education

FROM THE JOURNALS Edited highlights of weekly research reviews

The world of prediabetes, where no one can hear you screen

I remember those joyous early years after it was announced that HbA_{1c} could be used instead of a fasting glucose to diagnose diabetes. People could be diagnosed at any time of day or night, and HbA_{1c} casually added to any blood test request—just in case. But then came borderline HbA_{1c} results and prediabetes, and it all seems to have gone a bit sour. It takes time to consider someone's diabetes risk, and to interpret a borderline HbA_{1c} result in the context of the individual: some people clearly benefit from being able to make positive changes early, but many others don't. They may have more pressing health problems or are unlikely ever to develop diabetes and the associated complications.

In the US, where prediabetes is generously defined as an HbA_{1c} of 5.7-6.4%, implementing the 2022 American Diabetes Association recommendations would mean screening 82.9% of the adult population, according to a research letter in *JAMA*. Despite there not being enough time to have these conversations, we seem to be carrying on regardless trying to diagnose as many "prediabetics" as possible.

JAMA doi:10.1001/jama.2022.5185

Getting on the TAVI train

Transcatheter aortic valve implantation (TAVI) is a less invasive alternative to surgical aortic valve replacement for patients with severe symptomatic aortic stenosis. It's currently mostly reserved for those with high operative risk. Might it be a good option for some with lower risk of complications from conventional surgery?

A UK based multicentre trial randomised 913 patients aged ≥70 years with severe symptomatic aortic stenosis and moderately increased operative risk to either TAVI or surgical aortic valve replacement. As well as coming out as non-inferior in terms of overall survival at 1 year, those who had a TAVI had shorter post-procedural hospital stays and lower risk of major bleeding events. On the other hand, vascular events and conduction disturbances requiring pacemaker insertion were lower in those who had surgery.

JAMA doi:10.1001/jama.2022.5776

Smarter than MART?

I feel there's a degree of inhaler-switching fatigue among clinicians and patients, but a relatively simple switch from salbutamol as a reliever inhaler to a combination of salbutamol and inhaled corticosteroid as maintenance and reliever therapy (MART) seems fairly straightforward. This study randomised 3132 people aged ≥4 years who had had at least one severe asthma exacerbation in the previous 12 months. They were allocated to either use inhaled albuterol (salbutamol) as rescue medication, or albuterol-budesonide (a rapid acting bronchodilator plus combined inhaled corticosteroid). All continued regular corticosteroid maintenance therapy.

A significant reduction in risk of severe asthma exacerbation was seen in those allocated to higher dose albuterol-budesonide inhaler compared with albuterol, with a hazard ratio of 0.74. However, 97% of the participants in the study were aged ≥12 years, meaning it is unclear whether there's any benefit to this approach in younger children.

N Engl J Med doi:10.1056/NEJMoa2203163

Loads of virus

Before we know it, it'll be respiratory syncytial virus (RSV) season again, and emergency departments will fill up with babies and toddlers with varying levels of respiratory distress. The *Lancet* reports on the global disease burden of RSV, including our old friend from 2020, the case fatality ratio. The systematic analysis included data from 481 studies and estimated there were 33 million RSV episodes globally in 2019—95% of them in low income and middle income countries. One in every 50 deaths in children aged 0-60 months, and one in every 28 deaths in children aged 28 days to 6 months, were estimated to be attributable to RSV. In-hospital case fatality ratios were 0.7%—and generally lower in high income countries, possibly due to a combination of access, affordability, and availability of appropriate inpatient care.

Lancet doi:10.1016/S0140-6736(22)00478-0

Signs of herd immunity for HPV

Good news from a national cross-sectional study from the US that's been tracking the prevalence of human papillomavirus (HPV) in sexually experienced young people from 2003, before the HPV vaccine was introduced, to 2018. It found a 90% reduction in cervical vaccine-type HPV infections among vaccinated females.

The findings also indicate herd immunity, since there was a 74% reduction in these infections in unvaccinated females too. More good news is that the prevalence of non-vaccine-type HPV infections hasn't risen, so no signs of other oncogenic HPV subtypes stepping into the void.

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PRACTICE POINTER

Parosmia—a common consequence of covid-19

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CPD READING
0.5 HOURS

The first early reports of olfactory dysfunction associated with covid-19 identified loss of smell as one of the cardinal symptoms of covid-19. Loss of smell may be total (anosmia) or partial (hyposmia) and may be associated with loss of taste (complete ageusia or hypogeusia dependent on degree of loss), and these issues with inability to perceive smell are addressed in our earlier article.[1] With time, it has become apparent that patients were not only unable to detect odours (quantitative olfactory dysfunction) but some went on to experience a distortion of normal smell perception (qualitative olfactory dysfunction; see box 1 for definitions).

Here we offer an approach to the assessment and management of parosmia and phantosmia, based largely on expert and patient experience given the limited evidence base. A typical severe case might be one of a patient with covid-19 reporting initial complete loss of smell and taste lasting for several weeks, followed by apparent recovery. However, a short time later the patient notices that raw chicken smells "off" or is certain that there is a smell of cigarette smoke in the house that others cannot perceive. Within a couple of weeks, an increasing number of foods and toiletries trigger a similar rancid odour, until the patient cannot bear the smell of food and their diet becomes extremely restricted, leading to weight loss.

The patient withdraws socially and struggles with coffee smells in the workplace, becoming increasingly isolated as their family try to be supportive but find it hard to understand. In distress, the patient turns to their GP, desperate to know if this is ever going to get better.

WHAT YOU NEED TO KNOW

- Parosmia is a common sequela of smell loss associated with covid-19, with onset on average three months after initial infection
- Refer patients with parosmia without a clear preceding cause such as covid-19 and those with red flag symptoms
- The presence of parosmia is positively associated with better outcomes from olfactory training in patients with loss of sense of smell—they are more likely to regain their sense of smell than those without parosmia

What is parosmia and what causes it?

Parosmia, the misperception of an odour, unfortunately most often manifests as the transformation of a pleasant odour into an unpleasant one (box 2). It is a relatively common phenomenon—one cross-sectional population study conducted in 2007 suggested a prevalence of 3.9% in adults.[2] The causes of parosmia have substantial crossover with those of smell loss, and include:

- Postviral (covid-19, influenza)
- Head injury
- Neurodegenerative conditions such as Alzheimer's and Parkinson's diseases
- Medications, particularly selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), benzodiazepines, and non-benzodiazepine sedatives (half of the 100 most prescribed medications have the potential to cause olfactory disturbance[3])
- Chemical exposure of the nasal mucosa to toxins including ammonia, nickel, solvents, tobacco, and cocaine.

Box 1 | Definitions and types of olfactory dysfunction

Quantitative olfactory dysfunction—Impairment in the ability to detect an odour. May be reduced (hyposmia), absent (anosmia), or excessive (hyperosmia)

Qualitative olfactory dysfunction—Misperception of an odour. May manifest as perception of a smell when no odour is present (phantosmia) or distortion of an odour (parosmia)

Dysosmia—Broad term to denote olfactory dysfunction of any type

Cacosmia—Perception of a foul smell. May be appropriate perception of an external stimulus (such as a rhinolith, nasal foreign body) or a manifestation of parosmia (misperception of a non-offensive odour as foul)

Box 2 | Patient descriptions of parosmia (from the AbScent online forum https://abscent.org/)

The "covid smell"

- "I've never smelt this before, so I find it hard to describe"
- "Everything smelled and tasted like raw sewage, and trying to eat made me vomit"
- "My word for it is 'funky.' It's not like anything else, but I describe it as a sweet, sickly, sour odour"
- "Rancid, cloying, death"

How parosmia makes me feel

- "I'm really struggling, and it's so hard when no one around you understands; the thought of it going on this bad for months on end is unimaginable"
- "I was crying every day, and finally called my doctor for some antidepressants"

Box 3 | Practical tips on living with parosmia, developed by clinical advisors and contributors (from AbScent https://abscent.org/)

- Get to know your trigger foods and "safe" foods. These will be changing all the time, so continue to try new things. A list pinned to the fridge will remind you and family members what is OK and what needs to be avoided.
- Room temperature or cold food will give off less odour and will be easier to eat. While roasted chicken can be impossible to manage for many, a cold chicken sandwich without skin can be tolerable.
- Talk to those you are living with so that they can support you. Using a "team approach" for buying food, food preparation, menu planning, etc, may be necessary.
- Parosmia can fluctuate. Some days will be worse than others. Try not to feel that a bad day is a setback that will be permanent. Over time, these fluctuations will even out.
- For severe cases of parosmia where no food seems tolerable, referral to a dietician is advisable.
- Keeping a diary and continuing to try things periodically—such as a favourite food that you feel you can't tolerate today—will help you identify signs of what may be a very slow and subtle recovery. You don't need to make notes every day, but a weekly recording can be helpful.
- Some people find that "pushing through" the unpleasant taste in food is a way to make things improve. This may not be possible in the early stages of parosmia if nausea is a problem, but as time goes on it can be helpful.
- Parosmia can affect your personal relationships—try to be as open about this as possible. Keeping your feelings from your partner can make the isolation feel worse.
- We are hearing recovery stories even after 21 months. There is no hard and fast timeline for recovery.

EDUCATION INTO PRACTICE

- What additional symptoms or signs would prompt an urgent referral in a patient presenting with parosmia?
- How would you support a patient with parosmia that is affecting their mood, diet, and day-to-day life?

What is the natural course of postviral olfactory dysfunction?

The dominant viral pathogen of late has been covid-19, and parosmia has been encountered as a common sequela. When the early phase of illness is associated with loss of smell, parosmia is a late onset symptom in the majority of patients who report it, developing on average three months after infection.[4 5] Many patients who experience anosmia have a short period of apparent recovery with a return in their sense of smell, which is then followed by the development of parosmia; others, however, develop parosmia without any preceding apparent smell loss.

Although high rates of spontaneous recovery have been reported for non-covid related parosmia, the timeline varies widely from months to sometimes years.[6] A survey of 434 patients with self reported olfactory loss after covid-19 found that 43.1% reported parosmia at six months.[7] The outlook beyond that time is still unclear, with longitudinal studies still ongoing. Anecdotal reports, based on clinical experience and reports in a patient support group for those with parosmia, suggest recovery typically occurs roughly 14-16 months after infection in patients with covid-19, although those with shorter duration may not seek out help or support.

What is the pathophysiology of parosmia?

Patients often tell us that they find the analogy of crossed wires a useful way of understanding the pathophysiology of parosmia. Parosmia may represent aberrant neuronal regeneration that occurs during recovery of the olfactory system from the viral insult, and that its presence is associated with higher rates of spontaneous olfactory recovery than those with anosmia alone.[8]

How can I be sure that covid has caused a patient's parosmia?

As with much of medicine, the attribution of a cause to parosmia is largely based on the balance of probabilities. A young patient who is otherwise fit and well and who had had confirmed covid-19 two to three months before parosmia is, on balance, most likely to have a covid-19 related olfactory dysfunction. If patients have a confirmed preceding diagnosis of covid-19, there is no need for routine investigations by blood tests or imaging. Some patients will not link parosmia with previous infection because of the delayed onset, or may not have been aware of an otherwise largely asymptomatic infection—initial olfactory loss may be overlooked.

Many patients will not have an unambiguous relationship between development of parosmia and covid-19. Assessment should begin as per loss of sense of smell (see our prior article on anosmia for further guidance[1]). Any symptoms of nasal obstruction and discharge, if present at the onset of covid-19, have usually subsided by the onset of parosmia, but if they are persistent then anterior rhinoscopy should be performed to look for signs of chronic rhinosinusitis and other sinonasal conditions.

Phantosmia is the perception of smell when no odour is present. This can be a difficult symptom to identify and distinguish from parosmia. In general, patients with parosmia are able to reproduce their symptoms (for example, a cup of coffee always smells terrible), whereas phantosmia occurs in the absence of an external stimulus. Space-occupying lesions of the central nervous system are an uncommon but important cause of phantosmia,[9] and all patients with olfactory hallucinations in the absence of a clear underlying cause (such as covid-19) should be investigated for this. Other causes are migraines, temporal lobe epilepsy, and the same as those for parosmia.

Red flags are listed in the table. In the absence of these, patients can be reassured that sinister causes are extremely rare. Consider further investigations such as magnetic resonance imaging (MRI) in the presence of additional neurological signs and symptoms or in the absence of known covid-19 infection. Parosmia is uncommon in the acute phase of covid-19[10]; testing for covid at onset of parosmia is unlikely to be helpful and the patient is unlikely to be infectious.

Box 4 | Frequently asked questions in the Abscent Parosmia Support Group (Facebook.com/groups/AbScentParosmia)

Why does my wee smell weird?
Many people report that their own body odours are a common trigger for parosmia—including bodily fluids, breath, and sweat. Be reassured that others cannot detect the distorted smell.

I had completely recovered before parosmia started—How does this happen?
I had covid-19 but didn't lose my sense of smell—Can I still get parosmia?
Sensitive smell tests show us that, while the early phase of recovery feels as if everything has returned to normal, there is often still hyposmia, or a reduced sense of smell, reflecting loss of some of the olfactory sensory nerves. When these start to recover, parosmia can emerge.

Similarly, some people don't notice any smell loss at the time of covid-19 infection, although they do have some loss of olfactory function on sensitive smell tests performed early on, and may still go on to develop parosmia. In some cases, people may not even have been aware that they had been infected as they may not have had any other symptoms at the time.

Do I need to see a doctor?
If you have a confirmed diagnosis of covid-19, then further investigations are not normally required to investigate the cause of parosmia. An ENT specialist will likely only be able to provide you with reassurance and general advice, but at the moment there are no proved medical treatments that speed up recovery.

Parosmia may have a significant impact on wellbeing and mental health: if you are struggling, please speak to your GP.

Even water tastes weird
Parosmia can be triggered by a wide range of odorants, which can be extremely distressing. In some very severe cases medication may be used to suppress the parosmia, but general dietary modifications and use of nose clips can help maintain oral intake.

Why haven't doctors found a cure yet?
Research into olfactory disorders has been a neglected area prior to covid-19. The pandemic has increased funding, and there are many studies under way to look for treatments for olfactory loss and parosmia. Because of the relatively high spontaneous recovery rate, these studies have to include a control group of patients and study large numbers of patients, and will therefore take some time to complete.

Will this ever go away?
We expect that parosmia will reduce and underlying sense of smell improve in many patients. Recovery can continue for months and years—it is too early at this stage in the pandemic to consider it permanent.

I think the vaccine caused my parosmia—Is this possible?
There is some evidence that vaccination may help in recovery of olfactory dysfunction after covid-19. As parosmia is thought to reflect a stage in recovery and positive predictor in long term outcome, this may therefore appear after vaccination.

Red flag symptoms of olfactory disturbance

Symptoms	Relevance to patient
Dysosmia with focal seizures	May represent temporal lobe epilepsy and should be referred to neurology
Dysosmia with signs of raised intracranial pressure (morning vomiting, headache on straining, focal neurology)	May represent a space-occupying lesion of the central nervous system and should be investigated with appropriate imaging
Foul smell detectable within the nose or to others (cacosmia) in an adult	May represent underlying dental disease and should be directed concurrently for dental and ENT review
Cacosmia and discharge in a child	May represent a nasal foreign body and should be directed for ENT review urgently
New neck lump with any nasal symptom (change in sense of smell, blockage, bleeding, discharge)	Patient should be informed that sinonasal malignancy is an uncommon but important differential

Parosmia can be very distressing, and it is important to acknowledge this

What practical advice can be offered?

There are currently no effective, evidence based treatments for patients with parosmia. We find that patients often find useful tips from others who have experienced similar symptoms. Some of these, as shared in online forums hosted by the charities AbScent and Fifth Sense, are listed in box 3.

Olfactory training is a technique that has been developed for patients with smell loss. At present we lack evidence of its efficacy in treating parosmia itself, but it may be applied in the hope that providing controlled odour cues may promote orderly neuronal regeneration. A study of 153 patients with postviral smell loss who completed olfactory training found that those with parosmia had better outcomes in terms of odour identification and discrimination compared with those who did not have parosmia.[11] Visual guides for patients are freely available online (for example, abscent.org/nosewell/smelltraining).

Intranasal treatments such as topical corticosteroids have been trialled in olfactory loss and subsequently applied to parosmia, although there is little evidence to support this. A small trial of intranasal sodium citrate reported improvements in phantosmia but not parosmia or hyposmia,[12] and the results may simply reflect the natural course of the symptoms rather than the effectiveness of treatment. Evidence for other treatments is lacking, although trials are ongoing. Sodium valproate, gabapentin, and pregabalin have been used to treat parosmia as an off-label use despite an absence of evidence.[13] Because of the risks of adverse effects, these should be trialled only in severe cases.

What are parosmia's psychological impacts?

Parosmia can be very distressing, and it is important to acknowledge this as many patients report that they feel that their symptoms have been trivialised by healthcare providers. Parosmia may turn previous sources of joy such as food, gardening, or physical intimacy into causes of distress.[14] Olfactory dysfunction is associated with depression and anxiety[15]; loss of appetite caused by either repulsion by food or these associated mood disorders may lead to considerable weight loss and malnourishment. Holistic support should include active screening for these comorbid conditions.

Patients with parosmia can find excellent online resources from charities such as AbScent (abscent.org/) and Fifth Sense (www.fifthsense.org.uk), which have well resourced and accurate information on management strategies such as olfactory training. Some of the topics discussed in these fora are listed in box 4.

Competing interests: CK is the founder of AbScent, a non-profit patient support group for people with olfactory dysfunction.

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HOW PATIENTS WERE INVOLVED IN THIS ARTICLE

Posts made in the AbScent Parosmia Facebook group were used to identify frequently asked questions, and patient comments were made in response to questions posed by the moderators for the purpose of writing this paper. CK has experienced parosmia and provided a patient perspective in the writing of the manuscript

PRACTICE POINTER

Identifying post-traumatic stress disorder after childbirth

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CPD READING
0.5 HOURS

One in three people will find giving birth a traumatic experience, with 3-6% going on to develop postpartum post-traumatic stress disorder (PTSD).[1]

A traumatic experience, in this instance childbirth, is defined as "an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual wellbeing."[2]

In the first weeks and months of the postpartum period women are likely to experience sleep disruption and exhaustion as a result of caring for their newborn. This can lead to irritability, poor concentration, and in first time mothers sometimes low self-confidence, anxiety, and uncertainty as they adapt to these new and demanding roles. While many may experience childbirth as stressful, most will not have been highly fearful for their lives or their baby's wellbeing and are able to think and talk about their experiences post partum. However, those who experience the birth as traumatic (and this can happen even when the birth is medically straightforward) are at risk of PTSD.

WHAT YOU NEED TO KNOW

- One third of women experience giving birth as traumatic, and consequently 3-6% of all women giving birth develop postpartum post-traumatic stress disorder (PTSD), with many going undiagnosed
- Routinely ask about birth trauma. Recognising early responses to a traumatic birth and providing advice and support can reduce the risk of PTSD developing
- PTSD is different from postpartum depression. Although both can occur simultaneously, they require different psychological treatments. Some cases of postpartum depression can be managed in primary care, but postpartum PTSD more commonly requires specialist maternal mental health referral

PTSD or postnatal depression?

According to expert opinion, PTSD in the postpartum period is poorly recognised and not routinely considered at postnatal checks, often being misdiagnosed as postnatal depression. It is important to distinguish between these two entities to ensure timely access to effective and appropriate intervention, as different psychological treatments are indicated. PTSD is a disorder of memory and is usually treated by stimulating active processing of traumatic material through controlled re-living or eye movement desensitisation reprocessing, while depression often responds to behavioural activation and cognitive behaviour therapy focused on the relations between thought patterns and emotions.[3] When PTSD develops, low mood can occur consequently but often resolves with PTSD treatment.

Why does PTSD develop?

After a traumatic event, our brains naturally try to make sense of what has happened, and as a consequence the event will keep coming back into mind. This can be during the day in the form of re-living, or at night in the form of nightmares. These experiences can be very unpleasant as they trigger the same feelings experienced at the time of the event.

Helping women to understand that after a frightening event the human brain needs to make sense of what has happened can be helpful in the first few days and weeks after birth. It may also be helpful to explain that it is not abnormal for these events to replay and to feel upset about them. Trying to distract and suppress these memories and feelings can disrupt the psychological processing that can prevent a trauma experience becoming PTSD.

It can be a natural response to try to shut down this processing and distract from it as it is unpleasant. However, doing this can intensify feelings to a degree that the individual avoids anything that might trigger these feelings. New mothers may avoid talking about their birth and avoid individuals who might ask them about it, such as family or other women with babies. Traumatised couples often will not talk to each other about what happened to avoid upsetting the other person. Well meaning family members and friends may close down discussion, saying "put it behind you" or that "it's over now," rather than give time for exploration of what happened. Although unpleasant reactions to a traumatic birth typically coexist with very positive feelings towards the baby, women may still experience guilt. Mothers are often critical of themselves for having these responses, may feel they are going "mad," or fear being judged as a bad parent. It can be helpful to explain that all these reactions get in the way of the traumatic memory being processed and make the intrusive experiences more frequent.

Table 1 | Distinguishing between postpartum PTSD, depression, and anxiety

PTSD	Depression	Anxiety
Exposure to an extremely threatening/horrific event or series of events	Depressed mood or diminished interest in activities	Marked symptoms of anxiety manifested by either general apprehension or excessive worry
Re-experiencing	Hopelessness	Subjective experience of nervousness
Avoidance	Difficulty concentrating	Muscular tension or motor restlessness
Persistent perceptions of heightened current threat	Feelings of worthlessness or excessive or inappropriate guilt	Sympathetic autonomic over-activity
Complex PTSD—all the above plus the following additional symptoms:	Recurrent thoughts of death or suicide	Difficulty maintaining concentration
Problems in affect regulation (marked irritability or anger, feeling emotionally numb)	Changes in appetite or sleep	Irritability
Beliefs about oneself as diminished, defeated, or worthless, accompanying feelings of shame, guilt or failure related to the traumatic event	Psychomotor agitation or retardation	Sleep disturbance
Difficulties in sustaining relationships and feeling close to others	Reduced energy or fatigue	
Symptoms result in significant impairment in personal, family, social, educational, or occupational, or other important areas of functioning	Symptoms are associated with at least some difficulty in continuing with ordinary work, social, or domestic activities	Symptoms result in significant distress or significant impairment in personal family, social, educational, occupational, or other important areas of functioning
Must last >4 weeks	*Occurring most of the day, nearly every day for at least 2 weeks*	*Persisting for at least several months, for more days than not*

Diagnostic criteria for PTSD, depression, and anxiety drawn from ICD-11.

What is the effect of traumatic childbirth and untreated PTSD?

If memories are not explored and processed, these early responses can become chronic and develop into PTSD. This can affect many aspects of the mother's life, including relationships with baby, partner, and wider family. The infant's social-emotional development can also be adversely affected[4] and PTSD at eight weeks post partum is linked to later parenting stress.[5]

Women with PTSD often delay or avoid further pregnancies. If they do become pregnant again they may suffer from tokophobia (fear of childbirth),[6] which affects their experience of pregnancy and in turn can affect fetal development.[7] Women with tokophobia may be more likely to request elective caesarean as a way to manage their fears, as caesareans are perceived as being more controlled.[8]

Untreated, traumatic experiences and subsequent PTSD alter how patients perceive the world, resulting in heightened expectation of danger, particularly in situations similar to the context of the original trauma. Those suffering become hypervigilant and primed to detect threat, and this remains long after the original danger has passed. Continued presence of high level stress responses can affect sleep patterns, and cause mood swings and irritability, which can further negatively impact on relationships.[9 10]

When and how can birth trauma be explored by a clinician?

Good postpartum care affords women opportunities to talk about their birth and the feelings around their experiences.[11] Many women hide their true feelings about what is widely considered to be a happy event for fear of judgment, unless they recognise that genuine care is being offered.[12]

PTSD cannot be diagnosed until four weeks after the initial traumatic event, so while early opportunities to discuss birth experience can be in hospital or during midwife visits, often it is after women have left specialist maternity care that they feel ready to speak about birth trauma. Additionally, onset can be delayed (six months or more after the event), so there should be an emphasis on recognition of these symptoms in primary care to enable access to appropriate treatment. Timing of symptoms and when a woman is ready to speak about a traumatic experience vary, so opportunities to do this should be many and varied. One size does not fit all.[12]

Opportunities for exploring whether a mother has experienced birth as traumatic may be:

- The maternal 6-8 week check. This is an ideal time to screen for postpartum depression, discuss a woman's experience of giving birth, and—if traumatic—to assess the impact of this
- Consider asking mothers who present recurrently with well babies and who have concerns about feeding problems, reflux, colic, colds, or other minor ailments.

What questions might I ask to explore if a woman experienced birth as traumatic?

Timely and considered open questions can make all the difference to whether a mother discloses how the birth has been affecting them. Asking is important, as perceived stigma may mean that information is not volunteered.[12]

Questions might include:

- What was your birth experience like?
- It can be very common to find childbirth traumatic and upsetting. How do you feel about your birth?
- Did your birth go according to your birth plan? If not, how was it different? What was that like for you?
- Did you feel you or your baby were in any danger at all during your labour?
- Do you wish things had gone differently?
- How has this been affecting you?
- How well supported were you in your labour and birth?
- Do thoughts or images about the birth come back into your head?
- Do you have nightmares or upsetting thoughts about the birth?
- Have you had a lot of upsetting thoughts in general since the birth?
- How do you find talking with others about the birth?
- Have you felt like you have needed someone to talk to about the birth?

What initial help can be provided in primary care?

In primary care it may be useful for GPs to help women understand:

- Intrusions are a normal part of memory early after trauma and their purpose is to help us make sense of distressing events. When memories have been processed they just become a part of our life story and no longer have an effect day to day. When something has been traumatic, this processing can take some time
- The importance of keeping talking to a supportive "other" to help process the experience rather than avoiding this, even when it is difficult
- They should not blame or be critical of themselves for having these responses and they have no implications on whether they are "a good mother"

If daytime re-living, nightmares, or recurrent, intrusive traumatic thoughts or images about the birth do not resolve (or markedly reduce) within four weeks, discuss intervention. Watchful waiting is an alternative strategy.

Arrange follow-up to ensure that resolution has occurred and if not, that prompt referral for specialist intervention is offered.

When would I suspect PTSD?

Consider PTSD if the following symptoms persist for more than a month:

- Re-experiencing the traumatic event—flashbacks, nightmares, or high levels of fear
- Hyperarousal (vigilance, irritability, anger)
- Avoidance of situations that trigger memories of the events
- Negative self-image, feeling worthless, defeated, or guilty
- Relationship problems
- Emotional dysregulation or numbness
- Dissociation (being disconnected) from themselves or the world around them
- Negative mood or thinking.

The full set of PTSD diagnostic criteria are shown in table 1, and PTSD risk factors in table 2.

The covid-19 pandemic has increased the risk of traumatic birth and resultant PTSD because women have had reduced access to support during childbirth.[16] A key finding from the rapid evidence review of the impact of covid-19 on maternal mental health by the Maternal Mental Health Alliance stated, "Changes to labour and birth because of the pandemic have increased stress and anxiety."

Who to refer, and where to refer to?

At any time point, refer to specialist midwives or birth review clinics anyone who:

- Has found their birth experience traumatic
- Has questions about why certain things happened
- Is unsure of exactly what happened during the birth.

A referral to maternal mental health services (MMHS) for assessment and trauma focused psychological intervention is recommended when:

- The woman experienced birth as traumatic
- A minimum of four weeks has passed
- A woman is experiencing frequent intrusive daytime experiences or nightmares about the birth
- She is constantly on high alert for danger to her infant or herself (indicative of hyperarousal).

A woman may also display or report low mood, but this may be a consequence of PTSD, and intervention for trauma is normally indicated first unless immediate risk is posed to mother or baby. New Maternal Mental Health Services (MMHS) have been being created across England from 2021, but services are still patchy with a national rollout scheduled for 2023-24. In some areas in the UK, referral to specialist perinatal community teams or high intensity Improving Access to Psychological Therapies are alternatives, provided that a perinatal specialist is available.

The pandemic has increased the risk of traumatic birth and resultant PTSD because women have had reduced access to support during childbirth

EDUCATION INTO PRACTICE

- Think about the last time you asked a woman about her delivery. How might you alter your questions next time to place a focus on birth trauma?
- Could you consider amending your postnatal check template to include assessment of birth trauma?
- What local maternity mental health services are you aware of for referrals?
- What resources can you offer patients to help themselves?

Table 2 | Risk factors for postpartum PTSD[13-15]

Pregnancy
Depression in pregnancy
Fear of childbirth
Poor health or complications in pregnancy
History of PTSD
Counselling for pregnancy or birth
Birth experience
Negative subjective birth experience
Complications of birth including operative delivery (assisted vaginal or caesarean), postpartum haemorrhage
Lack of support
Infant complications
Dissociation
Postnatally
Poor coping and stress

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

EH has been a full co-author from the conception of the idea for this article. She has herself experienced traumatic birth and subsequent PTSD. EH was involved in the original draft to BMJ and has contributed to all subsequent discussions and drafts of this article as a full co-author. In particular she has offered her own story and suggestions for questions on how to explore this area, together with how services might adopt changes in practice to facilitate identification and distinguish PTSD from depression.

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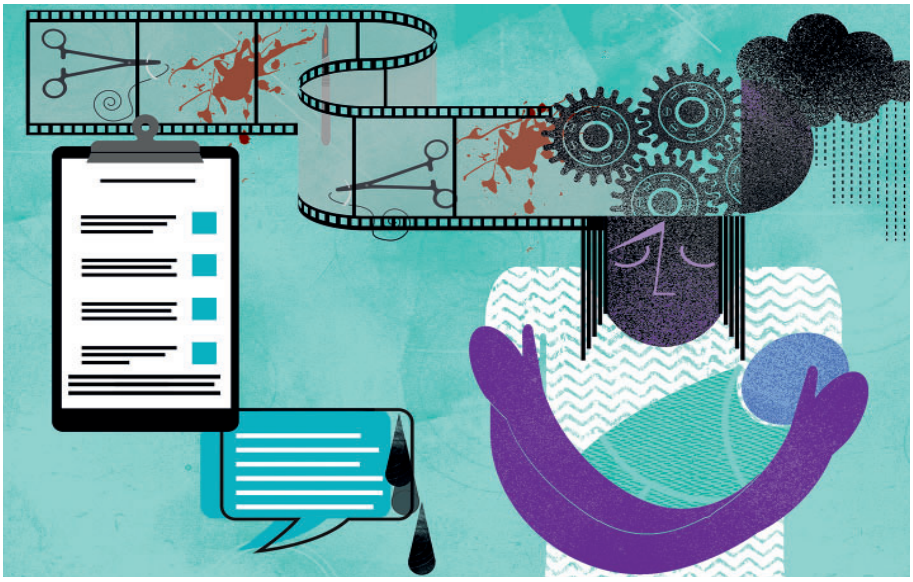
Find the full version with references at doi: 10.1136/bmj-2021-067659



ROSE LLOYD

WHAT YOU NEED TO KNOW

- A new mother may not volunteer their feelings about their birth experience, you may need to ask questions to start that conversation
- Mothers often fear doctors will judge their parenting or involve social services. Be mindful to reassure them about this at the earliest opportunity
- Listen to the information that your patient is giving and try to ask open questions to elicit more about what they may be saying. For example, if a patient volunteers that they are struggling to sleep, is it because of the baby's routine, colic, or another problem? If they attend repeatedly, it may be worth exploring the mother's worries

EDUCATION INTO PRACTICE

- If a patient attends with a physical symptom of a complicated birth, how would you bring up whether they are experiencing any symptoms of emotional trauma?
- How might you act on a maternity discharge summary describing a new mother as tearful or low, especially in view of any complications during the birth?
- How might you change your approach after reading this article?

WHAT YOUR PATIENT IS THINKING

It felt like my birth trauma had been forgotten

Emma Hayden describes the psychological impact of a traumatic birth, and her difficulties with finding healthcare support

CPD READING
0.5 HOURS

"You've really been through it," the midwife said after we had finally been discharged from hospital. My discharge notes stated that I was "tearful" a lot. In reality, that was an understatement.

My newborn was weighed regularly at home after losing a critical amount of weight in hospital, due to us both being unwell after his birth. I had experienced a massive postpartum haemorrhage after a forceps delivery with episiotomy, and my son was born with a very low Apgar score. It was terrifying, and I felt that I had failed my son at birth and now with his feeding. An awful fear remained with me that I couldn't keep us safe.

I told my midwife that I kept replaying the birth in my head, and that I had obsessive thoughts, seeing danger everywhere. I felt so ashamed that my mind was conjuring up dark thoughts when I was meant to be in the happiest period of my life.

My midwife referred me for a birth debrief session, and I received breastfeeding support from my health visitor. I was terrified that they would think I was a danger to my baby because of the intrusive thoughts, and was reassured that they didn't. However, when they stopped visiting, it felt like we had to cope alone, as the appointment for the promised debrief took months to come through.

My GP focused on my immediate physical recovery, but didn't ask how I was coping. I felt reluctant to bring up the psychological impact of the birth, although I did say how hard I was finding the physical complications.

I was offered medication and counselling through the Improving Access to Psychological Therapies programme, but the waiting list was around 12 months. This felt an impossible time to wait.

I presented to the GP surgery several times after that, with infant colic, reflux, rashes, and colds. I was once asked whether I had support at home. I explained I had. No more questions were asked about how I was feeling. It felt like my birth trauma had been forgotten by the healthcare professionals and that I should try to do the same.

Long term consequences

The consequences of not getting the help I needed in those early months were far reaching. With post-traumatic stress disorder came anxiety and depression. My marriage was negatively affected, and I worried endlessly that those early months would have adverse effects on my son's development or on our bond. During my subsequent pregnancy in 2020 I developed tokophobia with prenatal depression and anxiety.

The consequences of not getting the help I needed were far reaching

When I gave birth to our youngest son, I was incredibly relieved that I could have an elective caesarean, as advised by the consultant to prevent further physical and emotional trauma. The sense of control was reassuring. I felt strongly that a caesarean was the quickest and safest route to deliver my baby, as I was fearful of the unpredictability of labour and vaginal birth after the terror and powerlessness I had experienced during my birth trauma.

I am also grateful that I received extensive help and support from my GP, midwife, and specialist perinatal services during my second pregnancy and after the birth.

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Competing interests: None declared.

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CASE REVIEW

A man with a cavitating lung lesion

A renal inpatient, a man in his 70s, was referred to respiratory medicine with abnormal appearances on chest radiography. His history included haemodialysis for obstructive uropathy and chronic myelomonocytic leukaemia, for which he took hydroxycarbamide. He was otherwise well with no respiratory history. He could usually walk one mile independently. He was a non-smoker and was not taking immunosuppressants. He reported no chest pain, weight loss, or haemoptysis.

He had been a renal inpatient for two weeks for lower limb cellulitis treatment with intravenous teicoplanin. Chest radiography on admission (part of a septic screen) showed no abnormality.

During his admission, at 2 kg above his dry weight (post-haemodialysis target weight), he became breathless and a repeat chest radiograph was performed (fig 1), prompting blood tests and the respiratory referral. Inflammatory markers were still raised (table). Serum β D-glucan, *Aspergillus galactomannan* antigen test results, and three blood cultures were all negative.

1 **What is seen on the chest radiograph?**

2 **What are the differential diagnoses?**

3 **What is the most likely diagnosis?**

Submitted by Matthew Steward and Anthony Hall

Patient consent obtained.

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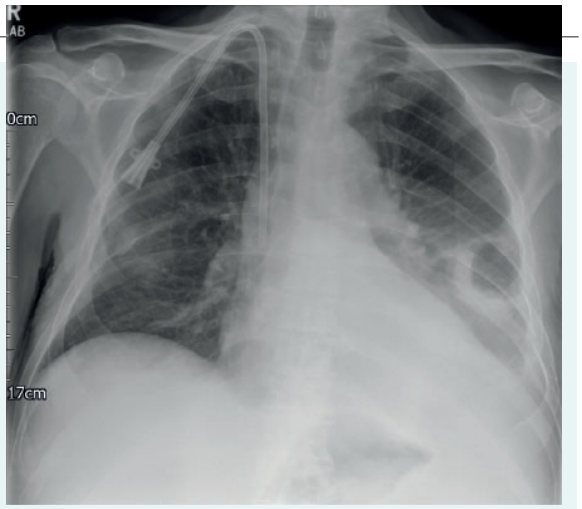


Fig 1 | Erect chest radiograph, anteroposterior projection

Relevant laboratory blood test results at time of referral to respiratory medicine

Test	Result	Normal range
C reactive protein (mg/L)	50	≤5
White cell count (×10^9/L)	28.5	3.8-10.6

If you would like to write a Case Review or Spot Diagnosis for Endgames, please see our author guidelines at http://bit.ly/29HCBAL

answers

CASE REVIEW **A man with a cavitating lung lesion**

1 What is seen on chest radiograph?

A moderate left sided pleural effusion with an associated biconcave, thick walled, cavitating lesion, and fluid in the left oblique fissure (fig 2). The right hemithorax is clear with an indwelling internal jugular catheter.

2 What are the differential diagnoses?

Differential diagnoses of cavitating lung lesions include tuberculosis, aspergillosis, septic emboli, cavitating pneumonia or lung abscess, malignancy, and granulomatosis with polyangiitis[1]; however, a benign aetiology is suggested by there being no air-fluid level within the cavity and fluid tracking through the left oblique fissure. Onset over two weeks makes rapidly progressive malignancy or chronic infection—for example, aspergillosis—unlikely.

Renal disease and hydroxycarbamide use increases infection risk, and the patient's inflammatory markers were raised despite cellulitis improvement. However, in the absence of infection symptoms, raised inflammatory markers can be assumed to be reactive and caused by concurrent chronic myelomonocytic leukaemia.

3 What is the most likely diagnosis?

Encysted pleural fluid caused by pleural effusion in the context of renal failure and fluid overload—as suggested by the increased weight after dialysis.

Pleural fluid can accumulate within fissures spontaneously to form lesions (pleural pseudotumours). These lesions are usually biconcave and found in association with pleural effusions, sited within the lung fissures. Their shape is deceptive for malignancy or, as in this case, much less commonly a cavitating lung mass.

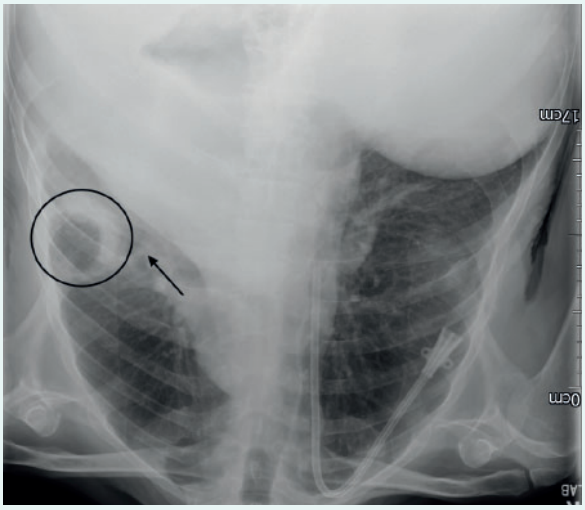


Fig 2 | Erect anteroposterior chest radiograph showing a thick walled cavitating lesion (circled) sitting above a moderate left sided pleural effusion. Fluid is seen in the left oblique fissure (arrow). A right sided internal jugular catheter is also noted

PATIENT OUTCOME

See bmj.com/endgames

LEARNING POINT

- Encysted pleural fluid can mimic tumours or, as this case shows, cavitating lesions

CPD READING 0.5 HOURS

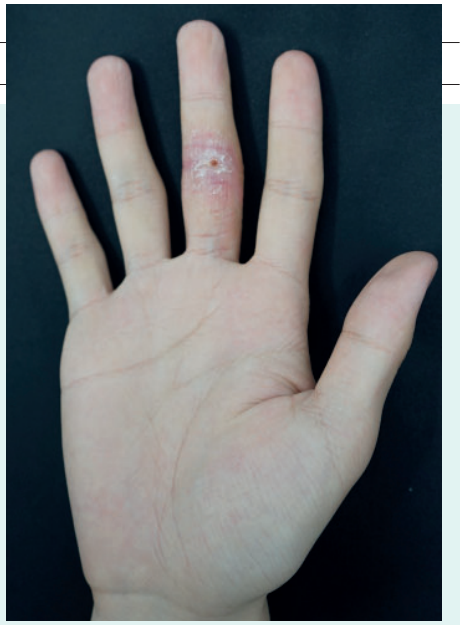
You can record CPD points for reading any article. We suggest half an hour to read and reflect on each.

LEARNING MODULE

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

MINERVA

A chronic painless plaque on the finger



This is an extragenital chancre on the right middle finger of a man in his late teens. He presented with a six month history of a painless lesion that began as a vesicle but formed into a plaque after being punctured. He was a fit and well heterosexual man with no relevant history. Apart from being sexually active, he did not have any specific risk factors for syphilis.

On physical examination, a non-tender indurated plaque with central crusting and scaling was noted. Systemic examination revealed no other skin lesion or enlargement of epitrochlear or axillary lymph nodes. Histopathology showed irregular epidermal hyperplasia and plasma cell rich perivascular infiltrate. A rapid plasma reagin test result was positive (titre 1:32) and a *Treponema pallidum* particle haemagglutination assay produced a strongly positive result. Primary syphilitic chancre was diagnosed.

Chancres mostly occur on the genitals, anorectal mucosa, and oral cavity but can develop anywhere on the skin and mucous membranes. A plasma cell infiltrate is characteristic of primary chancres. Lack of awareness of extragenital chancres often results in delayed diagnosis, so chancres should be considered in any sexually active patient with a solitary painless plaque on the hand after skin trauma.

Xiaoting Song; Aiping Wang (wangap516@163.com), Peking University First Hospital, Beijing, China

Patient consent obtained.

Cite this as: *BMJ* 2022;377:e070245

If you would like to write a Minerva picture case, please see our author guidelines at http://bit.ly/29HCBAL and submit online at http://bit.ly/29yyGSx

Herpesvirus infection and risk of diabetes

Eight herpesviruses are known to affect humans. All of them cause lifelong latent infections in their hosts after an initial infection that is usually mild or asymptomatic. A longitudinal survey in Germany raises the possibility that they increase the risk of diabetes. Participants who tested positive for HSV2 or cytomegalovirus at recruitment were, respectively, 59% and 33% more likely to develop prediabetes or diabetes during seven years of follow-up than those who had been seronegative (*Diabetologia* doi:10.1007/s00125-022-05704-7).

Medical treatment for bipolar disorder

A registry based study of people with bipolar disorder from Denmark finds that those taking lithium had a 50% lower rate of suicide compared with those not receiving any drug treatment. In within-individual analyses, all types of mood stabilising drugs were associated with lower rates of admission to psychiatric hospitals, compared with periods not on treatment. However, because the indications for starting treatment may themselves be related to health outcomes, one can't be sure that these findings show the effectiveness of treatment (*Br J Psychiatry* doi:10.1192/bjp.2022.54).

The risk of death from all causes was 75% higher in men with symptoms of sexual dysfunction

Erectile dysfunction associated with higher mortality

Men with erectile dysfunction have higher mortality, according to a European survey of nearly 2000 community dwelling men aged 40-79. Over 13 years' observation, the risk of death from all causes was 75% higher in men with symptoms of sexual dysfunction compared with men without symptoms. Total testosterone levels were similar in both groups, but free testosterone levels were lower in those who died (*Age Ageing* doi:10.1093/ageing/afac094).

Carotenoids in a healthy diet

Carotenoids are widely believed to possess antioxidant properties and to be an important part of a healthy diet. An analysis of data from 3000 people with type 2 diabetes who took part in a US survey of nutrition raises doubts. People in the highest quarter of the distribution of serum β-carotene concentrations had double the risk of cardiovascular death compared with people in the lowest quarter (*Diabetes Care* doi:10.2337/dc21-2371).

Non-publication of randomised trials

Eight years ago, an investigation of the publication history of 1000 randomised controlled trials (RCTs) given ethical approval between 2000 and 2003 discovered that discontinued and unpublished trials were common (*JAMA* doi:10.1001/jama.2014.1361). Since then, improvement has been disappointingly slow. When 300 RCTs that had received ethical approval in 2012 were tracked, it transpired that 6% had never been registered, 30% had been discontinued (usually because of poor recruitment), and 21% had not been published (*PLOS Med* doi:10.1371/journal.pmed.1003980).

Long term effects of high blood pressure

Hypertension is a known risk factor for dementia and it's hardly surprising that the longer the raised blood pressure lasts, the larger the effect. Combined data from two longitudinal studies of older people reveal that a cumulative measure of blood pressure over eight years shows dose-response relations with rates of cognitive deterioration and all-cause mortality (*J Am Coll Cardiol* doi:10.1016/j.jacc.2022.01.045).

Duloxetine in hip or knee osteoarthritis

People with chronic pain from hip or knee osteoarthritis are unlikely to benefit from the addition of duloxetine to analgesics and non-steroidal anti-inflammatory drugs. In a cluster randomised trial, 66 patients were allocated to receive duloxetine in addition to usual care, and 66 to receive usual care alone. Judged by WOMAC pain scores at three and 12 months, no difference was observed between the two groups (*Arthritis Rheumatol* doi:10.1002/art.42040).

Cite this as: *BMJ* 2022;377:o1244