Department of Neurosurgery

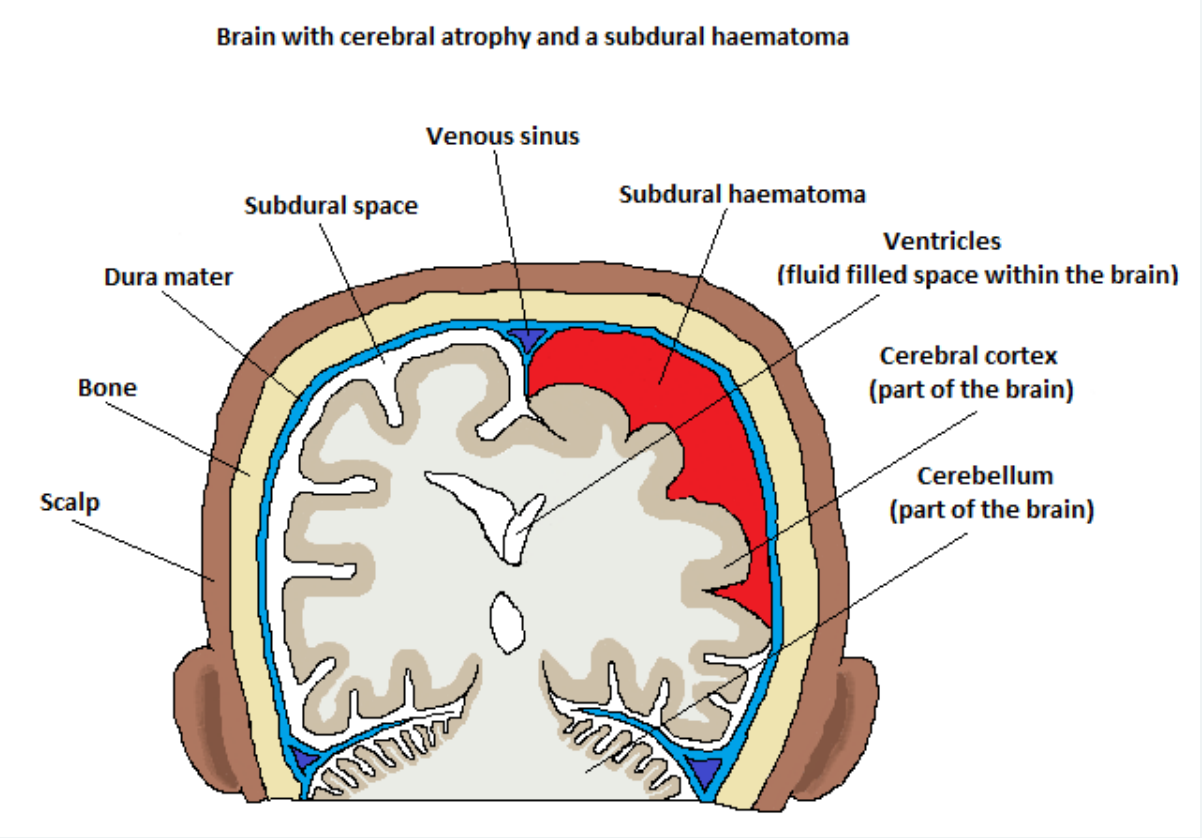
Subdural haematoma

Information for patients, relatives and carers

Contents

Overview

A subdural haematoma is a condition where blood collects between the skull and the surface of the brain, beneath the dura, a membrane overlying the brain. It is usually caused by a head injury, which may be very mild. If a bleed has only just occurred, then the blood is described as acute. If it has been there for some time it is called a chronic subdural haematoma.



In a subdural haematoma, symptoms such as headache, feeling like vomiting or actually vomiting, confusion and/or difficulty speaking, weakness in an arm and/or leg, and drowsiness, may occur immediately following a head injury, or they may occur days to weeks later.

A subdural haematoma is diagnosed by scanning the head, typically using a CT scan.

A common treatment is surgery, which aims to remove the blood. Another option in some cases is a medication (steroids), which reduces the pressure inside the head. Sometime patients are purely monitored, and no intervention is carried out.

How long it takes to recover and whether someone recovers completely will depend on the severity of the haematoma and underlying brain injury, and what treatment is given.

Symptoms

Symptoms of a subdural haematoma can develop immediately following a head injury (as occurs in an acute subdural haematoma), but may also develop slowly over days to weeks following the injury (as in a chronic subdural haematoma). Sometimes people may not remember having hit their head. Symptoms include:

- severe headache or a headache that continues to worsen over time
- feeling like vomiting or actually vomiting
- being confused, not knowing where you are or what you are doing
- personality changes, rapid mood swings or being unusually aggressive
- feeling very drowsy and having difficulty staying awake or concentrating
- difficulty speaking such as slurring words, or having difficulty finding the words you want to say
- problems with vision, such as double or blurred vision
- weakness or difficulty moving your arm and/or leg on one side of the body
- problems with walking and balance with frequent falls
- seizures, where the person may have rhythmic jerking of their limbs or eye movements, and stop responding
- loss of consciousness, not responding to people speaking to them or touching them, may be temporary or prolonged

Rarely will all these symptoms be present. Typically, they will occur in different combinations.

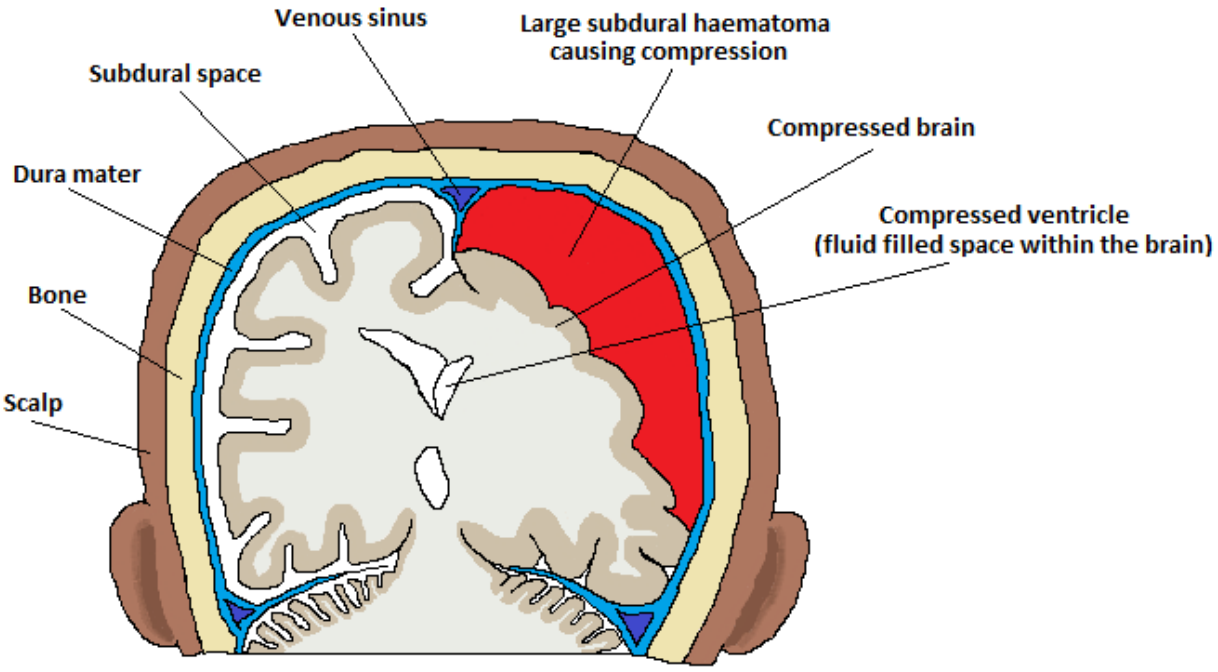
The most common symptoms are headache, feeling sick or vomiting and being drowsy.

Causes

Subdural Haematomas are usually from a head injury
In young people a subdural haematoma is usually due to a significant head injury, for example a direct blow to the head, or a car crash. This will cause an acute subdural haematoma. In an older person and people with certain health conditions, the injury may be very mild, such as tripping and hitting the head, and will only be identified at some time after the event (a chronic subdural haematoma).

A subdural haematoma is caused by damage to blood vessels running between the dura (one of the linings covering the brain) and the brain, or on the surface of the brain, causing bleeding. The blood then accumulates in the space between the skull, underneath the dura, and the brain, and puts pressure on the brain, causing damage.

Brain with cerebral atrophy and a large subdural haematoma causing compression of the brain



An acute subdural haematoma causes symptoms quickly, within hours to days.

A chronic subdural haematoma takes longer to cause symptoms, and they may develop over weeks.

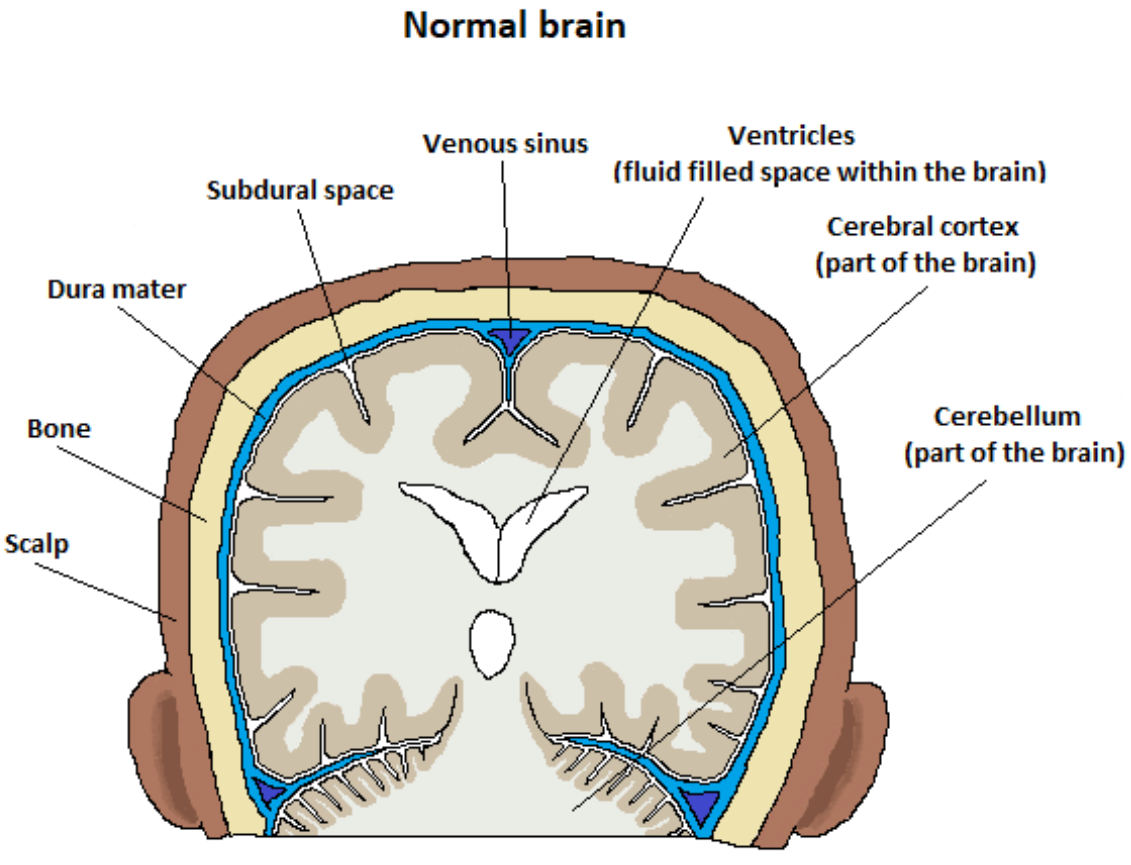
A sub-acute subdural haematoma means a haematoma that causes symptoms after a few days, but before a few weeks.

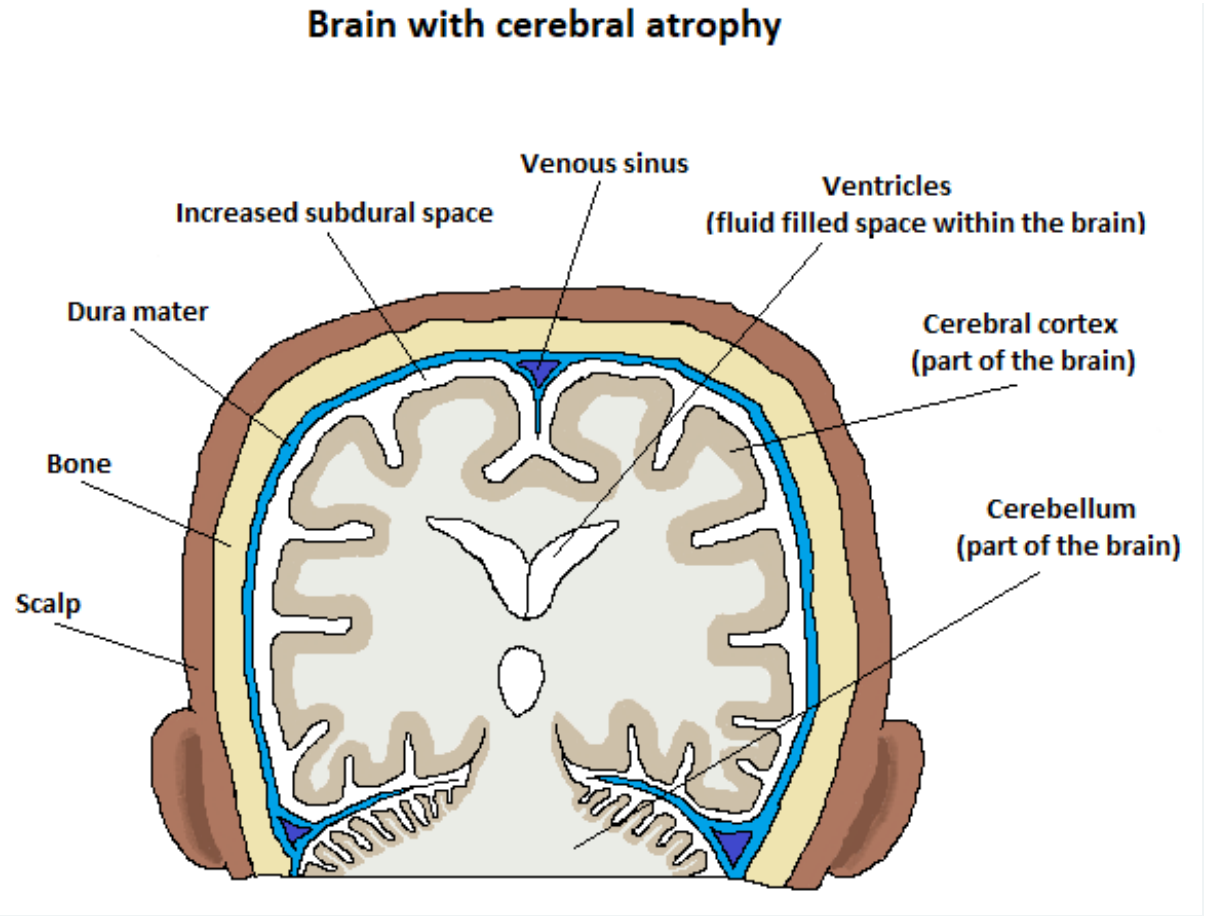
An acute on chronic haematoma means there have been two or more separate bleeds at different times.

Who is at risk?

Older people are more at risk of subdural haematomas, because as people age the brain normally shrinks a little (cerebral atrophy) inside the skull. This means that the blood vessels running between the brain and the dura, the membrane lining the skull, are stretched and can tear more easily.

Drinking a large amount of alcohol over a long time, usually years, also causes the brain to shrink and increases the risk of a subdural bleed.





People who take medications to thin the blood for other health problems have an increased risk of bleeding. If they have a head injury they are more likely to develop a subdural haematoma. Medications that thin the blood include aspirin, clopidogrel, warfarin, heparin, dabigatran, apixaban and rivaroxaban.

Other conditions can also increase the risk of developing a subdural haematoma, such as problems with the blood not clotting, cancers in the brain either from the brain or that have spread to the brain from other places in the body, and people with shunts diverting brain fluid (cerebrospinal fluid) flow.

Conditions that cause seizures or fits, such as epilepsy, also increase the risk.

How subdural haematoma is diagnosed

A subdural haematoma is diagnosed by a scan of the head**.**
People that have symptoms and an injury that makes a subdural haematoma likely will usually have blood tests to check their clotting and blood counts, as well as a scan, typically a CT of their head.

A CT (Computed Tomography) scan, is a scan that is made by a computer using lots of x-rays taken from different angles very quickly, to form images that can then be viewed.

Some people with subdural haematomas not caused by a direct head injury will need imaging of the blood vessels, and an MRI scan of their head and spine to try and find the cause of the bleeding.

An MRI (Magnetic Resonance Imaging) scan is a machine that uses magnets to make an image of a person. There is no radiation involved. It provides more details of the brain and spine itself.

When people with a subdural haematoma are being assessed, doctors will use a system called the Glasgow Coma Scale (GCS), to grade the conscious level.

This is broken into three sections: **eyes, voice and movement**. A person without any problems at all has a score of 15, and the lowest score is three.

The eyes section looks at whether a person opens their eyes without prompting, when asked, or when pressure is very briefly applied.

The voice section assesses whether a person can speak and say where, when, and who they are, or if they are confused, or only able to make sounds.

The movement section looks at whether a person can follow instructions or if they only move to pressure.

Treatment

A lot of people will need surgery for a subdural haematoma, but some people with very small subdural haematomas, who have only mild symptoms, or no symptoms at all, may be able to be monitored and the blood may resolve without an operation. Alternatively, they may be given steroids, a type of medication with multiple functions, which in this instance works to reduce swelling. If surgery is required it will depend on the location of the bleed, the symptoms and the state of the individual.

The steroid used for the treatment of a subdural haematoma is called dexamethasone. Initial treatment is a reasonably high dose of dexamethasone, which may then be slowly decreased to stop. Dexamethasone is a frequently used medication, and like most medicines have side effects. However, these are less common when taken as a short course.

The most common side effects are:

- indigestion causing abdominal discomfort, nausea and vomiting. Rarely it can cause stomach ulcers, however an additional medication is given to decrease this risk
- high blood sugar levels. People with diabetes may need an increased dose of their usual medications during treatment, and have their blood sugar monitored more often
- mood changes and sleep disturbance
- thinning of the bones, eyesight problems and blood pressure problems, however these are typically only with prolonged use

If treated with steroids or purely monitored, and the individual is well enough, it may be appropriate for them to complete their treatment at home and be reviewed in clinic.

If an operation is required, it will be carried out by a neurosurgeon (a surgeon who specialises in operating on the brain and spinal cord) and will usually be one of two types. Depending on the severity and type of bleed, a patient may need a craniotomy or burr hole evacuation of the blood.

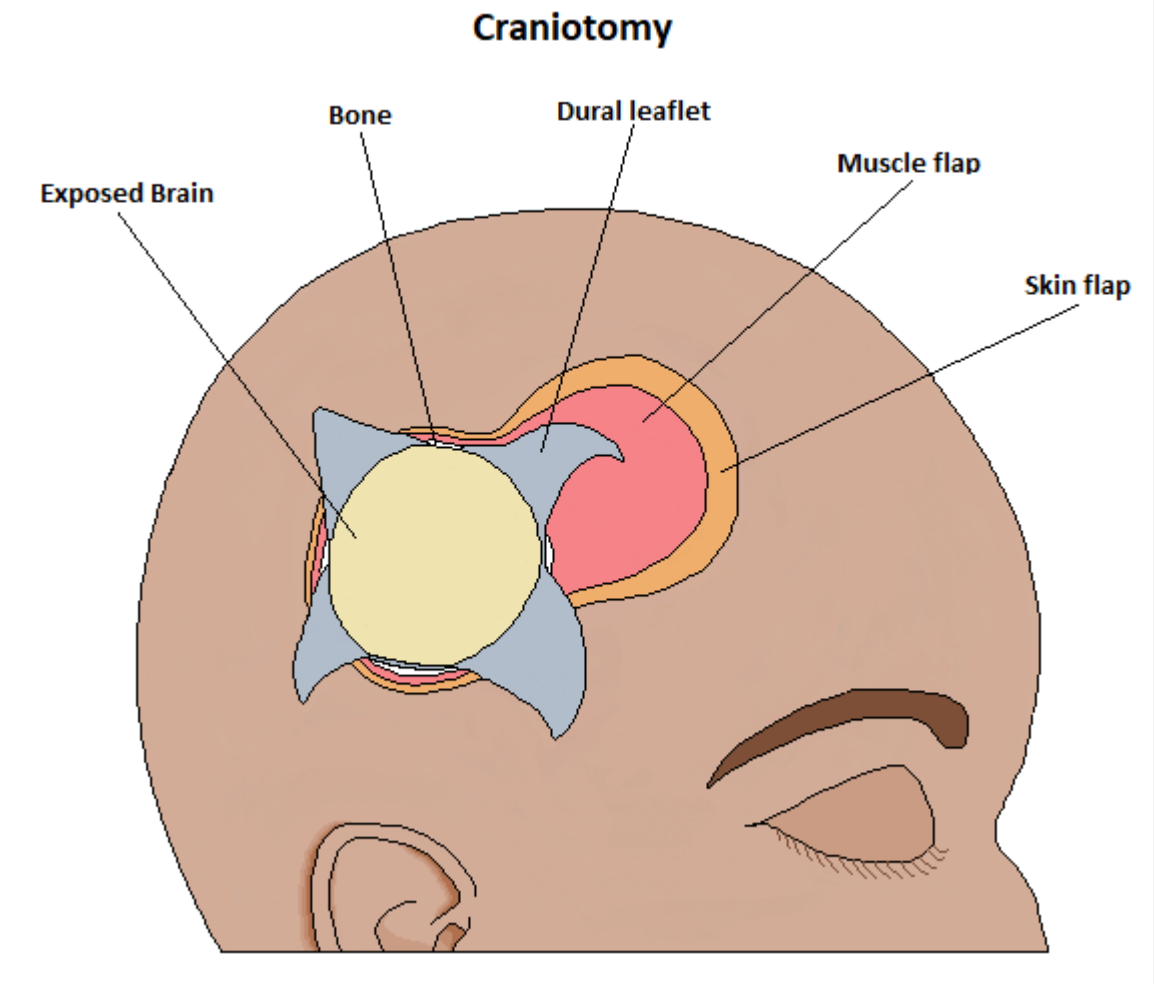
Craniotomy

A craniotomy is where the skin is opened as a flap to allow a window to be made in the bone of the skull. The membrane overlying the brain, the dura, is then opened to remove the subdural haematoma and thereby relieve the pressure on the brain. Once the blood has been removed, and there is no bleeding, the piece of bone is replaced and the skin is stitched back in place.

This is usually performed under a general anaesthetic, meaning the patient is asleep. A drain may be placed temporarily to help stop the blood from collecting again.

A craniotomy is typically performed if someone has a large acute subdural haematoma that has developed very quickly.

If the brain is very swollen after the blood has been removed, then the bone may be left out and only the skin stitched back together. This is called a craniectomy and it allows the brain more space to swell outward if needed.

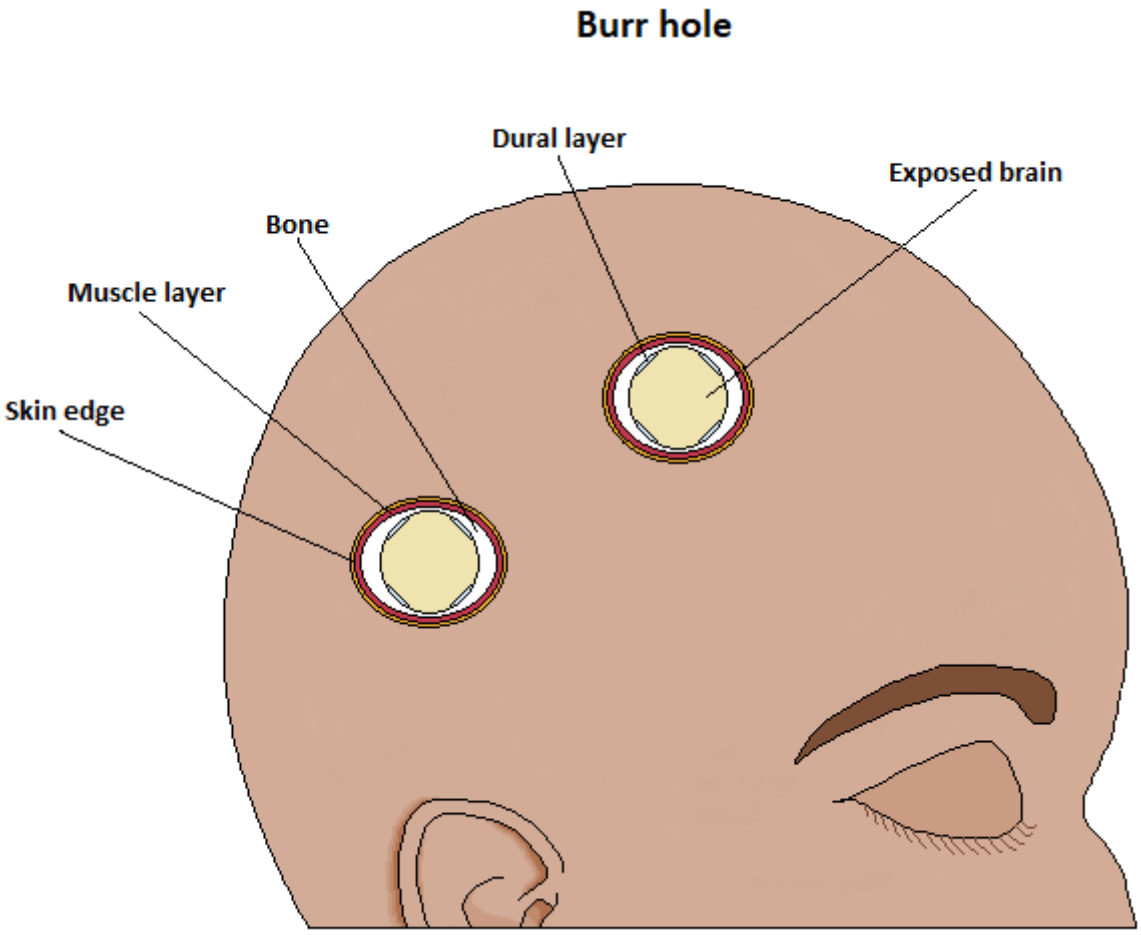


Burr hole

Burr hole evacuation is where a small opening is made in the skin, and a small hole (about the size of a 5p piece) is drilled through the skull. The membrane overlying the brain, the dura, is then opened to allow the blood of the subdural haematoma to be removed. Once the blood has been washed out, the skin is closed. A drain is often used to help stop the blood from collecting again. Typically, two holes are drilled, although it depends on the location of the blood and the individual patient. Sometimes, the blood does not come out as planned and the two holes are joined, to make a larger opening, a minicraniotomy.

Burr hole operations are usually performed under general anaesthetic, but can be carried out under local anaesthetic if necessary. This is where the individual is awake, and the area is numbed first, so they do not feel any pain during the operation.

A burr hole operation is usually carried out for people that have a chronic subdural haematoma, as the blood becomes thin over time, and therefore can be removed via just small holes.



Craniotomy and burr hole operations have some risks in common with other surgeries, such as bleeding, infection, seizures, blood clot in the leg going to the lung (DVT and PE), and problems with the general anaesthetic.

There are also other risks because the operation is near the brain, including:

- Damage to the brain and/or blood vessels of the brain causing problems with movement of the arm and/or leg, speech difficulties, reduced level of consciousness, risk to life
- It may not be possible to safely remove all of the blood, or the blood may re-collect and need to be drained again at a later time

Recovery

Some people will recover quickly from a subdural haematoma and be able to go home only a few days after their operation, but others may need longer in hospital. The subdural haematoma may cause damage to the brain which may take time to heal, and in some cases people may never fully recover.

How quickly a person recovers depends on how severe the damage to the brain was from the bleed, how well the person was before developing the subdural haematoma, whether there were any complications during the hospital stay, and the management of the subdural haematoma.

People may have symptoms that only partially improve or do not improve at all. They often report feeling tired, having problems with concentration and with memory. There may also be weakness, speech problems or seizures/fits. If a person has ongoing symptoms following treatment they may need rehabilitation to help improve function. This includes input from different health professionals including physiotherapists, occupational therapists, and speech and language therapists. Some people may also benefit from treatment by a psychologist.

Sometimes people need more scans after their operation to check if the haematoma has returned. They may also need more than one operation.

Older people undergoing surgery may also encounter delirium, where the brain struggles to cope with the stresses that the body is under. This may make recovery take longer.

Returning to normal activities
Before driving, flying or returning to work or sport the patient should speak to the neurosurgeon, as there may be restrictions. This will depend on the severity of the bleed and the treatment received.

When at home, a graded return to activities is recommended, allowing time each day to rest without any distractions, such as TV or music.

Frequently asked questions

When you can drive again
Everyone that has a subdural haematoma is required by law to notify the Driver and Vehicle Licensing Agency (DVLA). There are different restrictions for motorcycle/car licenses and bus/lorry licenses.

The period of time a person is not allowed to drive is dependent on whether they had an acute or chronic subdural haematoma, how the subdural haematoma occurred, the treatment given and whether the subdural haematoma has fully resolved after treatment. Whether a seizure occurred is another factor.

The DVLA website has information regarding the restrictions, under the neurological disorders: assessing fitness to drive section. This should be discussed with the treating neurosurgeon at the follow up appointment.

When to come back to the hospital after surgery

A person who has been treated for a subdural haematoma should come back to hospital if they develop any of the symptoms detailed in the symptoms section above, or if they have any concerns. They should also return if they develop any signs of infection such as chills, shivers, sweats, fevers, neck stiffness or light sensitivity. If they have problems with their wound not healing properly, bleeding from the wound or any discharge or pus from the wound, they should return to the hospital.

References:

1. NHS, [website], 2018 https://www.nhs.uk/conditions/subdural-haematoma/, (accessed 18 June 2019).
2. McBride, W. 'Subdural hematoma in adults: Prognosis and management', UpToDate, 2018, https://www.uptodate.com/contents/subdural-hematoma-in-adults-prognosis-and-management?search=subdural%20hematoma&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1, (accessed 18 June 2019)
3. McBride, W. 'Subdural Hematoma in adults: Etiology, clinical features, and diagnosis', UpToDate, 2015, https://www.uptodate.com/contents/subdural-hematoma-in-adults-etiology-clinical-features-and-diagnosis?search=subdural%20hematoma&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2, (accessed 18 June 2019)

How do I make a comment about my visit?

If you have any **suggestions** or **comments** about your experience in hospital, please speak to a member of staff or contact the patient advice and liaison service (**PALS**) on **020 3313 0088** (Charing Cross, Hammersmith and Queen Charlotte's & Chelsea hospitals), or **020 3312 7777** (St Mary's and Western Eye hospitals). You can also email PALS at imperial.pals@nhs.net

The PALS team will listen to your concerns, suggestions or queries and is often able to help solve problems on your behalf.

Alternatively, you may wish to complain by contacting our complaints department:

Complaints department, fourth floor, Salton House, St Mary's Hospital, Praed Street
London W2 1NY

Email: ICHC-tr.Complaints@nhs.net

Telephone: **020 3312 1337 / 1349**

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