

Advanced Basal Cell Carcinoma

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Introduction

Basal cell carcinoma (BCC) is the most common type of skin cancer. Basal cells are the base layer of the epidermis. DNA damage in these cells from ultraviolet (UV) radiation can lead to BCC. Luckily, since BCC is a slow-growing cancer, these types of cases are easy, with simple treatment and an excellent prognosis. However, avoiding medical care or neglecting suspicious skin lesions can lead to the cancer advancing. This makes things more complicated. The following presentation will discuss how an advanced basal cell carcinoma case was grossed by a pathologists' assistant (PA) student, what is BCC, and when it is considered an advance case.

Clinical History

A 54-year-old male presents with a chief complaint of shoulder pain and foul smell. He was diagnosed with basal cell carcinoma in 2022. He received several prior debridements, including on the left clavicle and scapula. The patient also received radiation to the areas. Both methods failed to eradicate the mass. He recently ran out of medication, leading to worsened drainage, a foul odor, and increased pain. He has not been able to use his left arm and has not been able to work for over a year.

Gross Description

Specimen A. is received fresh, labeled with "patient's name", "MRN," and "Source: Amputation, non-traumatic; Description: L Forequarter Amputation, r/o basal cell carcinoma." It consists of a left upper limb amputation discarticulated at the forearm (ARM: 47.5 cm in length, up to 25.0 cm in diameter; FOREARM: 45.5 cm in 3rd finger tip-proximal ulnar edge, up to 8.5 cm in diameter) including left hand, ulna (entirely), radius (entirely), humerus (entirely), scapula (17.1 x 10.5 x 3.3 cm; entirely), partial clavicle (5.0 x 1.7 x 1.4 cm) and skin surrounding the humerus (42.0 x 40.0 cm). Skin covers the hand, but the skin along the majority of the forearm is not included. The clavicle has a smooth, cut resection margin.

There is a white-tan, peripherally exophytic mass (18.5 x 12.0 x 3.7 cm) that is deeply centrally ulcerated and exposes the underlying humeral head. The mass is 21.5 cm to the distal skin margin, 1.3 cm to the proximal skin margin, 5.8 cm to the posterior skin margin, 2.7 cm to the anterior skin margin, and 3.1 cm to the clavicular margin. The mass appears to grossly involve and replace the lateral clavicle and scapula. The mass erodes the articular cartilage of the humeral head.

The ulna, radius, and entire forearm are unremarkable. Fifteen possible lymph nodes (0.3-3.1 cm) are identified. Sections of bone are placed in decalcification solution before submission. Gross photographs are taken. Dictated by Tigsty Abraha, PA student. Reviewed by Andrew Balicki, PA(ASCP).

INK CODE:

Yellow: Nerve margin
Blue: Proximal margin
Green: Distal margin
Orange: Anterior margin
Red: Posterior margin
Black: Deep
Purple: Clavicular margin

CASSETTE SUMMARY:

A1: Vascular margin, shaved
A2: Nerve margin, bisected and perpendicular
A3-A6: Mass to closest skin margin (proximal margin), perpendicular
A7: Anterior skin margin, perpendicular
A8: Distal skin margin, perpendicular
A9: Posterior skin margin, perpendicular
A10: Adipose tissue
A11: Clavicular margin, perpendicular
A12: Mass involving clavicle
A13: Mass involving scapula
A14: Mass involving humerus
A15: 6 possible lymph nodes, whole
A16: Adipose tissue
A17: 1 possible lymph node, bisected
A18: 1 possible lymph node, bisected
A19: 1 possible lymph node, whole

Final Diagnosis

The pathologist confirmed the presence of basal cell carcinoma, measuring 18.5 cm in greatest dimension, with an infiltrative growth pattern. The mass is diffusely invading the dermis and subcutaneous tissue, with bone invasion of the clavicle, scapula, and humerus. There are multifocal perineural invasion identified. The specimen is negative for metastasis, and all of the specimen margins, including cutaneous, soft tissue, and bone, are clear. All lymph nodes identified were negative.

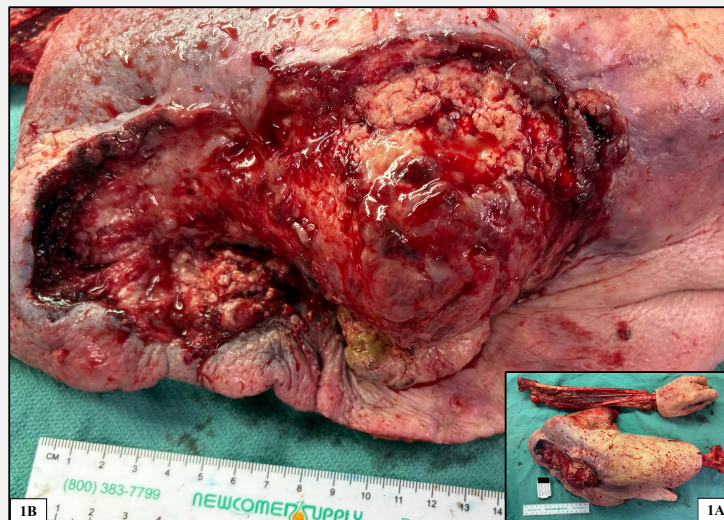


Figure 1: Gross Photograph of Specimen. The specimen consisted of an left upper limb amputation (1A). The mass has invaded through the skin and underlying soft tissue, exposing the head of the humerus (1B).



Figure 2: Radiographic Image of Left Axillary Region. The CT scan shows that the mass has extending through the skin and is possibly involving the head of the humerus (red arrow).



Figure 3: Nearest Skin Margin Free of Mass. Histological evaluation of cassette A5, nearest proximal skin margin (red arrow) to mass (red circle), stained with H&E reveals clean margins.

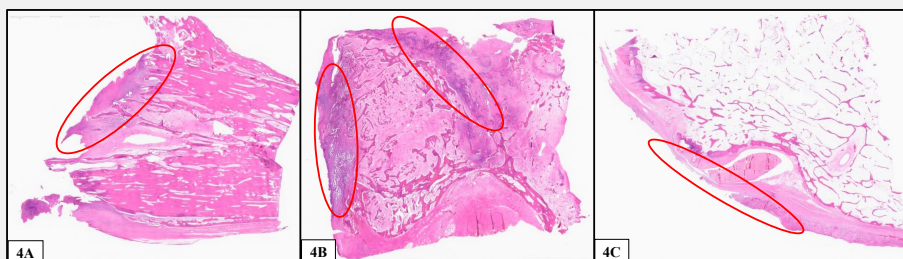


Figure 4: Bone Involvement. Histological evaluation of cassettes A12, mass grossly appearing to involved clavicle (4A), A13, mass grossly appearing to involve scapula (4B), and A14, mass grossly appearing to involve humerus (4C), stained with H&E reveals mass invasion (red circle) into all three bones.

Discussion

Basal cells are keratinocytes located in the lowest layer, the stratum basale, of the epidermis. Their primary job is to replicate continuously to generate new skin cells. When the DNA of basal cells become damaged due to UV light radiation, this can lead to an uncontrollable growth of cells. The age group most at risk is between 50 and 80, with Caucasian males representing the majority of cases.

BCC is generally considered the easiest skin cancer to treat, often with medication and/or a minor surgical procedure after an initial biopsy confirms the diagnosis. The College of American Pathologists (CAP) does not require the standard staging process for BCC because most cases are typically localized and cured before spreading. With the American Joint Committee on Cancer (AJCC), the TNM (tumor, nodes, metastasis) system classifies BCC into five stages. In stage 0, the tumor is confined to the epidermis. In stage 1, the tumor is < 2 cm and has not spread to nearby lymph nodes (LN). In stage 2, the tumor is 2-4 cm and has not spread to nearby LN. In stage 3, the tumor is > 4cm and has either grown into nearby structures such as bone or nerves, or the tumor has spread to one nearby LN. In stage 4, the tumor may be very large and has spread to distant LNs, bones, or other tissues. Most BCC cases are diagnosed at stage 0 or 1, resulting in a good prognosis.

In rare cases, approximately 1% to 10% of all BCC cases can progress to become advanced BCC and can be categorized into two groups: locally advanced or metastatic. This case is classified as a staged 3 locally advanced BCC, due to the local bone and nerve involvement with no LN involvement.

After extensive surgery to remove the lesion, radiation may be recommended in order to destroy any remaining microscopic cancer cells and reduce the risk of recurrence. BCC has an excellent prognosis with an 85% to 95% cure rate, and treated advanced BCC has a 5-year survival rate that is generally about 79%. If left untreated, advanced BCC can be fatal.

If BCC is highly curable and straightforward to treat, the question to ask is why advanced cases still arise despite the availability of effective treatment and what factors may prevent patients from receiving proper care.

Conclusion

Basal cell carcinoma is a skin cancer of the epidermis. It generally grows slowly and rarely metastasizes, contributing to its high cure rates and making it one of the most treatable forms of cancer. With delayed treatment, BCC can become more extensive over time, leading to invasion into local structures, distant metastases, and, in rare cases, death. Future research should continue looking into why advanced cases still occur if BCC is indolent and associated with high cure rates. Studies should examine patient, tumor, and healthcare system-related factors that contribute to delayed diagnosis and treatment. A better understanding of these factors may help reduce the incidence of advanced BCC cases.

References

- Alkassiss, S., Shatta, M., & Wong, D. J. (2024). Therapeutic Advances in Advanced Basal Cell Carcinoma. *Cancers*, 16(17), 3075. <https://doi.org/10.3390/cancers16173075>
- Basal cell carcinoma stages - cancers. (n.d.). <https://www.moffitt.org/cancers/basal-cell-carcinoma/diagnosis/stages/>
- Desai, S. (2025, March 6). Basal cell carcinoma stages – cancer therapy advisor. <https://www.cancertherapyadvisor.com/factsheets/basal-cell-carcinoma-stages/>
- Karen, J. K., & Moy, R. L. (2026, April). Basal cell carcinoma treatment. <https://www.skincancer.org/skin-cancer-information/basal-cell-carcinoma/bcc-treatment-options/>
- Legrand, A., Quintard, B., Garrouste, C., Beylot-Barry, M., & Broc, G. (2022). From neglect to earlier diagnosis: a qualitative meta-synthesis of psycho-social factors associated with consultation delay in advanced basal cell carcinoma. *Psychology, Health & Medicine*, 27(8), 1793-1804. <https://doi.org/10.1080/13548506.2021.1952281>
- Luque-Luna, M., & Morgado-Carrasco, D. (2023). [translated article] RF – Brigham and Women's Hospital tumor staging system for basal cell carcinoma: Superior specificity and positive predictive value. *Actas Dermato-Sifiliograficas*, 114(1). <https://doi.org/10.1016/j.ad.2021.07.030>
- Mohan, S. V., & Chang, A. L. (2014). Advanced Basal Cell Carcinoma: Epidemiology and Therapeutic Innovations. *Current dermatology reports*, 3(1), 40-45. <https://doi.org/10.1007/s13671-014-0069-y>
- Puckett, Y., & Steele, R. B. (2025, November). Basal cell carcinoma. <https://www.ncbi.nlm.nih.gov/books/NBK482439/>
- Zwanenburg, A. A. J. H., Van Houdt, W. J., Schrijver, A. M., Schreuder, W. H., Wouters, M. W. J. M., & Plasmeijer, E. I. (2025). Clinical Features and Outcomes of Locally Advanced and Metastatic Basal Cell Carcinoma. *Acta dermato-venereologica*, 105, adv43240. <https://doi.org/10.2340/actadv.105.43240>

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