in his 20s.

The patient presented with a one month history of multiple dome-shaped dark red papules on his scrotum. The lesions were not itchy or painful but bled spontaneously once. He reported no trauma to the area.

Angiokeratoma of Fordyce was diagnosed on the basis of the patient’s medical history and lesion morphology. This condition is a benign vascular telangiectasia in the papillary dermis associated with hyperkeratosis of the epidermis. Lesions are typically dome shaped dark red to blue papules measuring 2-4 mm in diameter and arranged parallel to the raphe median on the scrotum. Although most lesions are asymptomatic, bleeding and itching can occur. Differential diagnoses include melanocytic naevi, malignant melanoma, condyloma acuminatum, verrucous haemangiomas, and lymphangioma. A biopsy can be performed in cases of diagnostic dilemma.

Most patients can be reassured that this is a benign condition with no treatment required. For cosmetically undesirable or symptomatic lesions, electrocautery, laser therapy, cryotherapy, or excision can be considered.

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Thyroid disease and risk of dementia
Thyroid disorders, particularly if they require hormone replacement, carry a substantially increased risk of a subsequent diagnosis of dementia, according to a large case-control study from Taiwan. Unfortunately, the insurance claims database on which the study depended contained no information about severity of thyroid disease or laboratory data, such as TSH levels (Neurology doi:10.1212/WNL.000000000000200740).

Pruritus and malignancy
Although pruritus is common in patients with haematological cancers, it isn’t clear that malignancy is common in people with pruritus. A retrospective database study from a multinational research network finds that, in the first year after presentation, people with pruritus were more likely to be diagnosed with Hodgkin’s disease, myeloid leukaemia, multiple myeloma, and other haematological malignancies. However, beyond one year, their risk of cancer was no higher than that of controls (JAMA Dermatol doi:10.1001/jamadermatol.2022.1562).

Which bariatric surgical procedure?
Laparoscopic Roux-en-Y gastric bypass may be better than laparoscopic sleeve gastrectomy for achieving weight loss and remission in obese people with diabetes. In a small single centre trial, remission of diabetes five years after surgery had occurred in 25 of 53 people treated with Roux-en-Y gastric bypass compared with 18 of 55 patients treated with sleeve gastrectomy. Complications were uncommon in both treatment groups (Diabetes Care doi:10.2337/dc21-2498).

Autoimmune diseases increase cardiovascular risk
A large database study using general practice records from the UK compared cardiovascular outcomes in nearly half a million people diagnosed with an autoimmune disease with those in a control group matched for age, sex, socioeconomic status, and area of residence. The incidence of cardiovascular diseases was around 50% higher in people with autoimmune disease and increased progressively with the number of autoimmune diseases present. Systemic sclerosis, Addison’s disease, systemic lupus erythematosus, and type 1 diabetes carried the highest risk (Lancet doi:10.1016/S0140-6736(22)01349-6).

5a-reductase inhibitors don’t influence mortality from prostate cancer
5α-reductase inhibitors such as finasteride or dutasteride are an effective treatment for benign prostatic hyperplasia and some evidence suggests that they lead to a decrease in the incidence of prostate cancer.

However, a longitudinal study from Sweden with eight years of follow-up finds no suggestion mortality either from prostate cancer or from all causes is reduced. Men treated with 5α-reductase inhibitors had more prostate specific antigen tests and biopsies than the unexposed group (JAMA Oncol doi:10.1001/jamaoncol.2022.1501).

The incidence of cardiovascular diseases was around 50% higher in people with autoimmune disease

Mosquitoes’ odour detection
“Which is the most dangerous animal in the world?” is a popular question in trivia quizzes. The winning answer usually turns out to be the mosquito. It’s not a fair question because there are several thousand different species of mosquito and only a small minority attack humans. Nonetheless, some of them are extraordinarily efficient vectors of life threatening infections including Zika virus, dengue, and malaria. Mosquitoes have many parallel odour detecting systems, which is why it is so hard to avoid being bitten (www.theatlantic.com/science/archive/2022/08/mosquito-smell-olfaction-genetic-unstoppable-bite/671177/).

Long term outcomes of intracerebral haemorrhage
Intracerebral and intraventricular haemorrhage are often devastating events with poor outcomes—at least in the short term. In the longer term, the prognosis is by no means hopeless. Among patients who survived for the first month, 40% recovered to a good outcome by one year. Not surprisingly, persistent hydrocephalus, low cerebral perfusion pressure, sepsis, and the need for prolonged mechanical ventilation were associated with worse outcomes (JAMA Neurol doi:10.1001/jamaneurol.2022.1391).

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