KATARZYNA MACKENZIE

PLASTIC SURGEON

Basal Cell Carcinoma

Basal cell carcinoma (BCC) is the most common skin cancer. It is abnormal, uncontrolled lesion that arises in the skin's basal cells, which line the deepest layer of the epidermis (the outermost layer of the skin).

It presents as sores, red patches, pink growths, shiny bumps, or scars and is usually caused by a combination of cumulative and intense, occasional sun exposure. BCC almost never spreads (metastasizes) beyond the original tumour site.

Length of surgery	30-90 minutes
Anaesthesia	General or local anaesthetic
Hospital stay	Day case
Risks/complications of surgery	Frequent: Swelling, bruising Infrequent: Infection, unsightly scarring, bleeding (haematoma), wound healing problems, permanent numbness, incomplete excision, flap/graft loss
Recovery	5 days facial sutures removed 2 weeks body sutures removed 2-4 weeks until swelling disappears 2-4 weeks until return to gym and other strenuous activities 12 weeks until final result – scars continue to improve over the next 12 months
Driving	1-7 days
Follow up	2 weeks, 6 weeks, 3 months
Duration of results	Permanent unless recurrence

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What is basal cell carcinoma?

Basal cell carcinoma (BCC) is the most common, locally invasive, keratinocytic non-melanoma skin cancer. It is also known as rodent ulcer. It rarely spreads to other parts of the body or kills but it can cause significant destruction and disfigurement by invading surrounding tissues.

What are the risk factors for BCC?

The main risks factors for developing BCC are:

- Long term sun exposure
- Older age
- Gender-more common in male patients
- Fair skin, blue or green eyes, blond or red hair
- Previous skin cancer
- Sun damage-actinic keratosis
- Previous cutaneous injury-thermal burn, lupus, sebaceous naevus
- Immunosuppression
- Ionising radiation and exposure to arsenic
- Family history

Who is more likely to develop BCC?

The following groups of people are at greater risk of developing the BCC:

- Immunosuppressed patients
- People who have had significant long term ultraviolet light exposure
- People susceptible to sunburn
- People who use sun beds regularly
- People with inherited syndromes-Gorlin syndrome, xeroderma pigmentosum, Bazex-Dupre-Christol syndrome

What causes BCC?

The cause of BCC is multifactorial, however most often there are DNA mutations in the PTCH tumour suppressor gene, part of hedgehog signalling pathway.

What are the clinical features of BCC?

BCC can vary in their appearance, but most usually it appears as:

- Slowly growing plaque or nodule. Sometimes the patch crusts
- May be skin coloured, pink or pigmented
- Pink growth with elevated rolled border, crusted indentation in the centre and tiny vessels on the surface
- Can bleed and ooze
- Can present as a scar-like area
- May ulcerate
- Vary in size from few millimetres to several centimetres in diameter
- In addition to the signs of BCC listed above, any change in a preexisting skin growth, such as an open sore that fails to heal, or the development of a new growth, should prompt an immediate review

What are the types of BCC?

Nodular BCC

- Most common type
- Commonly on the face
- Shiny or pearly lump with a smooth surface
- May have central ulcer
- Blood vessels cross its surface

Superficial BCC

- Most common type in younger adults
- Often multiple
- Most common type on upper trunk and shoulders
- Scaly, irregular plaque
- Bleeds or ulcerates

Morphoeic BCC

- Usually found in mid-facial sites
- Waxy, skin-coloured, scar-like plaque with indistinct borders
- May infiltrate cutaneous nerves (perineural spread)
- Prone to recurrence after treatment
- Also known as sclerosing BCC

Basosquamous carcinoma

- Mixed BCC and SCC
- Infiltrative growth pattern
- Potentially more aggressive than other forms of BCC
- Also known as basosquamous carcinoma and mixed basal-squamous cell carcinoma

Pigmented BCC

- Brown, blue or greyish
- May resemble malignant melanoma

How is BCC diagnosed?

Diagnosis of BCC is based on clinical features. To confirm the diagnosis, a small piece of the abnormal skin (a biopsy), or the whole area (an excision biopsy), is removed under a local anaesthetic and sent to a pathologist to be examined.
Some typical superficial BCCs on trunk and limbs are clinically diagnosed and have non-surgical treatment without biopsy.

How can BCC be treated?

If caught early, BCC is curable and cause minimal damage. However, the larger and deeper a tumor grows, the more dangerous and potentially disfiguring it may become, and the more extensive the treatment must be.

The treatment used will depend on the type, depth of penetration, size and location of the BCC, as well as the patient's age and general health.

Most BCCs (nodular, infiltrative, morphoeic) are treated surgically. This involves removing the BCC with a margin of normal skin around it (3-4mm), using a local anaesthetic. The skin is then closed with stitches or defect is reconstructed with a local flap or skin graft.

Sometimes other surgical methods are used such as:

Mohs Surgery

It is done by a physician trained in Mohs micrographic surgery. While the patient waits, frozen sections of this excised layer are mapped in detail and examined under a microscope, generally in an on-site laboratory. If cancer is present in any area of the excised tissue, the procedure is repeated only on the

body area where those cancer cells were identified (the tissue mapping allows the Mohs surgeon to pinpoint this area of the body), until the last excised layer viewed microscopically is cancer-free. This technique can save the greatest amount of healthy tissue and has the highest cure rate, 99 percent or better. It is used in high-risk areas of the face around eyes, lips and nose.

Curettage and cautery

It is suitable for small, well defined nodular or superficial lesions. This involves scraping the BCC away under local anaesthetic. Wound is left open to heal by itself.

Cryotherapy (freezing)

It is reserved for small, superficial BCCs on trunk and limbs. The tumor tissue is destroyed by freezing it with liquid nitrogen, using a spray device. Later, the lesion and surrounding frozen skin may blister or become crusted and fall off, usually within weeks. The procedure may be repeated several times at the same session to help ensure destruction of all malignant cells. Redness, swelling, blistering and crusting can occur following treatment. Leaves a permanent white mark.

Topical anti-cancer ointments

These ointments include 5-fluorouracil (5-FU) and imiquimod for treatment of superficial BCC. Imiquimod stimulates the immune system to produce interferon, a chemical that attacks cancerous and precancerous cells, while 5-FU is a topical form of chemotherapy that has a direct toxic effect on cancerous cells. Imiquimod is applied 3-5 times each week for 6-16 weeks while f-FU requires prolonged course twice daily for 6-12 weeks. It can take up to 12 weeks to fully settle down.

Photodynamic therapy

It may be used for some superficial BCCs but is best avoided if tumour is in site at high risk of recurrence.

Radiotherapy

It is mainly used if surgery is not suitable. Can’t be used in Gorlin syndrome.

Combined therapy

For advanced BCC, BCC that is recurrent or has spread to other parts of the body a combination of surgery, radiotherapy and targeted therapy is used. That is discussed by a multidisciplinary team of specialists. Oral drugs for advanced or metastatic BCC include Vismodegib and Sonidegib, which are oral hedgehog inhibitor drugs. They have significant risks and side effects.

It is important to note that (unlike Mohs surgery and excisional surgery), curettage and electrodesiccation, radiation, cryosurgery, and topical medications all have one significant drawback in common – since no tissue is examined under the microscope, there is no way to determine how completely the tumour was removed.

What is involved in the operation?

Usually this surgery is carried out under local anaesthesia or under general anaesthesia if it is more extensive or in a difficult location. The procedure can take between 30 and 90 minutes depending on the extent of surgery. Multiple lesions can be removed at the same time.

The skin lesion is removed with a margin of normal appearing skin around to ensure that it is fully removed. The size of this margin is usually in the region of 3 to 4 mm but for some skin cancers can be up to 2 cm. This will depend on the exact type and size of the skin cancer. The lesion will be sent away to be examined by pathologist.

The skin is usually stitch together directly or a local flap or a skin graft is required to reconstruct the defect. A local flap involves moving skin from the surrounding area in a carefully planned way so that the wound can close nicely. The borrowed skin is then stitched in place. A skin graft involves transferring skin from one area to another to heal the wound. The skin graft is then stitched into its new position. Where it is taken from (the donor site) is either stitched together or allowed to heal from the remaining bottom layer of skin depending which type of skin graft is used.

Dr Mackenzie will apply a dressing to the operation site, which will need to be left in place for a few days. You will be given additional dressings as required, and any appropriate post-operative medication will be prescribed.

What can you expect after the operation?

As the local anaesthetic wears off, the operation site may feel sore. Painkillers such as paracetamol will help.

You should take it easy for the first few days and take special care not to bump or knock the operation site. If you have had a lesion removed from your face, it may be helpful to sleep using some extra pillows as this will help to reduce swelling and bruising. If the skin lesion was on your arm or leg, it is best to try to elevate the limb as much as possible for the first few days.

You should not apply make-up to the operation site until you have had your stitches removed.

You need to keep the wounds dry for 48 hours. You can shower then and gently dab the wounds dry. You may use a hairdryer on a cool setting to speed up drying. In the face, stitches will need to be removed between 5 and 7 days following surgery. When possible elsewhere on the body, Dr Mackenzie uses absorbable sutures, which do not need to be removed. If she has to use non-absorbable sutures, they will need to be removed between 10 and 14 days following surgery. It is usual to have some swelling and bruising in the area in the early stages.

A skin graft will usually be left undisturbed for 5 to 7 days and will have a dressing on it that will need to be kept clean and dry until then. If you had a split thickness skin graft, a well-padded dressing will be placed on the donor site as this may ooze for a few days. Unless problematic, this dressing should be left undisturbed until your follow up appointment.

It is usually possible to return to light activities the next day but strenuous activities will need to be avoided for about 2-4 weeks.
The area is usually healed in 2 to 3 weeks but the scar will continue to strengthen and then to soften and fade for 12 to 18 months afterwards.

What is the follow up for BCC?

Once a basal cell carcinoma has been completely removed, patients can usually be discharged with advice about sun safety, and what to look out for in the future. Sometimes, if the margin of safety has been reported as being narrow, that will be discussed with you about either taking some more skin away, or following you for a longer period of time to monitor the area for signs of the tumour coming back.

What are the complications of skin cancer surgery?

In general, this operation is safe. Nevertheless, no surgery is without risk. All general anaesthetics carry risks such as deep vein thrombosis and chest infection but with modern anaesthetic techniques, these are minimised. The most common complications include:

- Bleeding- holding firm pressure for 10 to 15 minutes with a clean towel or tissue is usually sufficient to stop this. If this is more than expected, please contact the hospital or clinic so that you can be advised or assessed
- Delayed wound healing
- Infection-if inflamed or ulcerated, Dr Mackenzie will prescribe antibiotics
- Poor scaring- they may be red or raised or lumpy or stretched than expected and further treatments will be recommended
- Partial or complete loss of a skin graft or skin flap- if part or all of the transferred tissue is lost, it may mean a longer time with dressings on the wound or occasionally further surgery to remedy the problem and heal the wound quicker

- Incomplete excision-we can see the cancer cells with a bare eye. Sometimes microscopically there are some cancer cells at the edge of the skin cancer excised. Dr Mackenzie will normally recommend a further procedure in this instance to completely treat the skin cancer and reduce the risk of it recurring

How can BCC be prevented?

Sun protection and being sun-smart reduces the risk of BCC and is especially vital for high risk patients. The following preventative measures will help to reduce the risk of BCC:

- Always wear sunscreen- at least SPF30+, should be broad spectrum (blocking both UVA and UVB radiation). Should be applied 15-30 minutes before going outside and then again immediately before going outside. Sunscreen needs to be reapplied regularly during the day (2-hourly in sunny weather, otherwise 3 to 4-hourly)
- Daily application to the face and hands regardless of your intended activities should be considered
- Avoid sun exposure-remain indoors or in shade during the middle of the day, between 11 am and 4 pm, when UV radiation levels are at their highest
- Cover up well- protect your skin with clothing, and don't forget to wear a hat that protects the face, neck and ears, and sunglasses
- Sunbeds and sunlamps should be avoided
- Don't get sunburnt
- Keep newborns out of the sun
- Regularly checking your skin for signs of skin cancer can help lead to an early diagnosis and increase your chances of successful treatment
- It's also important to be aware that if you've had a non-melanoma skin cancer, your risk of developing another one in the future is increased therefore regular skin check-ups are recommended