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Malignant Melanoma

1. GROSS DESCRIPTION

Specimen

— curettage/shave biopsy/punch biopsy/incision biopsy/excision biopsy.
— size: length × width × depth (mm).
— any recent change in a melanocytic lesion such as irregularity of profile, border or pigmentation should be assessed by a dermatologist and regarded with suspicion. Diathermy and curettage are avoided as this distorts histological detail. Rather, primary cold knife excision with clear (at least 2 mm) margins should be attained for initial histological designation, which will usually require examination through multiple levels. The deep and lateral margins are painted prior to blocking into quadrant or serial transverse slices. Some pathologists will either photograph the surface or take a face-down photocopier image for a record of its outline or proximity to a margin. Re-excision specimens usually have a central longitudinal scar and quadrant blocks with a double central transverse slice will generally suffice. With increasing sun exposure and public awareness malignant melanoma, "early" and borderline lesions, e.g. melanoma in situ and dysplastic naevus, have increased in incidence.

Tumour

Site

— anatomical location—trunk, limbs, head/neck, perineum, mucosal, ocular, multifocal (1–5%).
— epidermal/dermal/subcutaneous.

Size

— length × width × depth (mm) or maximum dimension (mm).

Appearance

— verrucous/nodular/sessile/ulcerated/pigmented or non-pigmented/halo/satellite lesions/scarring.

Edge

— circumscribed/irregular.

2. HISTOLOGICAL TYPE

Malignant melanoma in situ

— intraepidermal: spread can be lentiginous (continuous basal layer) or upward (single cells, nests, "buck-shot" or Pagetoid) in this non-invasive radial growth phase.

Lentigo maligna melanoma

— face/Hutchinson's melanotic freckle: a lentiginous single and nested basal layer proliferation of melanocytes with cytological atypia (enlarged, hyperchromatic angular nuclei and cytoplasmic vacuolation) ± architectural atypia (expanded junctional nests) on a background of dermal solar elastosis. Expansion and spindling of junctional nests and any clinically nodular areas should raise a suspicion of invasion. The clinical term lentigo maligna encompasses any degree of proliferation that is confined to the epidermis (i.e. it includes Clark level I or melanoma in situ), while lentigo maligna melanoma implies the presence of dermal invasion (at least Clark level II).

Superficial spreading melanoma

— radial phase of spread.[1]

Usually an asymmetrical lateral border of atypical junctional cell nests with a central segment of epidermis showing upward melanocytic spread (single cells/nests/"buck-shot" patterns). Moderate dusty pigmentation ± a dermal component related to the growth phase.

Nodular melanoma

— vertical phase of spread.[2]

Often exophytic/nodular and thick ± pigmentation, with ≤2 or 3 rete pegs showing atypical junctional nests at the lateral border of the lesion.

Acral/mucosal/lentiginous melanoma

— sole of foot, nail bed, mucosae. Features are often a combination of lentigo maligna and superficial spreading patterns ± a nodular, vertical growth phase component.

[1]Radial growth phase includes melanoma in situ (i.e. intraepidermal) ± microinvasion of the papillary dermis. The radial phase may be indolent with no metastatic potential and 95–100% survival rate. The dermal component is usually <1 mm thick, i.e. the lesion is wider than it is deep and can have morphologically bland cell nests (usually <10 cells across) of uniform size and cytological appearance. This may be accompanied by signs of regression with a brisk lymphocytic response. The radial phase potentially progresses by clonal expansion to the vertical phase.

[2]Vertical growth phase tumour comprises expansive nests, nodules or plaques of cytologically atypical melanoma cells in the dermis; it implies a biological potential for metastatic spread and is the main determinant of prognosis. The cell nests are usually larger than the biggest intraepidermal nest, ≥10–25 cells in dimension, show variation throughout the lesion, mitoses and a variable host dermal lymphocytic response. Vertical growth phase melanomas are often at least Clark level III and thicker than 1 mm with an inconstant relationship between the width and depth of the lesion.