Bowen's disease causes one or more small patches of scaly red skin. It occurs when there is a growth of abnormal cells in the outer layer of skin (the epidermis) in the affected area. It is not a skin cancer but it is important because it can sometimes develop into a skin cancer. For this reason, treatment is usually advised. Close follow-up is needed after treatment to check for any return (recurrence) of Bowen's disease.

Understanding the skin

The skin has two layers - the outer layer (epidermis) and the inner layer (dermis). Beneath the dermis is a layer of fat and then the deeper structures such as muscles and tendons.

The epidermis has three main types of cell:

- **Basal cells.** These are the bottom layer of cells in the epidermis.
- **Keratinocytes.** These cells are in layers above the basal layer. They make a substance called keratin which is a hard waxy material. Keratinocytes are constantly dividing and a certain number are dying at any given time. The top (horny) layer of the epidermis is made of dead keratinocytes which contain keratin. The top of the skin is constantly being shed and replaced by new dead cells which contain keratin.
- **Melanocytes.** These cells are dotted about at the bottom of the epidermis. They make a pigment called melanin when skin is exposed to sun. The melanin is passed to the nearby skin cells to protect them from the sun's rays. Melanin causes the skin to tan in fair-skinned people. Dark-skinned people have more active melanocytes.
What is Bowen's disease?

Bowen's disease is named after the skin specialist (dermatologist) who first described it in 1912. It occurs when there is a growth of abnormal cells in the outer layer of the skin (epidermis). These abnormal cells are just within the epidermis and have not spread anywhere else.

It is not a skin cancer but can sometimes develop into a skin cancer. Some doctors refer to Bowen's disease as a pre-cancer because it has the potential to develop into a cancer. It may also be called a type of 'carcinoma in situ'. 'Carcinoma' means cancer and 'in situ' means 'in its place' in Latin. That is, the abnormal cells have not spread further than the epidermis so there is no sign of an invading cancer.

It is estimated that around 3 in 100 patches of Bowen's disease can develop into a true skin cancer called a squamous cell carcinoma if not treated.

What are the symptoms of Bowen's disease?

Bowen's disease is typically a red-looking patch of skin that has an irregular outline. It tends to look crusty or scaly. Sometimes the patch of Bowen's disease can become cracked or ulcerated and can bleed. Patches can slowly enlarge. Patches of Bowen's disease may be a few millimetres in diameter but, in some cases, can grow to several centimetres. Sometimes, in its early stages, Bowen's disease can be mistaken for other skin problems such as ringworm, psoriasis or discoid eczema. The picture shows a typical patch of Bowen's disease on a leg.

Bowen's disease more commonly appears on areas of the skin that have been exposed to the sun. In the UK in about three quarters of cases, it occurs on the leg, below the knee. It may also appear on the neck or face, which is more common in Australia and the USA. It may be found under or around nails. It may be found on the palms of hands, on the soles of feet, around the back passage (anus) and in the genital area.

Bowen's disease-type skin patches that occur on the genital areas may be given some different names. For example, Bowen's disease that occurs on the penis is called 'erythroplasia of Queyrat'.

Most people just have one patch of Bowen's disease but 1 to 2 people in 10 can have more than one patch at the same time.

If a patch of Bowen's disease starts to become ulcerated, bleeds, or if a small bump appears, this could possibly be a sign that it has started to change into a skin cancer. See your doctor as soon as possible if this happens. Bowen's disease affecting the genitals or anus may be more likely to develop into a skin cancer than Bowen's disease in other places.

What causes Bowen's disease?

A patch of Bowen's disease can appear for no apparent reason and can affect anyone. However, there are a number of different things that are thought to increase your risk of developing Bowen's disease. These include:

- **Long-term sun exposure**. Also, use of sunbeds.
- **Previous radiotherapy treatment** - for example, for cancer.
- **Immunosuppression**. If your immune system is not working well for some reason, this can increase your risk of Bowen's disease. For example, if you have AIDS or if you are undergoing treatment for cancer. Also, if you have had an organ transplant, such as a kidney transplant, and have had drugs to suppress your immune system to prevent organ rejection.
Infection with the human papillomavirus (HPV). This is a germ (virus) that can affect your skin and the moist membranes (mucosa) that line different parts of your body, including your mouth, throat and genital area. There are over one hundred types of HPV. Some types of HPV can cause skin warts and verrucas; others can cause genital warts. However, many types do not cause any problems at all. Some types of HPV are known to increase the risk of developing particular cancers, including cervical cancer. It is thought that HPV may also be involved in the development of both genital Bowen's disease and Bowen's disease affecting other parts of the skin. HPV type 16 is most commonly associated. However, not everyone with Bowen's disease has HPV infection. HPV Immunisation provides protection against most of the cancer-causing strains of HPV.

- **Previous injury to the skin.** If you have had an injury to your skin that has caused persistent (chronic) skin damage or scarring, this may increase your risk of developing Bowen's disease in that area.

- **Inflammatory skin conditions.** Rarely, people with chronic skin inflammation problems such as eczema can develop Bowen's disease.

**How common is Bowen's disease?**

Around 15 per 100,000 people in the UK are thought to develop Bowen's disease each year.

**Who develops Bowen's disease?**

Bowen's disease seems to be more common in women than in men. Around three quarters of cases are in women. It most commonly affects people aged in their 60s. It is more common in people with white skin and on parts of the body where the skin has been exposed to the sun.

You may also be more likely to develop Bowen's disease if you have previously had one of a group of skin cancers called non-melanoma skin cancers. These are skin cancers that are not malignant melanoma. They include basal cell carcinoma and squamous cell carcinoma. See separate leaflet called Skin Cancer - Non-melanoma for more details.

You are also more likely to develop a non-melanoma skin cancer if you have had Bowen's disease. This is probably due to excessive sun exposure being a risk factor for both Bowen's disease and non-melanoma skin cancers.

**How is Bowen's disease diagnosed?**

Bowen's disease is usually suspected by its typical appearance on the skin. However, to make a diagnosis, a small sample of skin (a biopsy) may be taken. This is then examined in a laboratory. Bowen's disease will have a typical appearance when examined under a microscope.

**What is the treatment for Bowen's disease?**

You will usually be referred to a doctor who is a skin specialist (dermatologist) if you have Bowen's disease. They will be able to discuss the treatment options with you. There is no definite 'right way' to treat all people who have Bowen's disease. Treatment can depend on a number of different things, including the site of the patch of Bowen's disease, its size and thickness and how many Bowen's disease patches you have.

The treatment options include:

**Observation ('watch and wait')**

This may be an option in some people. For example, this may be advised if you have a slowly growing, thin patch of Bowen's disease on an area of your body where skin healing may be difficult (such as your shin). The skin on your shins is very thin and delicate which means that healing can take longer.
Creams applied to the skin

Certain creams may be used in the treatment of Bowen's disease. These can help to kill and get rid of the abnormal cells in some cases. Such creams include 5-fluorouracil (5-FU). 5-FU cream may need to be applied once or twice a day for around three to four weeks and sometimes for longer. The cream is easy to apply yourself. The problem is that it can be quite an irritant to the skin. Your skin may become red and may actually look worse when you are using the treatment.

Treatment may need to be repeated at a later date if the patch of Bowen's disease comes back. 5-FU treatment may be particularly useful in large patches of Bowen's disease or in areas where skin healing may be poor, such as your shin (as explained above). It may also sometimes be used in people who have a number of different patches of Bowen's disease.

Other treatments may be given before treatment with 5-FU cream. This is so that the cream may be absorbed more easily by your skin. These include a process called iontophoresis where an electrical current drives the cream into your tissues, or laser treatment of your skin.

Imiquimod cream is also sometimes used to treat Bowen's disease.

Cryotherapy

Cryotherapy may be a treatment option in some cases. It is a type of 'freezing' treatment and usually liquid nitrogen is used. Treatment can sometimes be uncomfortable and ulceration of your skin is a possible side-effect.

Curettage treatment

Curettage means that the patch of Bowen's disease is 'scraped' off your skin. A local anaesthetic is used to numb your skin for curettage to be done. Your skin is left to heal naturally and usually a scab forms after treatment and then drops off. There may be less pain during curettage treatment than with cryotherapy.

Surgery

In some cases, surgery to remove the patch of Bowen's disease may be suggested. For example, surgery is usually carried out for Bowen's disease around the back passage (anus). The patch of Bowen's disease is cut out from your skin and stitches are used to close up your skin again afterwards. Skin healing may sometimes be difficult, especially when surgery is used to remove patches of Bowen's disease on the leg below the knee.

Photodynamic therapy

This has been used with some success to treat Bowen's disease. Photodynamic therapy is carried out by applying a special chemical to the patch of Bowen's disease. The chemical is photosensitive, which means it reacts to light. A special light source is then directed at the affected patch of skin to activate the photosensitive chemical. This then makes it burn and destroy the patch of Bowen's disease. Sometimes burning and stinging of the area of skin being treated can occur and your skin may become irritated. Rarely, skin colour may be lost or, in some cases, become darker in the treatment area.

Radiotherapy

Radiotherapy is treatment with X-rays. It is another treatment option for Bowen's disease but it is less commonly used than other treatments. Again, radiotherapy may not be suitable to treat Bowen's disease below the knee because of problems with skin healing after treatment.

Laser treatment

This is also sometimes used to treat patches of Bowen's disease.

What is the outlook (prognosis)?

With most treatments for Bowen's disease, there is probably about a 1 in 10 chance that Bowen's disease will come back (recur) after treatment. Therefore, regular follow-up is needed to look for any signs of recurrence. Further treatment may be needed if this happens.
The outlook for most people with Bowen's disease is very good. The vast majority of people who have Bowen's disease that is recognised and treated will not develop a skin cancer.

Can Bowen's disease be prevented?

Because excessive sun exposure is the most important risk factor for developing Bowen's disease, we should all limit our sun exposure in the summer months (or all year when in hot countries nearer the equator) by:

- Staying indoors or in the shade as much as possible between 11 am and 3 pm.
- Covering up with clothes and a wide-brimmed hat when out in the sunshine.
- Applying sunscreen of at least SPF 15 (SPF 30 for children or people with pale skin) which also has high UVA protection.

See separate leaflet called Preventing Skin Cancer for more details.

If you have had Bowen's disease, you should make sure that you check your own skin regularly for any changes.

Further reading & references

- Bowen's Disease - non-genital; DermNet NZ
- Photodynamic therapy for non-melanoma skin tumours (including premalignant and primary non-metastatic skin lesions); NICE Intervventional Procedure Guidance, February 2006

Disclaimer: This article is for information only and should not be used for the diagnosis or treatment of medical conditions. EMIS has used all reasonable care in compiling the information but makes no warranty as to its accuracy. Consult a doctor or other healthcare professional for diagnosis and treatment of medical conditions. For details see our conditions.

Original Author: Dr Michelle Wright
Current Version: Dr Jacqueline Payne
Peer Reviewer: Dr John Cox

Document ID: 13161 (v3)
Last Checked: 08/08/2016
Next Review: 08/08/2019

View this article online at: patient.info/health/bowens-disease-leaflet
Discuss Bowen's Disease and find more trusted resources at Patient.