

London Cancer

Guidelines for the Management of Basal Cell Carcinoma

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1. Definition

Basal cell carcinomas (BCC) are slow growing, locally invasive, malignant epidermal tumours, primarily affecting Caucasians. They usually occur on the upper body, most commonly on the head and neck. Metastases are extremely rare and morbidity results from local tissue invasion and destruction.

Clinical appearances and morphology are varied and include nodular, cystic, superficial, morphoeic, keratotic and pigmented. Histological sub-types include nodular, superficial, pigmented, morphoeic, micronodular infiltrative and basisquamous. The last four histological types are more aggressive and can lead to tissue destruction and invasion, which can be either perivascular or perineural routes.

Clinical criteria for the definition of low- and high-risk BCC presenting in the community are set out in the following guidance.

‘NICE Guidance on Cancer Services: Improving Outcomes for People with Skin Tumours including Melanoma (update): The Management of Low-risk Basal Cell Carcinomas in the Community May 2010’

High risk BCC or lesions where there is diagnostic doubt must be referred to a member of the LSMDT for management.

Low risk BCC may be managed in the community by approved doctors or referred to a member of the LSMDT.

High-risk BCC (any one of these):

1. Patient is 24 years old or younger
2. Immunocompromised patient
3. Genetically predisposed patients (e.g. Gorlin’s Syndrome)
4. Recurrent or incompletely treated BCC
5. Lesions on nose and lips(including nasofacial sulci and nasolabial folds) or around the eyes (periorbital) or ears
6. Lesions greater than 2 cm in diameter below the clavicle or greater than 1cm above the clavicle (unless they are a superficial BCC that can be managed non-surgically)
7. Flat lesion, hard thickened skin (appearance of morphoeic BCC)
8. Poorly defined margins
9. Lesion is located over important anatomical structures, where primary surgical closure may be difficult or where excision may lead to a poor cosmetic result
10. Histological subtypes: morphoeic, micronodular, infiltrative and basisquamous

Low risk BCC:

Clinical criteria for low- risk BCC presenting in the community are those BCCs not meeting any of the high risk criteria above

2. Screening and surveillance

Dermatologists and other specialists e.g. Plastic surgeons, Maxillofacial surgeons are experienced at making a clinical diagnosis of a BCC.

GPs are also capable of making this diagnosis. If the GP has any doubt about what type of tumour is present – they should refer the person to a local hospital skin cancer specialist (usually a dermatologist) who is a member of either the local hospital skin cancer multidisciplinary team or specialist skin cancer multidisciplinary team.

Diagnosis is enhanced by good lighting and adequate magnification and dermatoscopy. The tension test i.e. stretching the skin between the thumb and the index fingers which brings out the rolled edge and demonstrates telangiectasia allows for a more confident diagnosis.

IOG has now clearly defined the referral route for BCC. It is important that only suitably approved and accredited practitioners operate on BCCs.

No BCC should be biopsied or operated on in primary care (unless the practitioner is specifically accredited). Low-risk BCCs can be referred to an appropriately accredited GP for further management including excision where appropriate.

Suspected basal cell carcinoma should never be referred as a two week rule or using the urgent suspected cancer pathway.

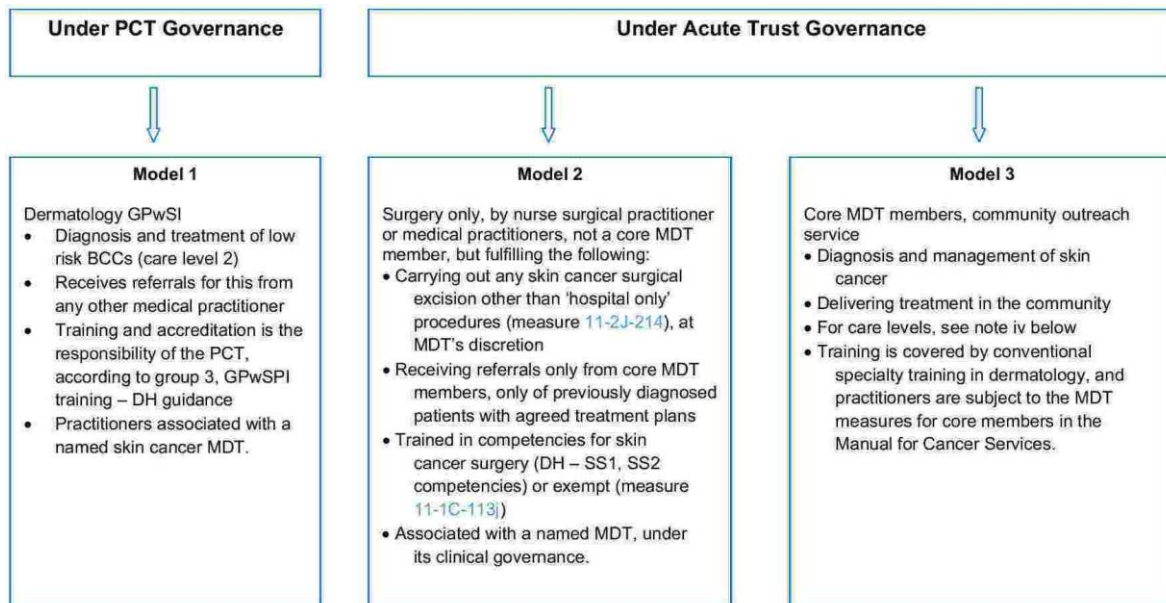
High risk BCCs must be referred to a specialist Dermatology Service.

3. Models for management of low-risk BCC in the community

Clinical criteria for low and high risk BCCs as defined above are used to identify those BCCs that can be managed by one of three different groups of healthcare professionals in primary care:

1. Low-risk BCCs for DES/LES
GPs performing skin surgery within the framework of the Directed Enhanced Services and Local Enhanced Services under General Medical Services or Personal Medical Services
2. Model 1 practitioners
Group 3 GPwSI in dermatology and skin surgery' as defined by the Department of Health guidance and include a new 'GPwSI in skin lesions and skin surgery
3. Model 2 practitioners
Outreach community skin cancer services provided by acute trust linked to the LSMDT

**please see diagram below



Only those practitioners accredited and approved to manage low risk BCCs in the community under one of the above models can perform this activity. The range of low risk BCCs suitable for management by a GP working under a DES/LES agreement or a Group 3 GPwSI in dermatology and skin surgery differ.

GP under DES/LES cannot manage the following patients:

1. Patient is 24 years old or younger
2. Immunocompromised
3. Genetically predisposed (e.g. Gorlin's Syndrome)
4. Previously treated BCC
5. Lesions above the clavicle
6. Greater than 1cm below the clavicle (unless they are a superficial BCC that can be managed non-surgically)
7. Flat lesion, hard thickened skin (appearance of morpoeic BCC)
8. Poorly defined margins
9. Lesion is located over important anatomical structures, where primary surgical closure may be difficult or where excision may lead to a poor cosmetic result

Model 1 practitioners cannot manage the following patients:

1. Patient is 24 years old or younger
2. Immunocompromised
3. Genetically predisposed (e.g. Gorlin's Syndrome)
4. Previously treated BCC
5. Lesions on nose and lips(including nasofacial sulci and nasolabial folds) or around the eyes (periorbital) or ears
6. Lesions greater than 2 cm in diameter below the clavicle or greater than 1cm above the clavicle (unless they are a superficial BCC that can be managed non-surgically)
7. Flat lesion, hard thickened skin (appearance of morpoeic BCC)
8. Poorly defined margins
9. Lesion is located over important anatomical structures, where primary surgical closure may be difficult or where excision may lead to a poor cosmetic

Where there is doubt about the lesion being low or high risk, the patient should be referred directly to the LSMDT/SSMDT.

Management in primary care would normally be limited to cryotherapy, topical immunotherapy and surgical procedures, namely excision and curette and cautery depending on the practitioner's experience. These procedures are listed under management in secondary care.

Model 2 practitioner

Medical practitioner or suitably trained specialist nurse performing skin surgery in a community setting on pre-diagnosed lesions. Model 2 practitioners can undertake surgery on both low- and high-risk BCCs as well as other types of skin cancer provided that they have demonstrated surgical competence and surgery is performed after the lesions have been diagnosed by a member of the LSMDT and a management plan identified. Model 2 services sit within acute trust clinical governance frameworks.

4. Management in secondary care

Patient specific factors which may influence the choice of treatment include general fitness, co-existing serious medical conditions, and the use of antiplatelet or anticoagulant medication. A conservative approach to asymptomatic, low-risk lesions will prevent treatment causing more problems than the lesion itself. Even when dealing with high-risk BCC aggressive management may be inappropriate for certain patients, especially the very elderly or those in poor general health, when a palliative rather than a curative treatment regimen may be in best interests of the patient.

Finally, factors including patient choice, local availability of specialized services, together with the experience and preferences of the specialist involved may influence treatment selection.

4.1. Non-surgical techniques

Immunotherapy

Imiquimod is an immune-response modifier which acts through toll-receptors, predominately expressed on dendritic cells and monocytes, to induce production of cytokines and chemokines which promote both innate and adaptive cell-mediated immune responses. 5% Imiquimod cream has now been licensed for small and superficial BCCs, and dose-response studies indicate that the highest response rates are associated with more frequent or prolonged dosing, together with a significant inflammatory reaction.

Treatment should be continued for 6 weeks and consists of 5 times weekly applications. The intensity of the local inflammatory reaction correlates with the clearance rates. This was found to be the optimum treatment regime for this new agent. However, individual clinicians may introduce modifications to this regime that suit the diversity of their local

populations e.g. occlusion although clinical trials have not substantiated any additional benefit. Long term follow up has not yet established a definable recurrence rate.

Photodynamic therapy (PDT)

PDT is a treatment which involves using a photosensitiser and light source to induce apoptosis in affected cells. PDT is a good treatment for primary superficial BCCs and the evidence based assessment of studies, have graded the strength of recommendation at A and quality evidence I. The evidence for nodular BCCs is strength of recommendation at B and quality evidence I. It remains a poor option for high risk lesions unless more effective treatments are either contraindicated or unacceptable to patients. The cosmetic results are far superior to all other modalities it has been compared to and pain is equal to or better than cryotherapy in 67% of cases in patients who have experienced both modalities.

4.2. Invasive techniques

Cryosurgery

Liquid nitrogen for the destruction of BCC uses the effects of extreme cold (tissue temperatures of -50 to -60°C) to effect deep destruction of the tumour and surrounding tissues. Individual treatment techniques vary considerably, with both open and closed spray techniques and single or multiple cycles of freezing (freeze/thaw cycles).

Double freeze/thaw cycles are generally recommended for the treatment of facial BCC, although superficial truncal lesions may require only a single treatment cycle. Some practitioners use “fractional cryosurgery” where large lesions are treated on multiple separate occasions. The success of cryosurgery relies upon careful selection of appropriate lesions and the experience of the operator.

Adverse effects of cryosurgery need to be taken into account prior deciding on treatment and these include scarring, depigmentation, contractures especially around eyelids and lack of histological clearance.

Although cryotherapy technique varies between operators it is generally agreed that cryotherapy involve a wider area than the lesion itself and some authors recommend that the ratio of involved to normal skin should be two thirds.

Carbon dioxide laser

This ablative therapy is rarely used in the treatment of malignant skin disease, however when combined with curettage it may be useful in large or multiple low risk BCCs.

4.3. Surgical techniques

Curettage and cautery (C&C)

Curettage and cautery or electrodesiccation are traditional methods of BCC removal. It is inferior to surgical excision where the latter is possible as histological clearance margins cannot be obtained. Recurrence rates are higher with this treatment option and overall in 33% of patients residual tumour is still present at time the surgical procedure is completed. However C&C is useful in specific instances e.g. older patients or those on anti-coagulants or

in non-infiltrative superficial lesions where other non surgical techniques are not accessible; it is not suitable for high risk or recurrent BCCs, where possible surgical excision is preferred.

Surgical excision

For a small (<20mm) well defined BCC i.e. Primary BCC, a 3mm peripheral surgical margin will clear the tumour in 85% of cases, and a 4-5 mm margin will increase the peripheral clearance rate to approximately 95%. The overall cosmetic results are generally good if the excision and repair are performed by an experienced practitioner. In contrast to small primary BCCs, morphoeic and large BCCs require wider surgical margins for complete histological resection.

For primary morphoeic lesions, the rate of complete excision with increasing peripheral surgical margins is as follows: 3mm margin, 66% 5mm margin, 82%; 13-15mm margin, >95%. Standard vertical section processing of excision specimens allows the pathologist only to examine representative areas of the peripheral and deep surgical margins, and it has been estimated that at best 44% of the entire margin can be examined in this fashion, which may partly explain why tumours which appeared to have been fully excised do occasionally recur.

4.4. Incompletely excised BCCs

Incompletely excised BCCs have been reported in 4.7- 7% of cases from British plastic surgery units. Factors relevant to increased rate of recurrence associated with incomplete excision include operator experience, the anatomical site and histological subtype of the tumour and the excision of multifocal tumours during one procedure.

The risk of recurrence seems highest in those lesions where both lateral and deep margins were involved with BCC and when the incomplete excision was performed to remove recurrent BCCs, especially those recurrent following radiation therapy. BCCs incompletely excised at the deep margin were considered especially difficult to cure with re-excision. One study calculated the probability of recurrence of incompletely excised BCC and found that it varied according to which margins were involved. When only the lateral margins were involved there was a 17% risk of recurrence, rising to a 33% risk of recurrence if the deep margins were involved.

There is good evidence to support a policy of re-treatment of incompletely excised lesions especially when they involve critical midfacial sites, where the deep surgical margin is involved, the surgical defect has been repaired using skin flaps or skin grafts and where histology shows an aggressive histological subtype.

4.5. Recurrent basal cell carcinoma

Recurrent BCC is more difficult to cure than primary disease- the results of all published series on the surgical excision of BCC shows cure rates following treatment of recurrent disease that are inferior to those for primary lesions.

Recurrent lesions generally require wider peripheral surgical margins than primary lesions with or without standard (non-Mohs) frozen section control. Peripheral excision margins for recurrent BCC of 5-10 mm have been suggested.

4.6. Mohs micrographic surgery

Mohs micrographic surgery reduces the rate of reoccurrence by identifying intraoperatively the extent of such lesions, however, this type of surgery requires money, expertise, planning and a well established set up for it to be effective.

Indications for Mohs are:

- Infiltrative or morpheic primary bcc involving the face
- Clinically poorly demarcated invasive primary bcc of the face of any subtype
- Invasive primary bcc of any subtype involving areas of the face where tissue conservation is desirable to facilitate cosmetically acceptable reconstruction e.g. Eyelids, periocular skin, mucosal lip/ vermillion, pinnae, inferior nose.
- Large (>2cm) invasive primary bcc of central face of any subtype
- Invasive bcc that have recurred following primary surgical or radiation treatment (radiotherapy), particularly if large, poorly demarcated or recurrent at multiple sites

4.7. Radiotherapy (RT)

RT is effective in the treatment of primary BCC, surgically recurrent BCC, as adjuvant therapy e.g. following incomplete excision of high-risk BCC, and possibly the treatment of choice for high-risk disease in patients who are unwilling or unable to tolerate surgery. RT is usually available only in major centres. Poor long-term cosmetic results which were once a significant problem are much less likely following treatment using modern techniques.

4.8. Electrochemotherapy

Current evidence on the safety of electrochemotherapy for primary BCC raises no major concerns. Evidence on its efficacy is limited in quantity and quality. Therefore, this procedure should only be used with special arrangements for clinical governance, consent and audit or research. Patient selection is particularly important.

Clinicians wishing to undertake electrochemotherapy for treating primary BCC should take the following actions:

- Inform the clinical governance leads in their trusts.
- Ensure that patients understand the uncertainty about the procedure's efficacy and why it is being offered as an alternative to other established methods of treatment, and provide them with clear written information. In addition, the use of NICE's information for the public is recommended.

Patient selection should be carried out by a specialist skin cancer multidisciplinary team. Careful consideration should be given to the reasons for offering electrochemotherapy, especially in the context of treating primary BCC with curative intent.

This procedure should only be carried out by a clinician with specific training in the technique. Clinicians should submit data on all patients undergoing electrochemotherapy (including details of case selection, methods of follow-up and outcomes) to the InspECT register, an international register dedicated to electrochemotherapy, and review clinical outcomes locally.

4.9. Cases requiring MDT discussion

Patients to be discussed at the LSMDT:

- High-risk BCC's that involve the excision margins or are recurrent
- Patients suitable for Mohs' Micrographic Surgery
- Immunocompromised patients and patients that have genetic conditions which predispose to BCC, e.g. Gorlin's Syndrome.

Patients to be discussed at the SSMDT:

- Patients with metastatic BCC
- Immunocompromised patients and patients that have genetic conditions which predispose to BCC, e.g. Gorlin's Syndrome.
- Patients who may benefit from radiotherapy, if not available at the LSMDT
- Patients who may be eligible for entry into clinical trials

4.10. Management of advanced or metastatic disease

These patients should be discussed at the SSMDT.

Other treatments for advanced BCC (i.e. HedgeHog pathway inhibitors) may be useful for the treatment of locally advanced or metastatic BCC where the tumour is inoperable or unsuitable for radiotherapy. These treatments will be available in the near future and should be used within the context of clinical trials.

5. Follow-up

1. Patients with a first primary BCC who have had complete excision with adequate margins(= >1mm) or adequate treatment with PDT or radiotherapy should be given appropriate written advice on how to monitor for local recurrence and how to check for new primary BCCs and discharged from secondary care with no required GP follow-up (F/U).
2. Patients with more than one BCC at presentation who have had adequate treatment: Discharge from secondary care and give appropriate written advice on how to monitor for local recurrence and how to check for new primary BCCs with no required GP F/U.
3. Patients with recurrent BCC(s) at presentation who have had adequate treatment: Discharge from secondary care and give appropriate written advice on how to monitor for local recurrence and how to check for new primary BCCs with no

required GP F/U. However, patients may be offered a F/U appointment in a Dermatology Clinic at the discretion of the treating clinician, based on the tumour characteristics (low- versus high-risk for recurrence) and treatment used.

4. In case of patients with an incompletely excised or close to margins BCC the MDT will decide appropriate follow up, based on the tumour characteristics (low- versus high-risk for recurrence) and treatment used.
5. Chronic immunosuppressed patients (e.g. solid organ transplant) or patients with genetic disorders with malignant potential (Basal cell nevus syndrome, xeroderma pigmentosum etc) should be followed up regularly in a Specialist Immunosuppressed Patient Dermatology Clinic.

6. References

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