Basal Cell Carcinoma

Basic Dermatology Curriculum

Updated January 2015
Module Instructions

- The following module contains a number of underlined terms which are hyperlinked to the dermatology glossary, an illustrated guide to clinical dermatology and dermatopathology.
- We encourage the learner to read all the hyperlinked information.
Goals and Objectives

- The purpose of this module is to help the learner develop a clinical approach to the evaluation and initial management of patients presenting with suspicious lesions.

- By completing this module, the learner will be able to:
  - Identify and describe the morphology of basal cell carcinoma
  - Formulate a differential diagnosis based on the patient’s history and physical findings
  - Refer patients with skin lesions suspicious for non-melanoma skin cancer to dermatology
Clinical Case 1

Mr. Carter is a 62-year-old man who presents to your office with a growth by his right ear. He first noticed the growth about six months ago. He states that it has increased in size, but it otherwise does not bother him.
You learn more about Mr. Carter’s history…

- Past Medical History:
  - Extensive history of sun exposure
  - Fair skin, usually burns, rarely tans
  - No history of skin cancer
  - Hypertension, dyslipidemia, diabetes

- Medications: Aspirin, Lisinopril, Simvastatin

- Family history: No history of skin cancer

- Social history: Married with 3 children; likes sailing

- Health-related behaviors: 10-pack year smoking history; quit 10 years ago.
How would you describe his facial growth?
How would you describe his facial growth?

Solitary, 5 mm pearly pink papule with telangiectasias, on right zygomatic cheek
What is your differential diagnosis?

After you have considered the differential diagnosis, go to the next slide for a list of possible diagnoses.
What is your differential diagnosis?

- Basal cell carcinoma
- Intradermal nevus
- Sebaceous hyperplasia
- Seborrheic keratosis
- Squamous cell carcinoma
Case 1, Question 2

What is your next step in evaluating this patient?

a. Liquid nitrogen cryotherapy
b. Reassurance with close follow-up
c. Shave biopsy
d. Surgical removal
e. Topical antibiotics
Case 1, Question 2

Answer: c

What is your next step in evaluating this patient?

a. Liquid nitrogen cryotherapy (cryotherapy will not help diagnose the lesion)

b. Reassurance with close follow-up (this is a suspicious lesion and should be biopsied)

c. Shave biopsy

d. Surgical removal (best to biopsy the growth in order to obtain histologic confirmation prior to surgical removal)

e. Topical antibiotics (the lesion does not appear to have a bacterial etiology)
Shave Biopsy

- Click [here](#) to watch a video on local anesthesia
- Click [here](#) to watch a video on how to perform a shave biopsy
Shave Biopsy Reveals…

- Rounded nests of “basaloid” cells
- Peripheral palisading
- Fibromyxoid stroma
- Cleft formation
Ordering Pathology

- Note that the pathologist did not comment on the margins*
- This is because we ordered a biopsy (for diagnosis) and not an excision (to confirm it is all out)
- Click here to watch a video on pathology requests

*Sometimes the pathologist will comment that a BCC appears completely removed within a shave biopsy, but this is often unreliable for BCCs. The BCC still needs treatment.
Case 1. What is the diagnosis?

a. Basal cell carcinoma
b. Intradermal nevus
c. Sebaceous hyperplasia
d. Seborrheic keratosis
e. Squamous cell carcinoma
Case 1. What is the diagnosis?

Answer: a

a. Basal cell carcinoma

b. Intradermal nevus (Pigmented or skin colored, appears early in life, and would not be expected to develop in this age group. Histologically, melanocytic nevi show nests of nevo-melanocytic cells in the dermis, without pallisading or clefting)

c. Sebaceous hyperplasia (Can have telangiectasias but tend to be yellowish or pink. Histologically, they show groups of normal looking sebaceous glands)

d. Seborrheic keratosis (Verrucous (warty surfaced) and NOT smooth. Also, they are not pearly and do not have surface telangiectasias. Histologically, they show thickened epidermis with keratin cysts)

e. Squamous cell carcinoma (Red firm nodule with hard scale. Histologically, there are atypical keratinocytes in the epidermis and invading the dermis)
Management

What is your next step in management?

a. Liquid nitrogen cryotherapy
b. Reassurance with close follow-up
c. Shave biopsy
d. Surgical removal
e. Topical antibiotics
Management

Answer: d

What is your next step in management?

- **a. Liquid nitrogen cryotherapy** (Liquid nitrogen cryotherapy is the treatment of choice for several benign and pre-cancerous skin lesions (e.g. actinic keratoses). It is not 1st-line treatment for BCC)

- **b. Reassurance with close follow-up** (Basal cell carcinomas are malignant and produce significant local tissue destruction. They must be treated early)

- **c. Shave biopsy** (You already have a diagnosis and there is no need for another biopsy)

- **d. Surgical removal** (The treatment of choice for basal cell carcinoma is surgical excision. Alternative therapies are covered later.)

- **e. Topical antibiotics** (Basal cell carcinoma is a tumor not an infection)
Biopsy vs. Excision

- Why not excise the whole lesion to begin with?
- It is best to biopsy the growth in order to obtain histologic confirmation prior to surgical removal, as biopsy may have revealed:
  - A benign growth, in which case excision would have been unnecessary
  - A tumor different from BCC that may have required a different management approach
At the follow-up visit 6 months later...

- Mr. Carter healed well following surgical removal. There is no evidence of tumor recurrence or new primary tumors.
- You counsel Mr. Carter on the importance of sun protection and regular self-skin exams.
- You schedule him for routine full-skin exams every 6-12 months for two years of follow-up.

Now, let’s review *Basal Cell Carcinoma*
Basal cell carcinoma (BCC)

Most common skin cancer
- >1 million new cases per year in the US
- Arises from the **basal layer** of the epidermis

Etiology
- Ultraviolet radiation induces DNA damage
- *PTCH* (*tumor suppressor gene*) mutation usually involved
  - Spontaneous/acquired mutations from UV-induced DNA damage
Basal cell carcinoma (BCC)

- Risk factors
  - Skin types I, II (fairer skin types that burn easily)*
  - Severe actinic (sun) damage
  - Male gender*
  - Age over 60*
  - Immune suppression (transplant patients, systemic immunosuppressive medications)
  - Genetic conditions that increase skin cancer risk

* BCC is still seen in darker skin types and in women and patients under 60, especially if a history of tanning beds / UV exposure
The Fitzpatrick Skin Phototype Classification is used to classify skin based on the ability to burn and tan when challenged with UV radiation.

I. White skin, always burns, never tans
II. White skin, always burns, minimal tan
III. White skin, burns minimally, tans moderately and gradually
IV. Light brown skin, burns minimally, tans well
V. Brown skin, rarely burns, tans deeply
VI. Dark brown/black skin, never burns, tans deeply

Note: Sunscreen is recommended for all skin types, including the darkest of skin.
There are several clinical presentations of BCC
Nodular BCC

- Most common subtype
- Presents as a pearly papule or nodule with overlying telangiectasias
- Although any part of the body may be involved, the lesions are most frequently found on the head and neck
More examples of nodular BCC
Nodular, ulcerated BCC

- Presents with features suggestive of BCC including a translucent color, telangiectasias, central ulceration, and a rolled border

- In addition, the growth is grossly or microscopically ulcerated, which often results in crusting over the growth
BCC may have ulceration, rolled borders
Superficial BCC

- Presents as a pink patch and may even having superficial scaling
- Differential diagnosis may include squamous cell carcinoma *in situ* or actinic keratosis
More examples of superficial BCC
Comparison: superficial BCC and SCCIS

- **Superficial BCC**
  - Exhibits fine telangiectasias on dermoscopy
  - Fine scale, not firm scale

- **Squamous cell carcinoma in situ**
  - Exhibits keratotic scale crust
Pigmented BCC

- Both superficial and nodular BCC may have pigment
- Presents with features typical of a BCC along with globules of pigment or maple leaf structures
- The differential diagnosis may include malignant melanoma
More examples of pigmentation in BCC
Morpheaform / infiltrative / sclerotic BCC

- Presents with features suggestive of BCC including a pink or white color and telangiectasia
- In addition, the plaque appears white and bound down or scar-like in areas
More examples of morpheaform / sclerosing / infiltrative BCC
Clinical Case 2

- Mrs. Torres is a 48-year-old woman who complains of 2 years of a growth on her left cheek
- PMH: mild rosacea
- FH: no skin cancer
- SH: attorney; lives with her wife and 2 children
Case 2, Question 1

How would you describe this lesion?
Case 2, Question 1

- Description: solitary 7mm yellowish round papule with central dell and surrounding telangiectasias lateral to left melolabial fold
- Good description, but you’re still not sure if it is a basal cell carcinoma or not.
Case 2, Question 2

What is the best next step in management?

a. Genetic testing for PTCH mutation
b. Excision with 4mm margins
c. Reassurance this is a fibrous papule
d. Referral to dermatology
e. Referral to Mohs micrographic surgery
Answer: d

What is the best next step in management?

a. Genetic testing for PTCH mutation (not appropriate for this benign lesion)
b. Excision with 4mm margins (risk out scar outweighs benefit of removal)
c. Reassurance this is a fibrous papule (it is not)
d. **Referral to dermatology** (if you’re not sure about a suspicious lesion, refer)
e. Referral to Mohs micrographic surgery (not indicated for this benign lesion)
Tools we use: Dermoscopy

A dermatoscope helps to evaluate skin lesions

• Requires additional training to become proficient
• Often used for pigmented lesions
• It can also be used to identify features that distinguish benign lesions from basal cell carcinoma
BCC dermoscopy

- BCC may show pigment, arborizing telangiectasias (like trees), or other features on dermoscopy
- When in doubt about a suspicious lesion, refer to dermatology
BCC mimic: sebaceous hyperplasia

- Sebaceous hyperplasia
  - Enlarged oil glands
  - Often small yellowish papules with central dell
  - Usually multiple
  - Dermoscopy: may have telangiectasias that wrap around the oil glands (not over the lesion like BCC)
BCC mimic: fibrous papule

- Fibrous papule of the nose
  - Benign angiofibroma
  - Small homogenous skin-colored to pink papule on the nose
  - Does not have large telangiectasias or pearly texture
Clinical Case 3

- Mr. Gorlin is a 71-year-old man who complains of 8 months of a 2.5 cm scar-like growth in front of his left ear. It was previously frozen but did not get better.
- PMH: no skin cancer
- FH: no skin cancer
- SH: retired general contractor
Case 3, Question 1

What is the best next step in evaluating this patient?

- a. Liquid nitrogen cryotherapy
- b. Reassurance with close follow-up
- c. Referral to dermatology
- d. Referral to radiation oncology
- e. Topical imiquimod 5 nights a week for 6 weeks
Case 3, Question 1

Answer: c

What is the best next step in evaluating this patient?

a. Liquid nitrogen cryotherapy (already failed; much less effective for thicker BCCs)
b. Reassurance with close follow-up (this suspicious lesion must be biopsied)
c. Referral to dermatology
d. Referral to radiation oncology (most BCC can be treated surgically; very few require radiation)
e. Topical imiquimod (only for superficial BCC)
Case 3, Question 2

The dermatology performs a punch biopsy that shows morpheaform / infiltrative BCC. What is the best treatment?

a. Electrodessication and curettage
b. Excision with Mohs micrographic surgery
c. Photodynamic therapy
d. Radiation therapy
e. Topical imiquimod for 6 weeks
Case 3, Question 2

Answer: b

The dermatology performs a punch biopsy that shows morpheaform / infiltrative BCC. What is the best treatment?

a. Electrodessication and curettage (for some small nodular BCCs)

b. **Excision with Mohs micrographic surgery**

c. Photodynamic therapy (does not penetrate deeply enough)

d. Radiation therapy (not generally needed for unless very large or patient cannot tolerate surgery)

e. Topical imiquimod for 6 weeks (only for superficial BCC)
BCC: Treatment

- There are several surgical and non-surgical treatment options.
- The best option is selected after consideration of clinical and histologic features.
- To select the optimum therapy, refer to or ask a dermatologist.
BCC: Treatment

- **Surgical Treatment Options:**
  - Curette and Desiccation
  - Cryosurgery
  - Excision with standard 3-4mm margins
  - Mohs micrographic surgery – permits real time evaluation of tumor margins and consequent tissue conservation to minimize defect size

- **Non-Surgical Treatment Options:**
  - Imiquimod cream – FDA approved for superficial BCC
  - 5% fluorouracil cream for superficial BCC
  - Photodynamic therapy for superficial BCC
  - Radiation
Mohs Micrographic Surgery (MMS)

- MMS offers superior histologic analysis of tumor margins while permitting maximal conservation of tissue compared with standard surgical excision.
- Recurrence rates tend to be lower with MMS compared to other modalities, including standard excision, curettage and desiccation, radiation, and cryotherapy.
- Indications include:
  - Location: nose, ears, eyes, lips, scalp, hands
  - Aggressive histologic subtypes: infiltrative, sclerosing, morpheaform, or micronodular
  - Large tumors or tumors with indistinct clinical borders
  - Recurrent tumors
Mohs Micrographic Surgery

**Step 1:** The roots of a skin cancer may extend beyond the visible portion of the tumor. If these roots are not removed, the cancer will recur.

**Step 2:** The visible tumor is surgically removed.

**Step 3:** A layer of skin is removed and divided into sections. The surgeon then color codes each of these sections with dyes and makes reference marks on the skin to show the source of these sections. A map of the surgical site is then drawn.
Mohs Micrographic Surgery

**Step 4:** The undersurface and edges of each section are microscopically examined for evidence of remaining cancer.

**Step 5:** If cancer cells are found under the microscope, the surgeon marks their location onto the "map" and returns to the patient to remove another layer of skin - but only from precisely where the cancer cells remain.

**Step 6:** The removal process stops when there is no longer any evidence of cancer remaining in the surgical site.
BCC: Course & Prognosis

- BCC is locally invasive
- Metastasis is rare
- Patients with BCC are at risk for developing other non-melanoma and melanoma skin cancers
- They should have regular follow-up to look for recurrences or new skin cancers
BCC: Follow-up

- There is insufficient evidence to recommend any specific follow-up plan for BCC
- Most experts agree after a confirmed BCC, patients should see dermatology every 6-12 months for 2 years
- After that, if no other skin cancers, they can perform self exams at home and follow up with their primary doctor
- Education on sun protection, self exams, and signs of BCC is an important part of follow-up
Patient Education

- Educate patients about what basal cell carcinoma looks like:
  - Skin Cancer Foundation:
    - Warning Signs of Basal Cell Carcinoma
    - Skin Cancer Information
  - American Academy of Dermatology
    - Basal cell carcinoma signs and symptoms
Patient Education: Warning signs of BCC

- An open sore
- A reddish patch or irritated area
- A shiny bump or nodule
- A pink growth
- A scar-like area
Patient Education

- There are multiple resources to educate patients about skin cancer prevention and early detection:
  - American Academy of Dermatology
    - Skin Cancer Prevention
    - How to Perform a Skin Exam video
    - Free resources (handouts, presentations, videos)
  - American Cancer Society:
    - Skin Cancer Prevention and Early Detection
Prevent skin cancer...
Prevent skin cancer...

The American Academy of Dermatology recommends consumers choose a sunscreen which states on the label:

- SPF 30 OR HIGHER
- BROAD SPECTRUM
- WATER RESISTANT

SPF 30 Broad Spectrum:
- water resistant (40 minutes)

ONE OUNCE OF SUNSCREEN, enough to fill a shot glass, is considered the amount needed to cover the exposed areas of the body.
Patient Education: Be Sun Smart®

- **Generously apply a broad-spectrum, water-resistant sunscreen** with a Sun Protection Factor (SPF) of 30 or more to all exposed skin.
  - “Broad-spectrum” provides protection from both UVA and UVB rays.
  - Reapply approximately every two hours, even on cloudy days, and after swimming or sweating.
- **Wear protective clothing**, such as a long-sleeved shirt, pants, a wide-brimmed hat, and sunglasses.
- **Seek shade.**
  - Remember that the sun's rays are strongest between 10 AM – 4PM.
  - If your shadow appears to be shorter than you are, seek shade.
Patient Education: Be Sun Smart®

- Use extra caution near water, snow, and sand because they reflect and intensify the damaging rays of the sun, which can increase your chances of a sunburn.
- Get vitamin D safely through a healthy diet that may include vitamin supplements. Don't seek the sun.
- Avoid tanning beds. Ultraviolet light from the sun and tanning beds can cause skin cancer and wrinkling. If you want to look tan, consider using a self-tanning product, but continue to use sunscreen with it.
- Check your birthday suit on your birthday. If you notice anything changing, growing, or bleeding on your skin, see a dermatologist.
How to perform a skin self-examination

Examine your body front and back in the mirror, then look at the right and left sides with your arms raised.

Bend elbows and look carefully at forearms, upper underarms, and palms.

Look at the backs of your legs and feet, the spaces between your toes, and the soles of your feet.

Examine the back of your neck and scalp with a hand mirror. Part hair for a closer look.
Take Home Points

- BCC is the most common skin cancer
- It is most common in the head and neck
- BCC is locally destructive but metastases are extremely rare
- Diagnosis is established by biopsy
- Treatment depends on clinical and histological features but is usually surgical
- Educate patients about skin cancer prevention
Acknowledgements

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References


To take the quiz, click on the following link:

https://www.aad.org/quiz/basal-cell-carcinoma-learners