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THE PATHOLOGY OF SKIN CANCER

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Extracts from lecture, explanations and tips you won't find in the text books

BASAL CELL CARCINOMA:

This is one of the few cancers which has no recognized pre-malignant or intraepithelial component. There are three clinically relevant subtypes:

Nodular

Easy to diagnose, localized and responds well to curettage

Multifocal, superficial

Difficult to localize and recognize; often diagnosed clinically as "eczema" or some other inflammatory condition.
Excision may be incomplete because of indistinct outline or because excision margins pass through unaffected skin between adjacent foci of neoplasm.
Potentially treatable by any modality of superficial ablative therapy because of its shallow penetration.

Infiltrating

Trabecular and morphoeic, the latter with fibrosing (ie desmoplastic) host response.
Can have indistinct edge.
Incomplete excision at depth can be treacherous, with silent recurrence and deep infiltration.
Superficial incomplete excision also treacherous for same reason

In practice many BCCs grow with a mixed pattern:
Nodular + peripherally invasive
Nodular + adjacent multifocal

With severely sun damaged skin the question of whether a second tumour at the same area is a recurrence or a second primary can not be determined with any degree of confidence.

Perineural growth (?infiltration) when seen, is almost never of clinical significance.
Metastatic BCC is vanishingly rare.

SQUAMOUS CELL CARCINOMA:

Does have precursor and intraepithelial component.
There are a plethora of names with differing meanings when used by different pathologists. There have been varying definitions of the "depth" of a microinvasive carcinoma.

My preferred terms are:

Solar keratosis with mild/moderate/severe (epithelial) dysplasia
Intraepidermal squamous cell carcinoma (=Bowen's disease)
Invasive squamous cell carcinoma: well/moderately/poorly differentiated.

Perineural infiltration at deep aspect especially within subcutis or deeper is noteworthy and may be significant.

Mixed pattern of invasive SCC and adjacent intraepidermal component of varying grades of dysplasia is the usual finding. Adequate size in a diagnostic partial biopsy is crucial for accuracy of results.
(Adage: GIGO)

PARTIAL BIOPSY for DIAGNOSIS:

URBAN MYTH: Take incision biopsies which include normal skin so that the Pathologist can compare the normal with the abnormal!
TRUTH: The best diagnostic yield from (small) partial biopsies of neoplasia (such as a 2mm or 3mm punch biopsy) is obtained from their centre, avoiding necrotic (and other non viable such as keratotic) areas.

EXCISION BIOPSIES:

Put marking sutures in only those specimens where you are uncertain about the final diagnosis and the adequacy of your excision: In short, orientate **ALL** excision specimens, except for self orientating ones such as eyelid, lip or ear wedges.
Cancer is a topographic disease. In the case of an incomplete excision it will help to know where to excise further tissue from, especially with complex flap repairs.

INTRAOPERATIVE DIAGNOSTIC FROZEN SECTIONS (a few points):

- Causes of false negatives/positives:

  a) *Misinterpretation by pathologist*: hair follicles for BCC; morphoeic BCC for fibroblasts. Frozen sections are generally of poorer quality than paraffin sections and the frozen section appearance is different from the more usual paraffin section appearance
  b) *Human mistake*: residual tumour not observed by pathologist
  c) *Unrepresentative tissue sample* examined through bad choice by surgeon or pathologist. In skin excisions radial edge checks examine only a tiny fraction of the excision margin, while circumferential sections potentially examine all points along the excision margin.

- Try to avoid intraoperative FS for initial diagnosis; use pre-operative punch (or other) biopsy:

  d) Frozen section method considerably more wasteful of tissue than paraffin sections which may lead to insufficient tissue becoming available in cases of small biopsies
  e) The intraoperative situation puts pressure on the pathologist for an instant diagnosis, when more prolonged thoughtful consideration may serve the patient's interests better.

- Don't use FS for melanomas. They require wide excision so that edge checks are superfluous and histological recognition of malignancy may be devilishly difficult. At difficult sites such as around the eyelids consider instead excision with delayed repair pending paraffin sections.

- Only use FS if immediate clinical management is contingent on results.

MISCELLANEOUS TUMOURS:

Microcystic adnexal carcinoma
Sebaceous carcinoma –especially its intra-conjunctival epithelial component
Well differentiated angiosarcoma of the head and neck in the elderly
Dermatofibrosarcoma protuberans
(Some infiltrating basal/squamous cell carcinomas –at anatomically difficult locations such as the medial canthus)

- Almost always have an indistinct edge which is invisible even under the operating loupe.

- Always excise wider than you want to. Your first excision is the best chance for a cure.

- If in any doubt, consider delayed repair with paraffin sections in preference to intra-operative frozen section.

- A great cosmetic result is meaningless with an incomplete excision.