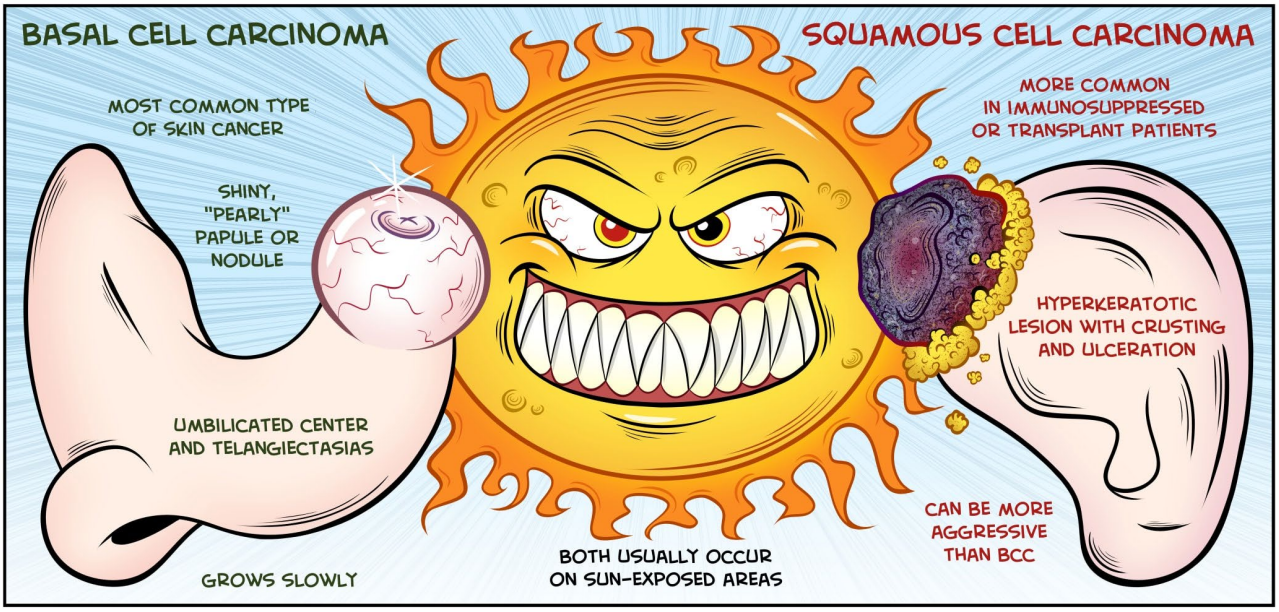
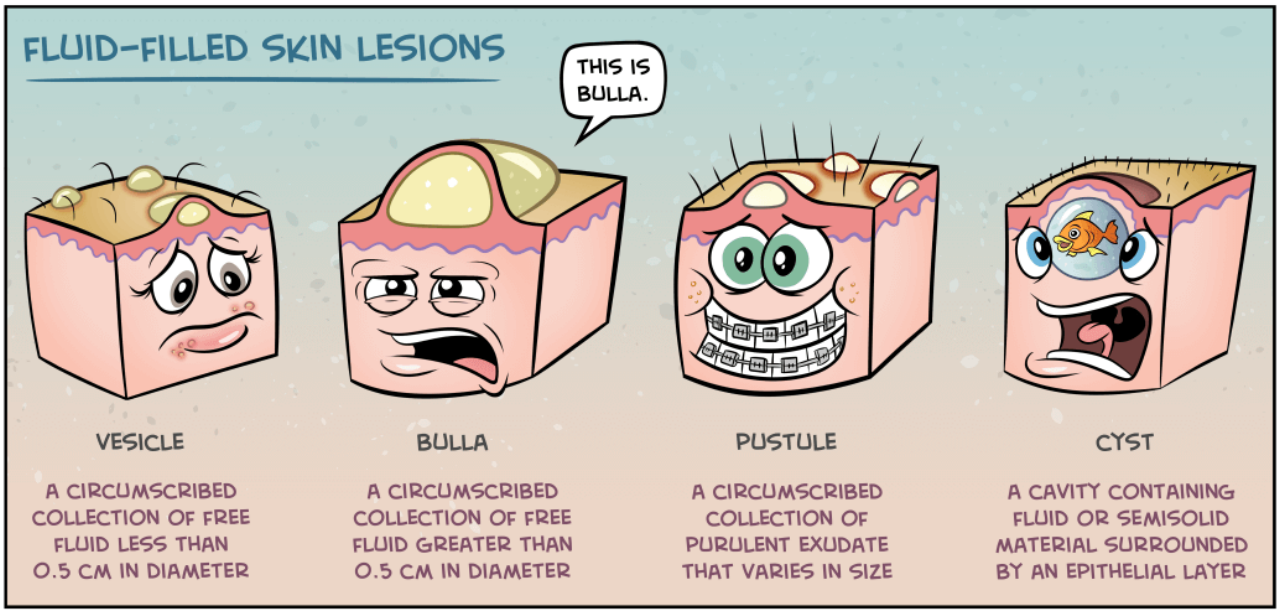




Skin Diseases

Skin lesions may be referred for surgical assessment, but more commonly will come via a dermatologist for definitive surgical management. Skin malignancies include basal cell carcinoma, squamous cell carcinoma and malignant melanoma.

Basal Cell Carcinoma

- Most common form of skin cancer.
- Commonly occur on sun exposed sites apart from the ear.
- Sub types include nodular, morphoeic, superficial and pigmented.
- Typically slow-growing with low metastatic potential.
- Standard surgical excision, topical chemotherapy and radiotherapy are all successful.
- As a minimum a diagnostic punch biopsy should be taken if treatment other than standard surgical excision is planned.

Basal cell carcinoma

Squamous cell carcinoma

Squamous Cell Carcinoma

- Again related to sun exposure.
- May arise in pre - existing solar keratoses.
- May metastasize if left.
- Immunosupression (e.g. following transplant), increases risk.
- Wide local excision is the treatment of choice and where a diagnostic excision biopsy has demonstrated SCC, repeat surgery to gain adequate margins may be required.

Malignant Melanoma

The main diagnostic features (major criteria):

- Change in size
- Change in shape
- Change in colour

Secondary features (minor criteria)

- Diameter >6mm
- Inflammation
- Oozing or bleeding
- Altered sensation

Treatment

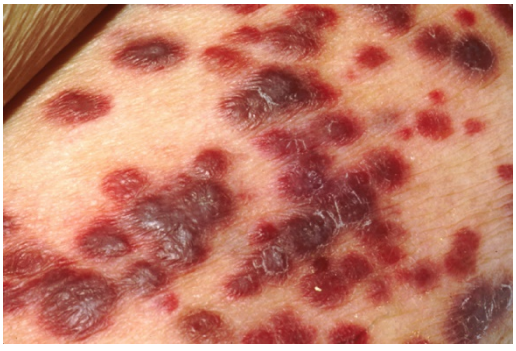
- Suspicious lesions should undergo excision biopsy. The lesion should be removed in completely as incision biopsy can make subsequent histopathological assessment difficult.
- Once the diagnosis is confirmed the pathology report should be reviewed to determine whether further re-excision of margins is required (**Margins of excision - Related to Breslow thickness**):

Lesions 0-1mm thick	1cm
Lesions 1-2mm thick	1- 2cm (Depending upon site and pathological features)
Lesions 2-4mm thick	2-3 cm (Depending upon site and pathological features)
Lesions >4 mm thick	3cm

Further treatments such as sentinel lymph node mapping, isolated limb perfusion and block dissection of regional lymph node groups should be selectively applied.

Kaposi Sarcoma

- Tumour of vascular and lymphatic endothelium.
- Purple cutaneous nodules.
- Associated with immuno suppression.
- Classical form affects elderly males and is slow growing.
- Immunosuppression form is much more aggressive and tends to affect those with HIV related disease.



Kaposi's Sarcoma

Non-malignant skin disease

Dermatitis Herpetiformis

- Chronic **itchy** clusters of blisters.
- Linked to underlying gluten enteropathy (**coeliac disease**).

Dermatofibroma *(see later)*

- Benign lesion.
- Firm elevated nodules.
- Usually history of trauma.
- Lesion consists of histiocytes, blood vessels and fibrotic changes.

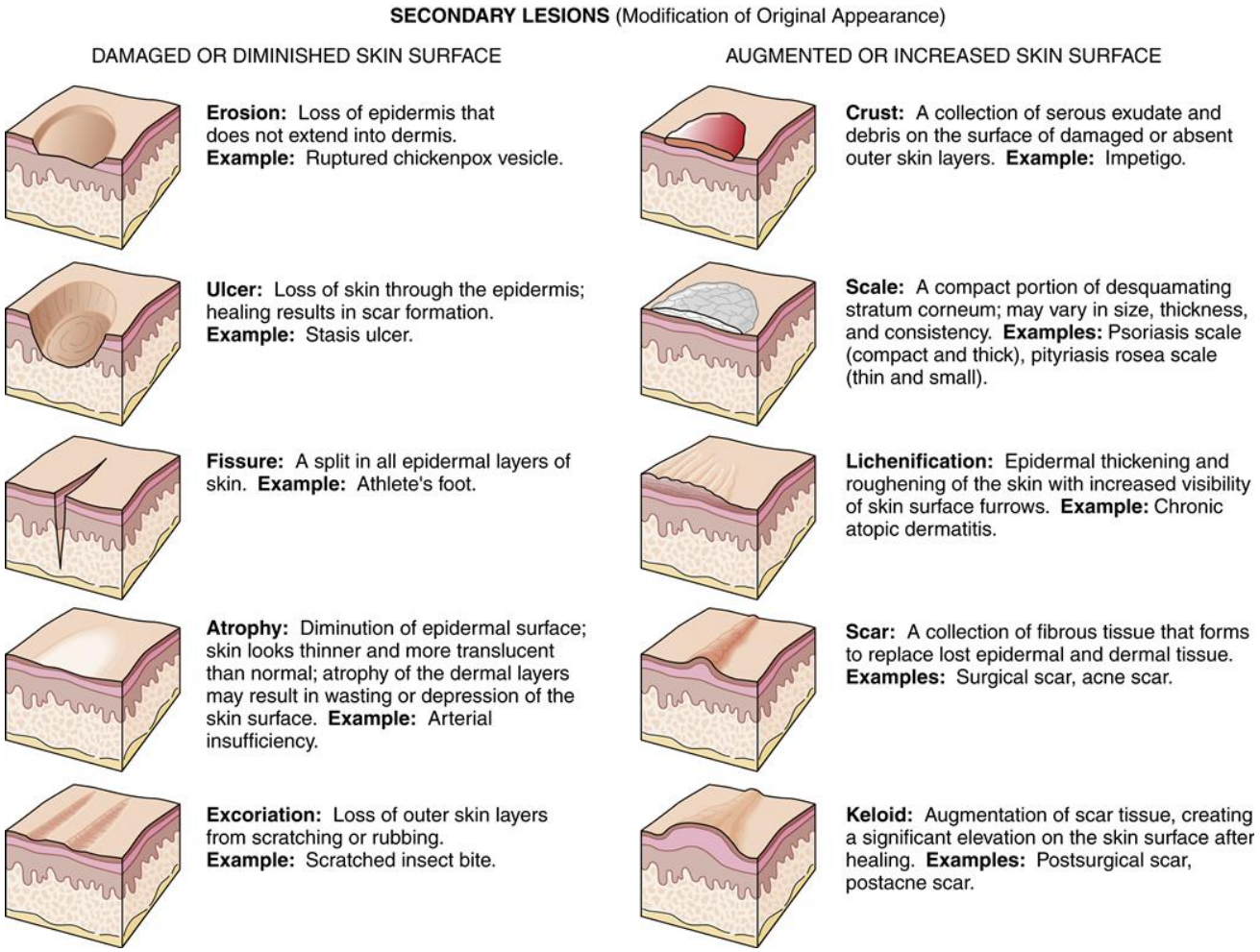
Pyogenic granuloma

Present as friable overgrowths of granulation at sites of **minor trauma**. They may be ulcerated and **bleeding on contact** is common. They may be treated with curettage and cautery. Formal excision may be used if there is diagnostic doubt.

- Overgrowth of blood vessels.
- Red nodules.
- May mimic amelanotic melanoma.

Acanthosis nigricans

- Brown to black, poorly defined, velvety hyperpigmentation of the skin.
- Usually found in body folds such as the posterior and lateral folds of the neck, the axilla, groin, umbilicus, forehead, and other areas.
- The most common cause of acanthosis nigricans is insulin resistance, which leads to increased circulating insulin levels. Insulin spillover into the skin results in its abnormal increase in growth (hyperplasia of the skin).
- In the context of a malignant disease, acanthosis nigricans is a paraneoplastic syndrome and is then commonly referred to as acanthosis nigricans maligna. Involvement of mucous membranes is rare and suggests a coexisting malignant condition.



Benign skin diseases

Seborrhoeic keratosis

- Most commonly arise in patients over the age of 50 years, often idiopathic
- Equal sex incidence and prevalence
- Usually **multiple lesions over face and trunk**
- Flat, raised, filiform and pedunculated subtypes are recognised
- Variable colours and surface may have **greasy scale** overlying it
- Treatment options consist of leaving alone or simple shave excision

Melanocytic naevi

Congenital melanocytic naevi	• Typically appear at, or soon after, birth • Usually greater than 1cm diameter • Increased risk of malignant transformation (increased risk greatest for large lesions)
Junctional melanocytic naevi	• Circular macules • May have heterogeneous colour even within same lesion • Most naevi of the palms, soles and mucous membranes are of this type
Compound naevi	• Domed pigmented nodules up to 1cm in diameter • Arise from junctional naevi, usually have uniform colour and are smooth
Spitz naevus	• Usually develop over a few months in children • May be pink or red in colour, most common on face and legs • May grow up to 1cm and growth can be rapid, this usually results in excision
Atypical naevus syndrome	• Atypical melanocytic naevi that may be autosomally dominantly inherited • Some individuals are at increased risk of melanoma (usually have mutations of CDKN2A gene) • Many people with atypical naevus syndrome AND a parent sibling with melanoma will develop melanoma

Epidermoid cysts

- Common and affect face and trunk
- They have a central punctum, they may contain small quantities of sebum
- The cyst lining is either normal epidermis (epidermoid cyst) or outer root sheath of **hair follicle (pilar cyst)**

Dermatofibroma

- Solitary dermal nodules
- Usually affect extremities of young adults
- Lesions **feel larger than they appear visually**
- Histologically they consist of proliferating fibroblasts merging with sparsely cellular dermal tissues

Painful skin lesions

- Eccrine spiradenoma
- Neuroma
- Glomus tumour
- Leimyoma
- Angiolipoma
- Neurofibroma (rarely painful) and dermatofibroma (rarely painful)

Sebaceous cysts

- Originate from sebaceous glands and contain sebum.
- Location: anywhere but most common scalp, ears, back, face, and upper arm (not palms of the hands and soles of the feet).
- They will typically contain a punctum.
- Excision of the cyst wall needs to be complete to prevent recurrence.
- A Cock's 'Peculiar' Tumour is a suppurating and ulcerated sebaceous cyst. It may resemble a squamous cell carcinoma- hence its name.

Malignancy and related lesions

Non melanoma skin cancer (BCC and SCC) are some of the commonest types of human malignancy. Up to 80% of these are BCC's with approximately 20% comprising SCC's. The incidence of NMSC's increases with age and whilst there is a female preponderance in those under 40 years of age, in later life the sex incidence is roughly equal.
The vast majority of NMSC's are related to UV light exposure. For SCC's the major pattern is chronic long term exposure. For BCC's, the pattern of sporadic exposure with episodes of burning is more important. Organ transplant recipients have a markedly increased incidence of SCC, risk factors include length of immunosuppression, ethnic origin and associated sunlight exposure. Human papilloma virus DNA is found in the majority of transplant recipient SCC's. In addition to this increased risk, transplant recipients are also more likely to develop locoregional recurrences following treatment.

Actinic keratosis and SCC

Actinic keratosis is viewed as a premalignant lesion because there are atypical keratinocytes present in the epidermis. In a person with 7 actinic keratosis the risks of subsequent SCC is of the order of 10% at 10 years. The primary lesion is a rough erythematous papule with a white to yellow scale. Lesions are typically clustered at sites of chronic sun exposure.

Squamous cell carcinoma in situ

Also known as Bowens disease the commonest presentation of in situ SCC is with an erythematous scaling patch or elevated plaque arising on sun exposed skin in an elderly patient. Lesions may arise *de novo* or from pre-existing actinic keratosis.
Pathologically there is full thickness atypia of dermal keratinocytes over a broad zone. Nuclear pleomorphism, apoptosis and abnormal mitoses are all seen.

Invasive SCC

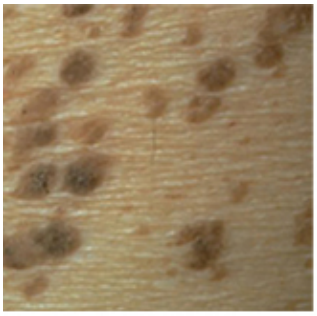
The commonest clinical presentation of SCC is with an erythematous keratotic papule or nodule on a background of sun exposure. Ulceration may occur and both exophytic and endophytic areas may be seen. Regional lymphadenopathy may be present.
Pathologically there is downward proliferation of malignant cells and invasion of the basement membrane. Poorly differentiated lesions may show perineural invasion and require immunohistochemistry with S100 to distinguish them from melanomas (which stain strongly positive with this marker).

Basal cell carcinoma

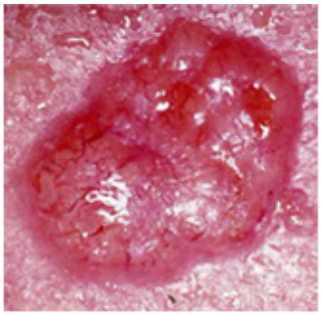
Nodular BCC	• Commonest variant (60%) • Raised translucent papule • Usually affect the face • Large nodular BCC's are locally destructive
Superficial BCC	• Usually appears as superficial erythematous macule affecting the trunk • Younger age at presentation (mean 57) • May show areas of spontaneous regression • Horizontal growth pattern predominates • High recurrence rate (due to sub clinical lateral spread)
Morpheaform BCC	• Macroscopically resembles flat, slightly atrophic lesion or plaque without well-defined borders • Tumour has sub clinical lateral spread which increases recurrence rates
Cystic BCC	• Often have clear or blue - grey appearance • Cystic degeneration may not be clinically obvious and tumour may resemble nodular BCC
Basosquamous carcinoma	• Atypical BCC • Basaloid histological BCC features with eosinophillic squamoid features of SCC • Biologically more aggressive and are more locally destructive • Rare lesion accounts for 1% of all non melanoma skin cancers • Metastatic disease may occur in 9-10% of cases and resemble an SCC

Keratoacanthoma

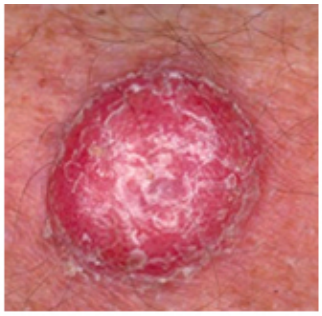
Dome shaped erythematous lesions that develop over a period of days and **grow rapidly**. They often contain a **central pit of keratin**. They then begin to **necrose and slough off**. They are generally benign lesions although some do view them as precursors of malignancy. They may be treated by curettage and cautery. If there is diagnostic doubt (they can mimic malignancy) then formal excision biopsy is warranted.



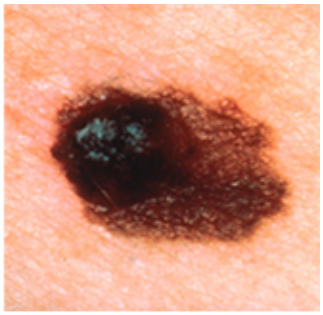
Benign Keratosis



Basal Cell Cancer



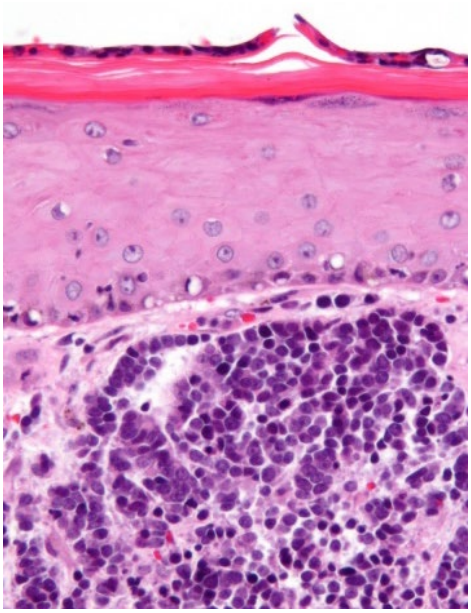
Squamous Cell Cancer



Melanoma

Merkel cell tumours of the skin

- Rare but aggressive tumour.
- Develops from intra epidermal Merkel cells.
- Usually presents on elderly, sun damaged skin. The periorbital area is the commonest site.
- Histologically these tumours appear within the dermis and subcutis. The lesions consist of sheets and nodules of small hyperchromatic epithelial cells with high rates of mitosis and apoptosis. Lymphovascular invasion is commonly seen.
- Pre-existing infection with Merkel Cell Polyomavirus is seen in 80% cases.



Treatment

Surgical excision is first line. Margins of 1cm are required. Lesions >10mm in diameter should undergo sentinel lymph node biopsy. Adjuvant radiotherapy is often given to reduce the risk of local recurrence.

Prognosis

- With lymph node metastasis 5-year survival is 50% or less.
- Small lesions without nodal spread are usually associated with a 5-year survival of 80%.