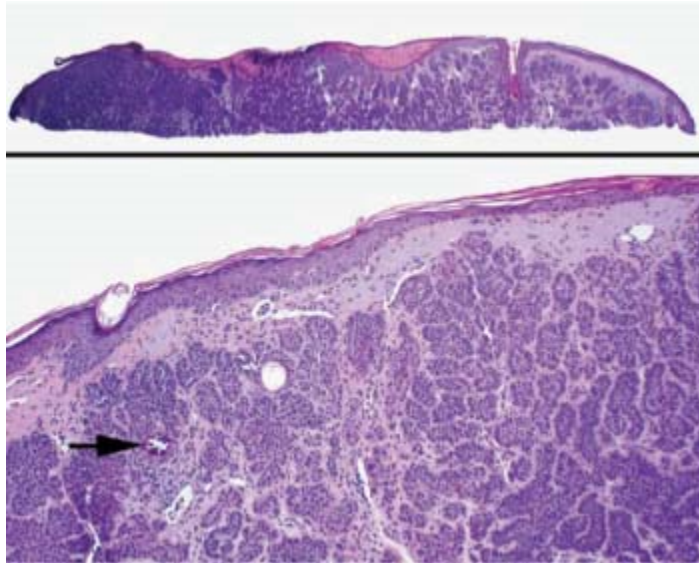


Skin basal cell carcinoma.

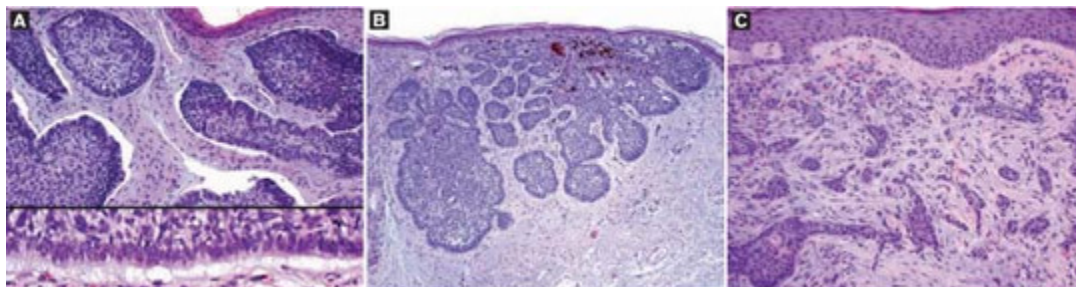
by Lester D. R. Thompson, MD

Figure 1. H&E-stained sections of a micronodular type BCC show overlying ulceration and serum crusting (top). The tumor in this field is not attached to the surface, showing a micronodular pattern of growth. Calcifications (arrow) can be seen (bottom).



Basal cell carcinoma (BCC) is a low-grade malignancy of basal keratinocytes, the cells responsible for epidermis formation. Melanocytes are seen between the keratinocytes, but they are not responsible for this tumor type. The etiology is multifactorial, related to ultraviolet sun exposure, radiation, and immunosuppression, among other factors. This is one of the most common cancers in humans. The tumors will typically present in older adults, although young adults can also develop this tumor. There is a slight male predilection, but this may be due to differences in sun exposure rather than gender variance. Caucasians and light-skinned people have a higher incidence than dark-skinned people.

Figure 2. A: Intermediate magnification of a nodular BCC shows nests of basaloid cells with a high nuclear-to-cytoplasmic ratio. Note the remarkable stromal clearing. In the lower inset, a high-power view shows the retraction artifact immediately below a peripheral palisade of nuclei. **B:** A lower-power image shows multiple nests of tumor, arising from the basal zone of the epidermis. Abundant melanin pigment is seen within the tumor, sufficient to warrant a “pigmented BCC” designation. Peripheral palisading is easily identified. **C:** An intermediate-power image shows irregular islands and cords of basaloid cells set within a desmoplastic or sclerosing stroma. This is an example of the sclerosing (desmoplastic, morpheaform) variant..



BCC typically occurs in a sun-exposed area (scalp, forehead, nose, ears, and neck) as a papular, plaque-like, or nodular lesion. Dermoscopy (dermatoscope with polarized light) may show delicate, linear to tree-branch-like telangiectatic vessels or asymmetrical arborizing vessels, as well as multiple blue-gray globules (pigmented type), occasionally with areas of ulceration.

These tumors vary in size from a few millimeters to many centimeters. The surface epidermis is frequently ulcerated or crusted, sometimes showing excoriation if the lesion has been manipulated, scratched, or traumatized prior to biopsy (**figure 1**). The tumor cells are nearly always attached to the epidermis, with the cells dropping off into the dermis in a variety of different patterns.

The neoplastic proliferation is comprised of small basaloid cells with peripheral palisading. The cells have a high nuclear-to-cytoplasmic ratio. The nuclei are hyperchromatic with small, inconspicuous nucleoli and scant eosinophilic cytoplasm. Mitotic figures are usually easily identified, along with numerous apoptotic bodies. Immediately surrounding the tumor nests, nodules, and islands is a well-developed stromal retraction artifact between the tumor cells and the stroma (**figure 2, A**). Mucinous material may be seen within the tumor nests or between the tumor cells and stroma.

BCC can be arranged in dozens of different patterns of growth and may show many different cellular types. In general, the most common variants include: (1) superficial-multifocal: very superficial nests of tumor attached to the epidermis with areas of uninvolved epidermis; (2) nodular: large, rounded, predominantly dermal-based nests of tumor with prominent peripheral palisading; (3) micronodular: small nests of cells arranged in a predominantly dermal-based growth (**figure 2, A**); (4) pigmented: melanin pigment identified both within the cytoplasm of the neoplastic cells and in cystic spaces (**figure 2, B**); (5) desmoplastic (morpheaform): infiltrative thin strands and tumor nests within a dense sclerotic stroma (not part of scar) (**figure 2, C**); (6) basosquamous (metatypical): a tumor with prominent squamous differentiation.

The primary differential diagnosis includes squamous cell carcinoma (SCC), actinic keratosis (AK), Merkel cell carcinoma, and adnexal or follicular (hair-based) neoplasms. It is not uncommon to have concurrent SCC and BCC lesions. Superficial biopsies of AK or SCC can make it difficult to exclude a BCC, especially when a sample containing a sufficient proportion of epidermis-to-dermis is not included for evaluation. Merkel cell carcinoma usually lacks the retraction artifact and has nuclei-speckled (salt-and-pepper) nuclear chromatin distribution.

The best treatment consists of complete excision (shave biopsy may be sufficient) and/or electrodesiccation and curettage. Mohs micrographic surgery is frequently employed for cosmetically sensitive areas of the face. There is in general an excellent long-term prognosis, although there is a higher risk of recurrence with a low risk of metastasis for specific aggressive subtypes (micronodular, infiltrative, desmoplastic, and basosquamous).

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Suggested reading

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