Skin and subcutaneous nodules

Skin nodules are slightly elevated lesions on or in the skin. They are larger than papules - over 5 mm in diameter. The depth of the lesion is more significant than the width. Some are free within the dermis. Some are fixed to skin above or subcutaneous tissue below.

The patient will usually consult because of concern about cosmetic appearance or the possibility of malignancy.

Differential diagnosis[1]

Such lesions are very common but there are numerous causes. It is important to try to define the aetiology.

Common causes

- Sebaceous cyst (epidermoid cyst) - a dermoid cyst is a variation.
- Lipoma.
- Basal cell carcinoma (BCC).
- Warts.
- Xanthelasma/xanthoma.
- Acrochordons:
    - Flesh-coloured pedunculated lesions - skin tags.
    - Tend to occur in areas of skin folds (therefore most common in the obese).

Less common causes

- Dermatofibroma (also called histiocytoma).
- Squamous cell carcinoma (SCC).

- Malignant melanoma.
- Pyogenic granuloma:
    - A rapidly proliferating solitary lesion that bleeds easily.
    - Is often associated with trauma.
    - Is usually less than 1 cm in diameter.
    - Typical locations include the face, fingers and thorax.
    - Clinically, melanoma must be excluded.
- Nodulocystic acne.
- Keratoacanthoma (also called molluscum sebaceum).
- Chondrodermatitis nodularis chronica helicis.
- Rheumatoid nodules.
- Gouty tophi.
- Keloid scars.

Rarer causes

- Vasculitic lesions such as erythema nodosum, nodular vasculitis, polyarteritis nodosa.
- Neurofibromatosis - there may be a family history and café-au-lait spots.
- Atypical infections including leprosy, syphilis and leishmaniasis.
- Hodgkin's lymphoma, non-Hodgkin's lymphoma, or metastatic carcinoma.

Presentation

The diagnosis may be clear from the presentation:

- Note the age of the patient.
- Note the position of the lesion or lesions and any changes.

- To a considerable extent it is like the surgical task of examination of a lump.
- Do not forget to enquire after systemic symptoms and general state of health.

Malignancies of the skin tend to occur in elderly people who have much solar damage to the skin; however, melanoma in particular can occur in rather younger people but usually 'sun worshippers'. On the basis that common things commonly occur, the following table will help to differentiate the common lesions:

	Epidermoid (sebaceous) cyst	**Wart**	**Lipoma**	**BCC**	**Xanthoma**	**Acrochordons**
Normal skin surface	yes	no	yes	no	no	yes
Multiple	no	possible	possible	possible	yes	often
Characteristic distribution	no	no	no	yes	yes	yes
Reddish brown colour	no	no	no	yes	yes	no
Central punctum	yes	no	no	no	no	no

The less common lesions may also occur but what is most important is not to be blandly reassuring about something that requires attention whilst at the same time not taking biopsies or referring every case that is seen.

Important information

Hence, ask questions about **red flag** features and, if there is any doubt, refer [2] :
Suspicion of a basal cell carcinoma: consider routine referral. Only consider a suspected cancer pathway referral (for an appointment within two weeks) if there is particular concern that a delay may have a significant impact, because of factors such as lesion site or size.
Suspicion of a melanoma or squamous cell carcinoma: refer using a suspected cancer pathway referral.

Causes for concern

- A nodule in a mole is highly significant and requires excision biopsy in case of malignancy.
- An elderly patient with a lesion in a sun-exposed area may well have SCC or BCC.
- A middle-aged or elderly patient who develops widespread skin nodules over a period of a few weeks probably has an underlying carcinoma, especially if unwell and losing weight.
- Night sweats and itching with skin nodules suggests lymphoma. These are B features. Examine lymph nodes, liver and spleen carefully.
- Nodulocystic acne is very difficult and probably needs a dermatologist.

Investigations

- FBC and erythrocyte sedimentation rate (ESR) are basic investigations.
- Uric acid should be measured if nodules may be gout - eg, on ear lobes or elbows.
- The appearance of xanthomata is fairly typical. Fasting lipid profile is required.
- Urinalysis is required if inflammatory or vasculitic skin lumps are suspected:
    - There may be proteinuria if the lumps are associated with systemic and renal disorders.
- Ultrasound can improve diagnosis for larger lesions[3] .
- Excision biopsy is the definitive investigation:
    - Cytology from skin scrapings can be used to diagnose BCCs.
    - Subcutaneous lesions can, depending on site, be removed by endoscopy. This gives a very good cosmetic result and is particularly useful in children[4] .

- If malignant melanoma is suspected, urgent referral to a dermatologist should be arranged. Excision in primary care is not recommended [2] .

Management

The management depends upon the diagnosis, working diagnosis or differential diagnosis. It may be possible just to be reassuring but if there is any doubt, investigations, including biopsy, are required. GPs should refer to a specialist in a timely fashion according to prevailing guidelines.

Further reading

- Cutaneous nodules; Diseases database
- Skin lesion appearance; Primary Care Dermatology Society, 2010

Authored by:	Peer Reviewed by: Dr Laurence Knott	
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