Malignant Melanoma

Nevus or Melanocytic Nevus

- Nevi are acquired lesions that present after birth and consist of a concentration of nevus cells that are classified according to their location as:

1. Junctional (at the epidermal-dermal junction), are frequently found on the palms and soles and tend to be uniform, macular, and round with smooth and regular borders
2. Intradermal are found on the face and are usually homogeneous, elevated, dome-shaped, skin-colored lesions
3. compound (both in the dermis and at the junction). are raised above the epidermal surface and may be round or oval. The color varies with the natural pigmentation of the patient and may be very dark. There is usually little if any pigment on the flat surrounding epidermis in a classic, non-dysplastic, compound nevus

- Nevi are rarely premalignant (dysplastic or atypical nevi)

What is Melanoma?

- *Melanoma* is a very serious form of skin cancer.
- Melanoma is cancer of the *melanocytes*.
- Melanocytes are located in the *Stratum Basale* and produce *melanin.*
- *Melanoma can arise in the skin, mucous membranes of oral cavity, anal canal and vagina, the eye (iris and choroid) and the meninges.*

- Although melanoma accounts for only about 5% of all skin cancer cases, it causes most skin cancer-related deaths.

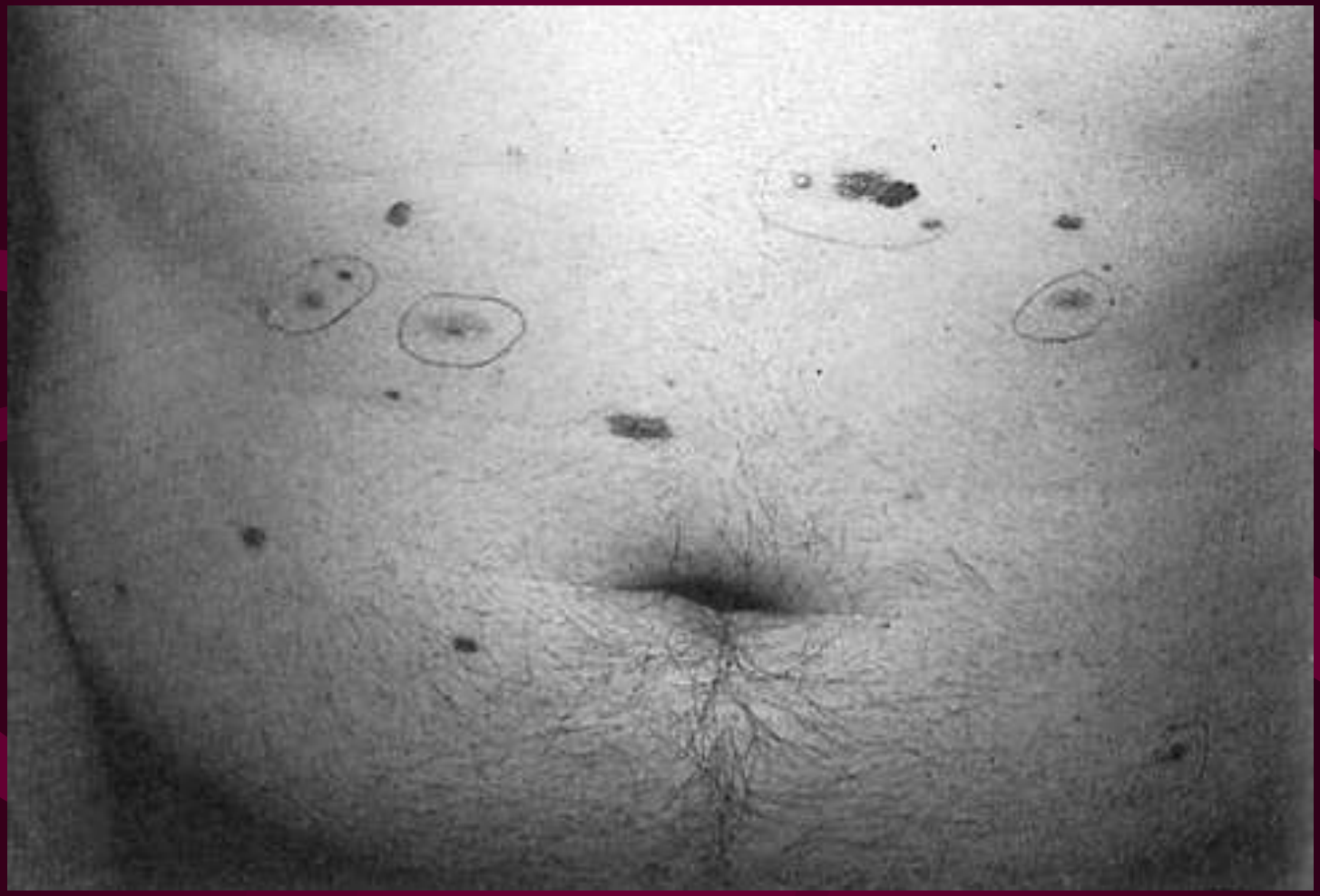
Risk factors

- 90% of all melanomas are linked to UV radiation. (Sun exposure)
- Family history of melanoma
- Large congenital melanocytic nevus
- Dysplastic nevi (noncancerous, but unusual-looking *moles*)
- Previous melanoma
- Many nevi (ordinary *moles*): more than 50
- Severe, blistering sunburns
- Fair skin, light eyes
- Excessive use of tanning beds

Dysplastic (atypical) nevus

- The atypical nevus is a clinical diagnosis of a nevus with melanocytes involving the epidermis and dermis that have features suggestive of malignancy.
- Clinically, it is large (>6 mm), with a macular surface, irregular margin, and variegated color. It may have a background of erythema.
- These are benign lesions with histologic features that are abnormal.
- These lesions are believed to be at greater risk for transformation to melanomas.

Dysplastic (atypical) nevus



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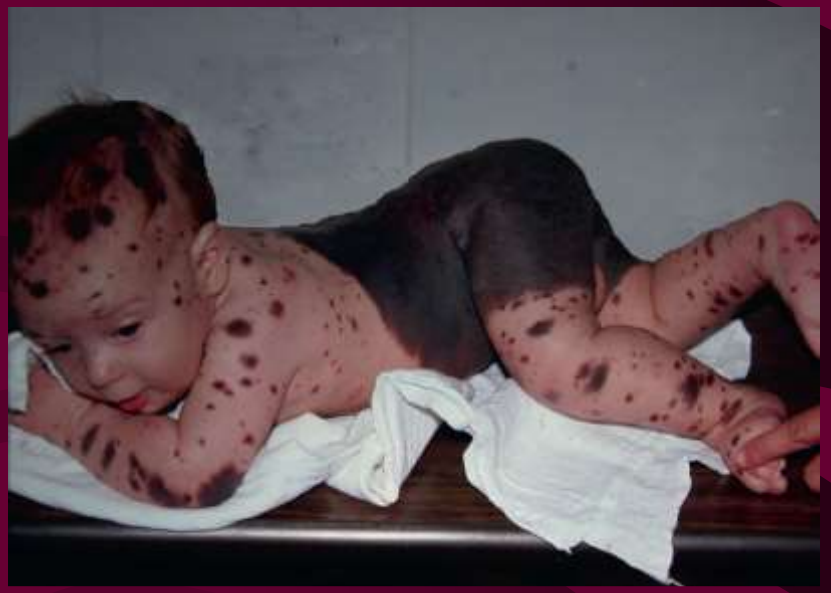
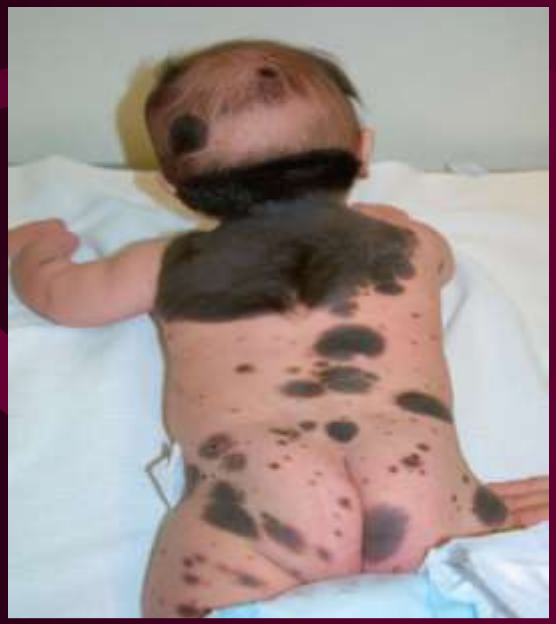
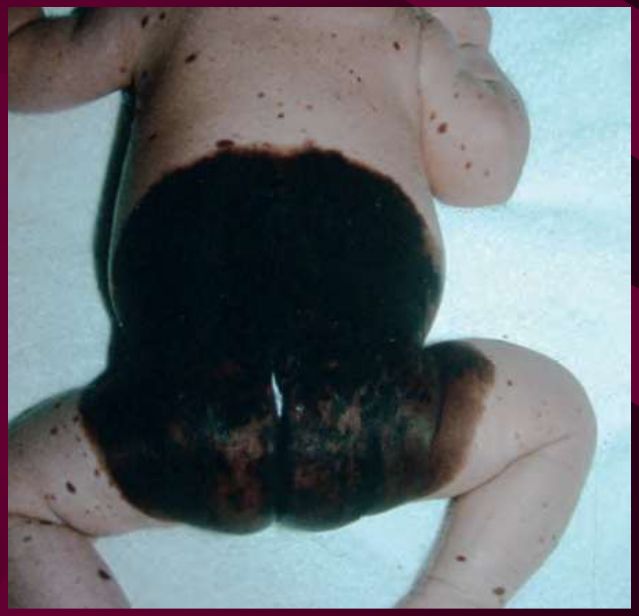


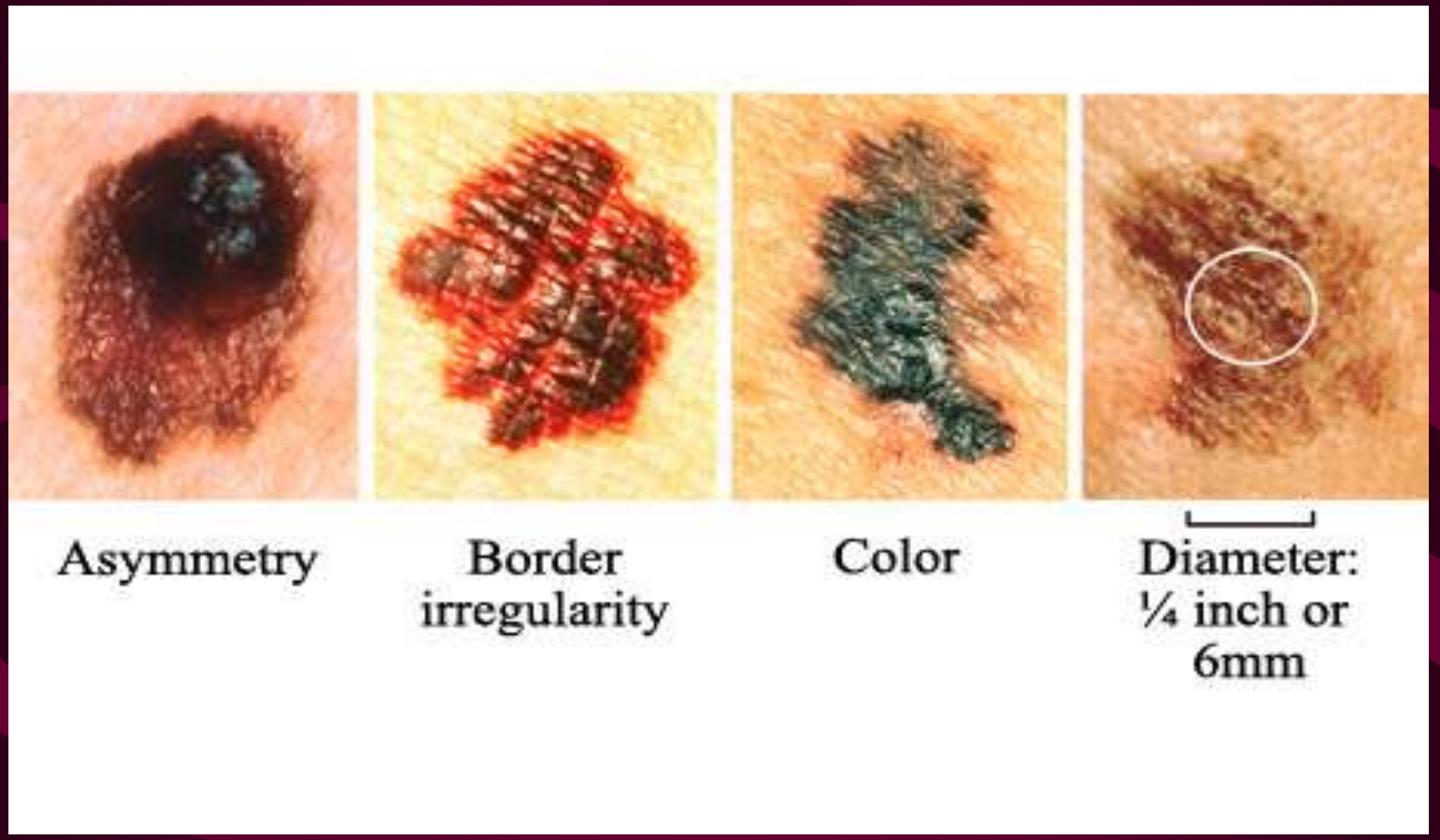




A-B-C-D-E's of Melanoma

- A - Asymmetry - several types
- B - Border Irregularity
- C – Color variegation
- D - Diameter - bigger than a pencil eraser
- E – Evolution or change in the appearance of lesion over time (in size, shape, color, symptoms as itching, pain, bleeding

Malignant melanoma



Growth of melanoma

- Horizontal growth (radial) within epidermis=melanoma in situ for a period of years
- Vertical growth through basement membrane into dermis=invasive melanoma
- Once melanoma penetrates dermis,it spreads via lymphatic and blood stream

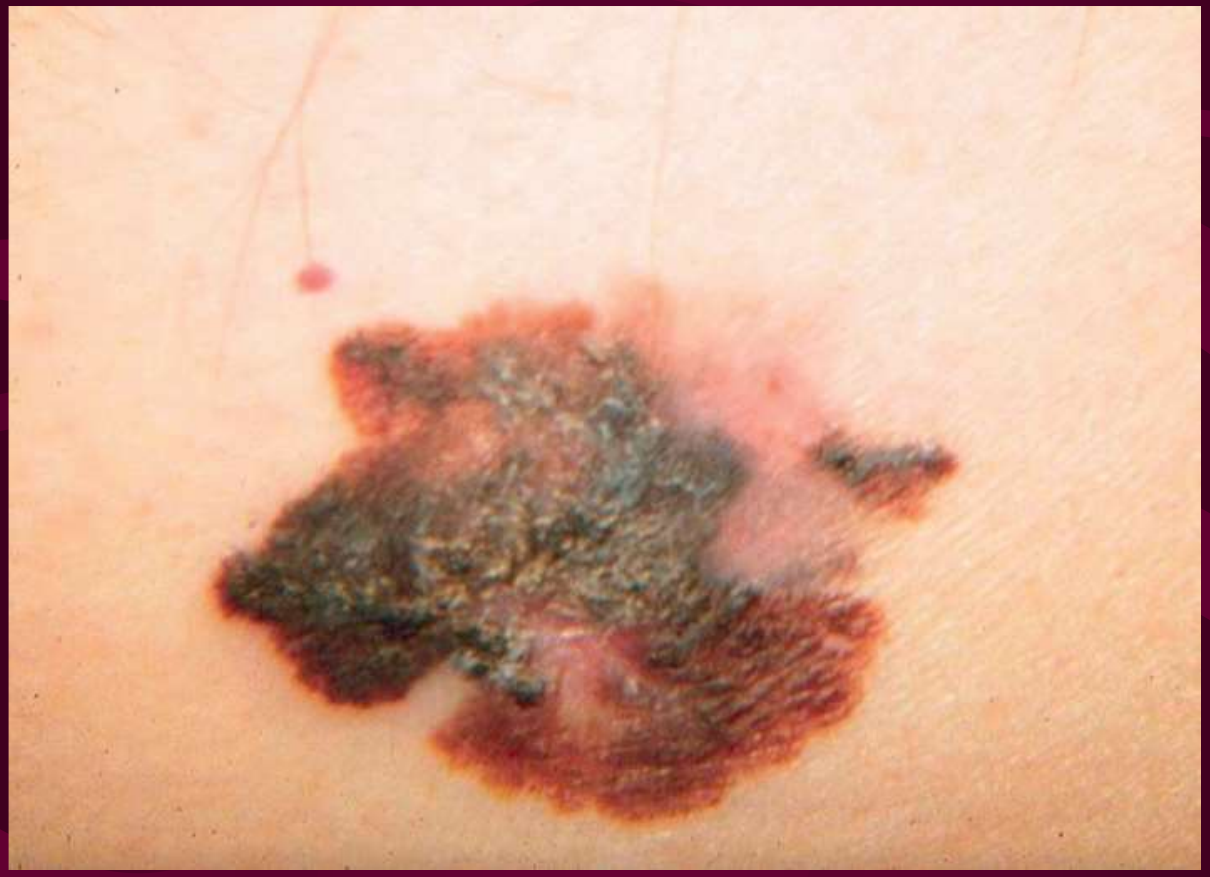
  = metastatic melanoma

Types of melanoma

Superficial spreading melanoma

- This is the most common type of melanoma in the Caucasian population
- Most commonly occuring on the trunk of men and the legs of women
- Presents as a flat or slightly lesion with variegate in pigmentation

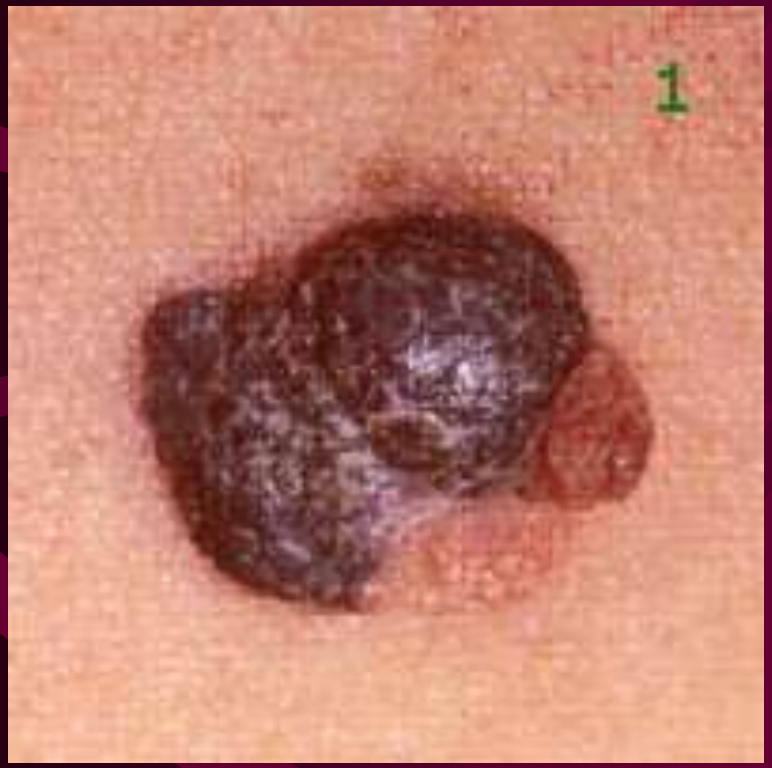
Superficial spreading melanoma

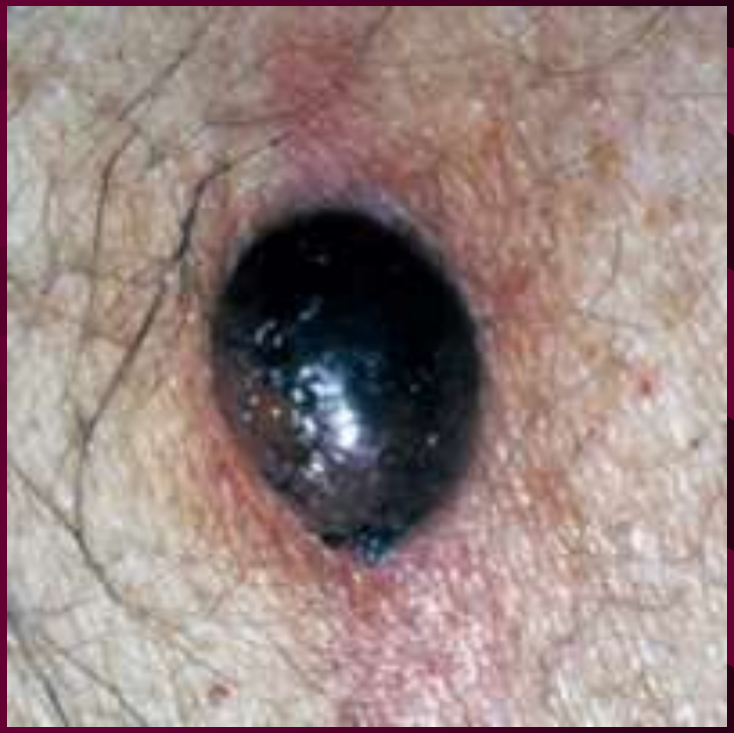


Nodular melanoma

- The 2nd most common type
- Short or absent radial growth phase
- Usually appears as single colored (black or brown) smooth elevated nodule or ulcerated mass

Nodular melanoma





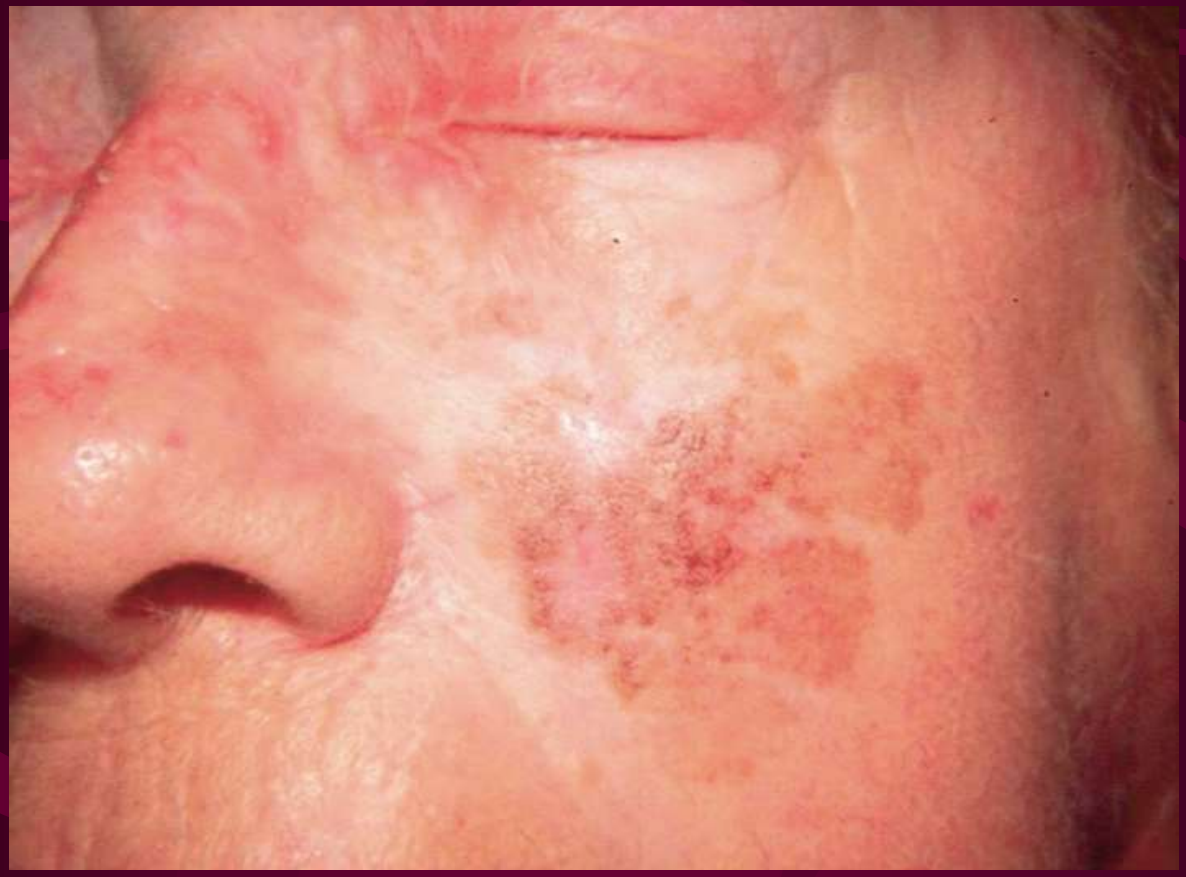
Lintgo maligna melanoma

- Equal incidence in men and women
- Usually 60-70 yrs
- Usually on chronically sun-damaged skin, most often on the face
- Accounts for 5% of all melanomas
- Begins as a tan macule that extends peripherally, with gradual uneven darkening, over several years

Lintgo maligna melanoma

- After a radial growth of 5 to 20 years, vertically growing melanoma usually develops within it
- A palpable nodule within the original macule is the best evidence that a lentigo maligna melanoma has occurred

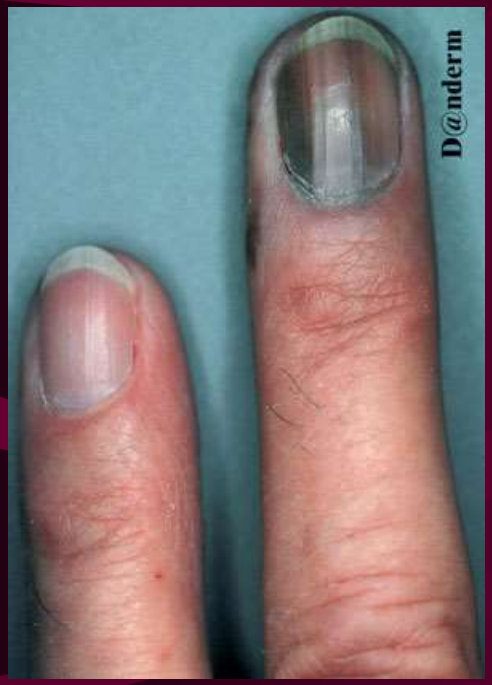
Lintgo maligna melanoma

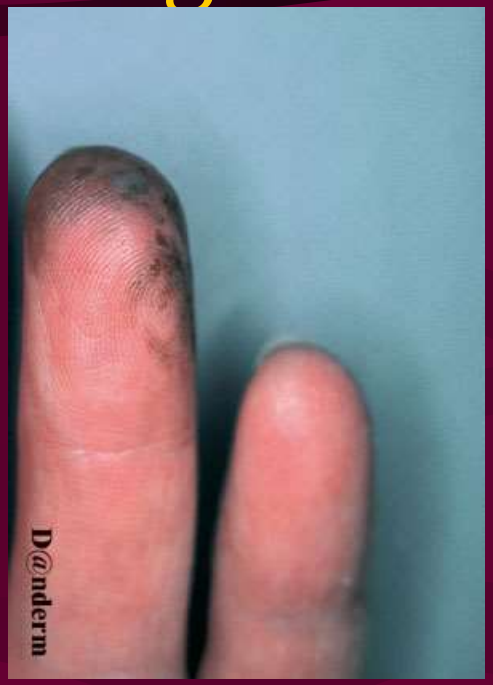


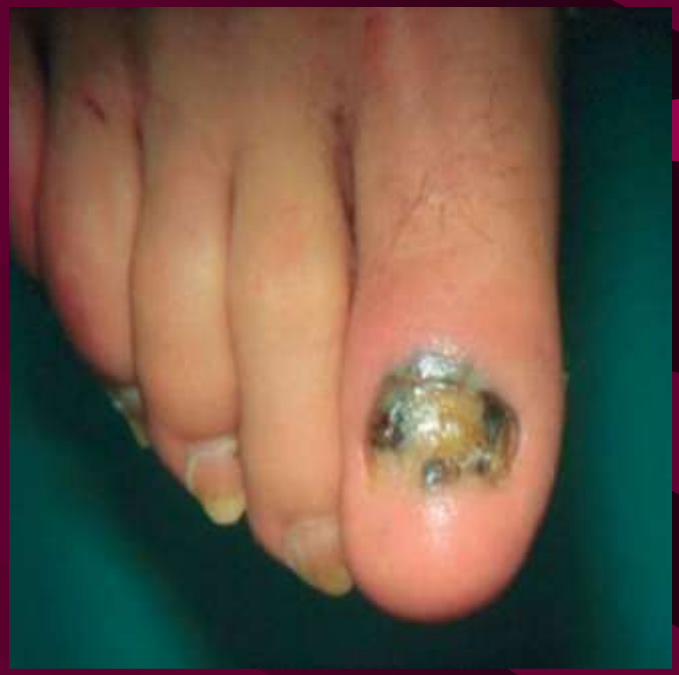
Acral lentiginous melanoma

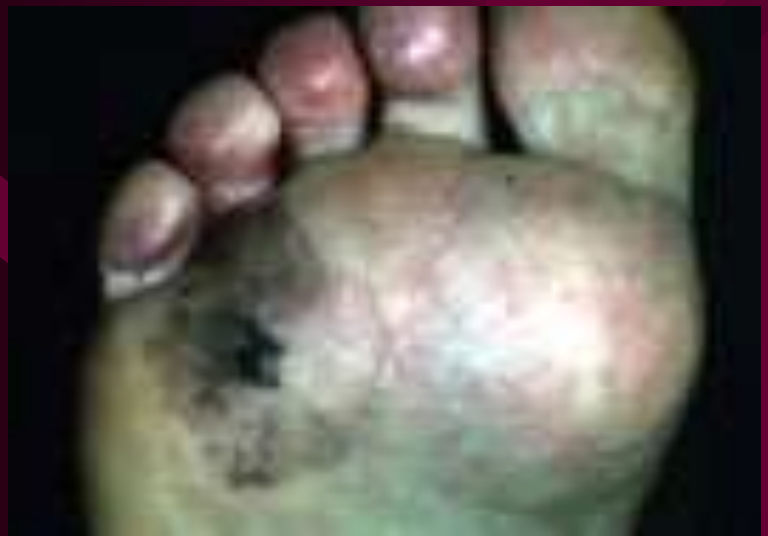
- Account for 10% of all melanomas
- Most common type in African Americans
- Commonly appears on the palms of the hands, soles of the feet, subungual areas of the fingers and toes, and web spaces.
- Usually presents at advanced stage with an aggressive course than other types.

Acral lentiginous melanoma









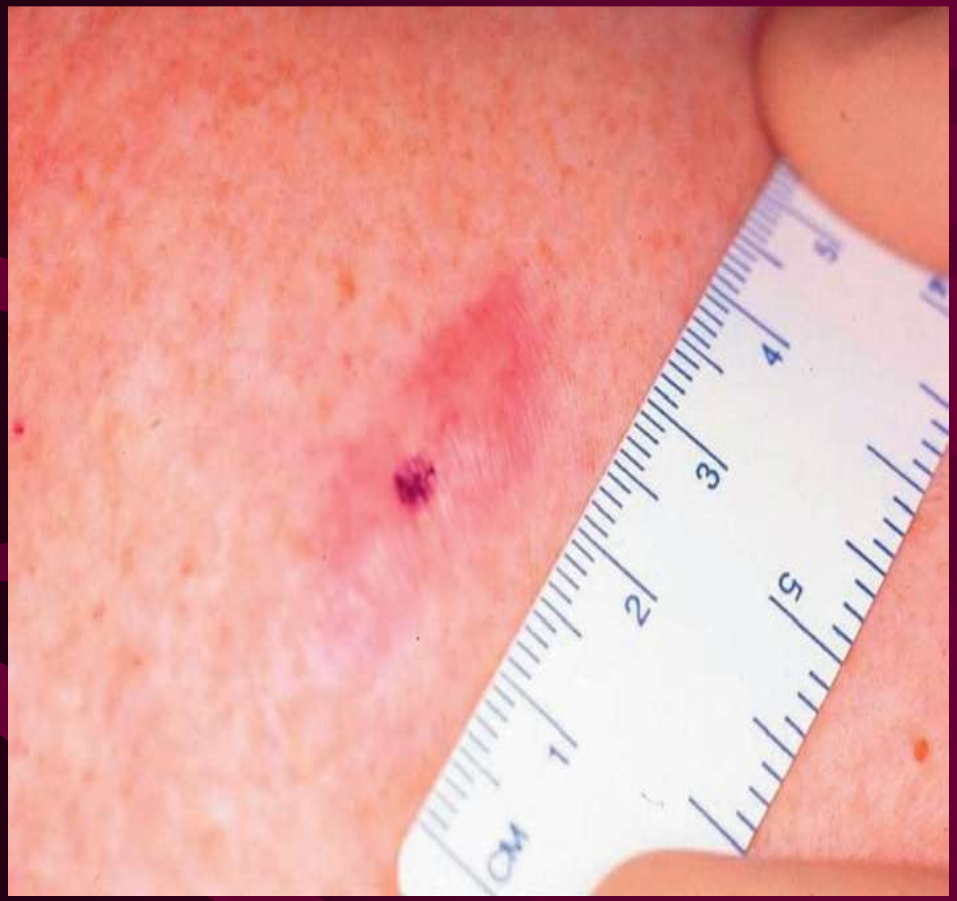
Desmoplastic melanoma

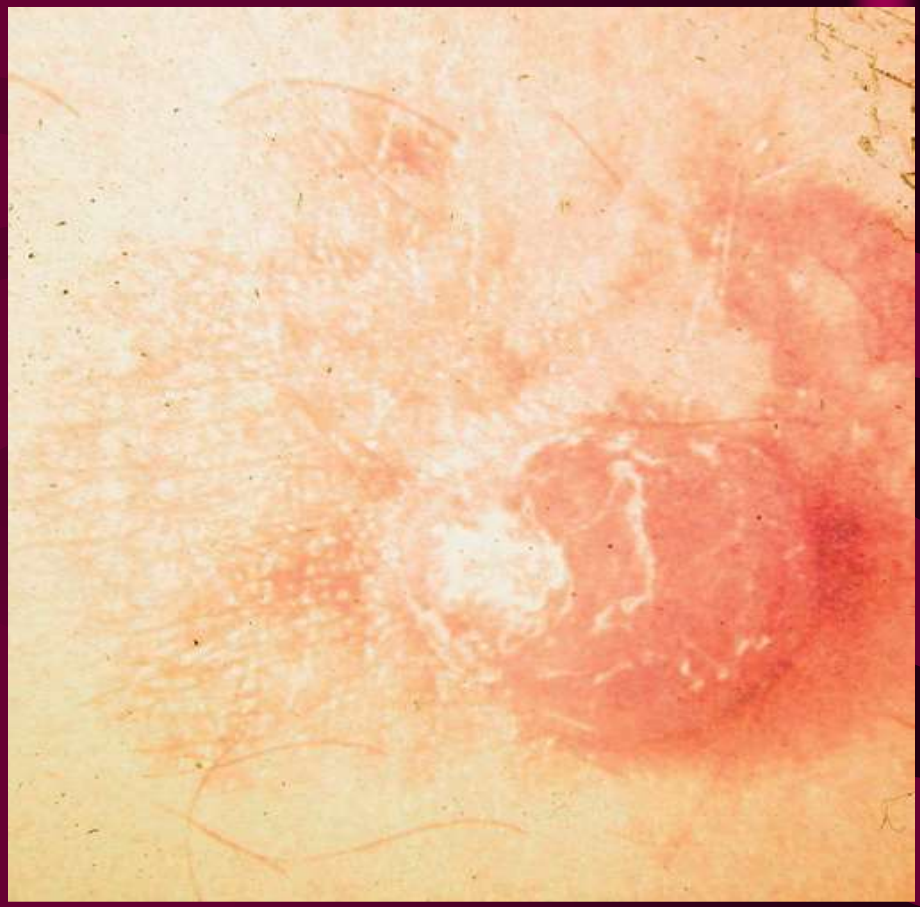
- Less common clinical variant of melanoma, usually does not produce pigment
- May present as unremarkable plaque or nodule, or may have the appearance of a hypertrophic scar at a location with no history of trauma
- Associated with nerve invasion and spread along the fascial planes, and tend to be thicker at time of diagnosis
- Locally aggressive and higher rate of local recurrence

Desmoplastic melanoma

- This type must be differentiated from amelanotic melanoma which is simply a variant of nodular or superficial spreading melanoma that is not producing sufficient pigment granules to appear as a pigmented lesion

Desmoplastic melanoma

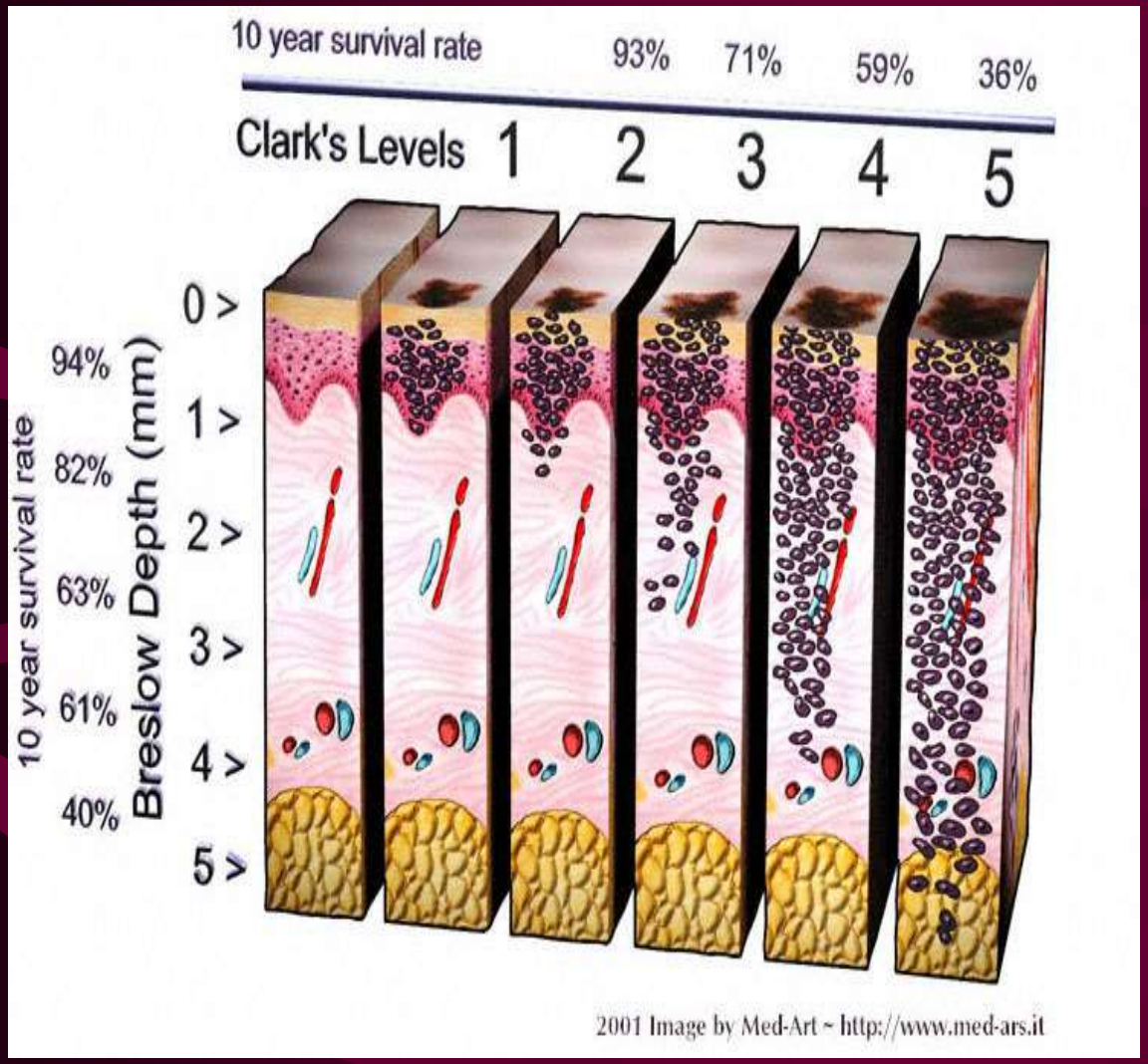




Prognostic factors

- For early- staged melanoma (disease limited to the primary tumour) the most powerful indicator for survival is the tumour thickness
- Clark described staging system for classification of depth of inavasioninto the dermis. However this system is no longer recommended for use in staging melanoma
- Breslow reported method of quantiative measurement that is simple yet effective in staging by determining thickness of lesion from the surface to the deepest tumour cell measured in millimeters

Prognostic factors



Good prognosis
Breslow < 1mm

Intermediate prognosis
Breslow 1-4mm

Bad prognosis
Breslow >4mm

Prognostic factors

- Mitotic rate is the second most powerful predictor of survival after tumor thickness
- This is followed by ulceration in the lesion
- Other factors affecting prognosis include age of patient, sex, site of primary lesion, no of distant metastasis, subtype of melanoma

Invetigation

- Definitive biopsy remains a critical factor in both establishing the diagnosis and providing valuable information about staging and prognosis
- A full thickness excisional biopsy with a 1 to 2 mm margin of normal tissue is the method of choice for suspicious lesions
- For larger lesions locatled in areas where a complete excision may be technically difficult *or* result in significant
- deformity (i.e., areas of the face) : incisional biopsy or multiple punch biopsies that should include the most raised area of the lesion.
- Shave biopsies should never be performed on lesions with a high clinical suspicion of melanoma due to high rate of positive deep margins

Invetigation

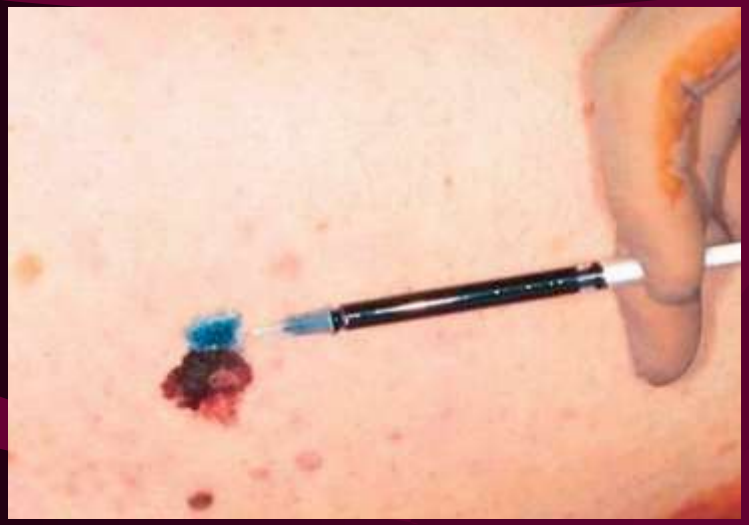
- Further screening workup for newly diagnosed patients with invasive melanoma includes chest X-ray, complete blood count, liver function tests, and serum lactate dehydrogenase (LDH)
- Abnormal findings in the review of systems or these screening modalities should prompt further imaging studies such as CT scanning, serum alkaline phosphatase, serum creatinine, body CT imaging, MRI of the brain and bone scan

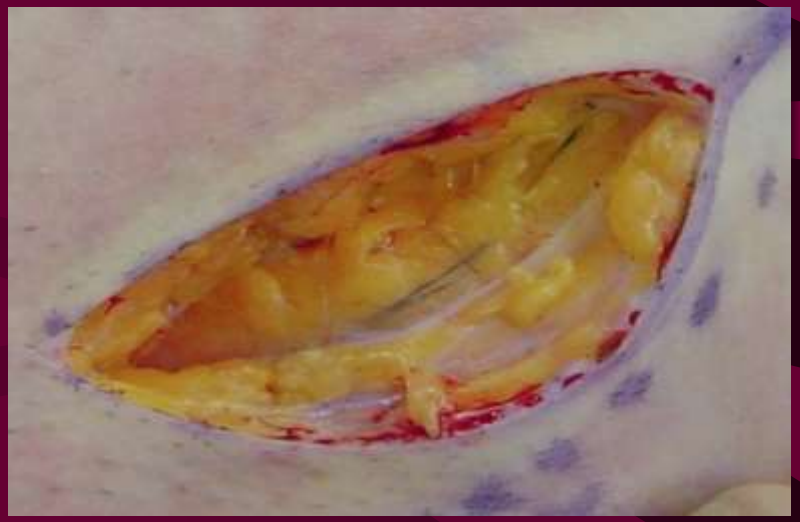
Sentinel lymph node

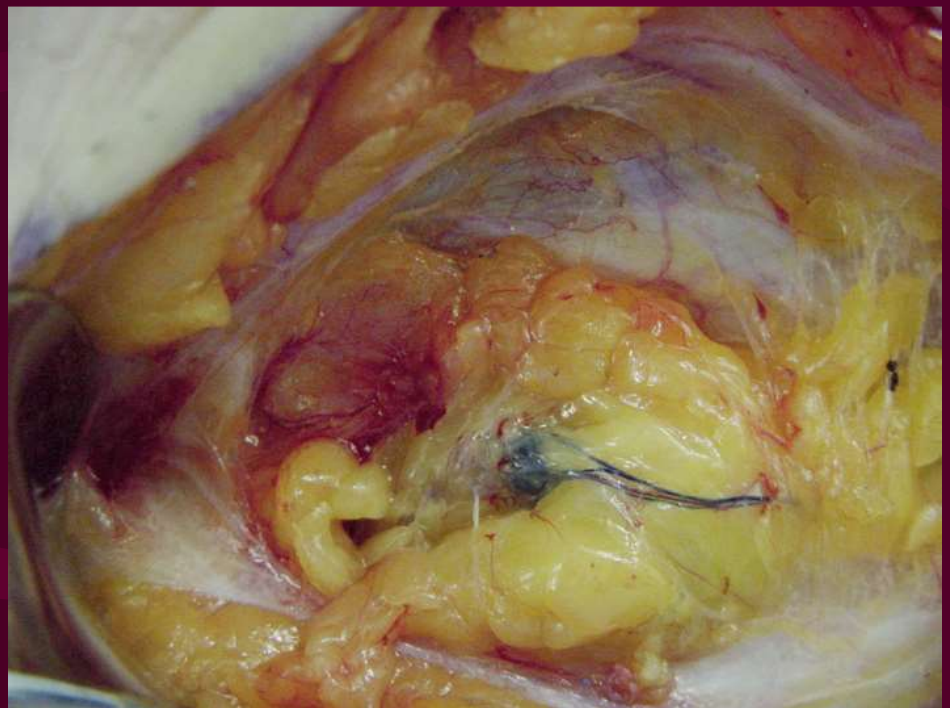
- This is the first lymph node in the drainage basin to receive afferent lymphatic communication from the primary tumor site, prior to spread to the other nodes in this region
- It is postulated that selective sampling of this important "marker" could serve as an accurate predictor of involvement of the rest of the nodal basin
- It is indicated in:-

1. clinical stage I and II melanoma with tumor thickness from 1.00 to 4.00 mm and clinically negative nodes
2. Patients with tumors between 0.76 and 1.00 mm with features such as ulceration, lymphovascular invasion, age <40 years, significant vertical growth phase, and increased mitotic rate.
3. Finally, patients with >4.00 mm tumors and clinically negative nodes benefit from the prognostic information obtained from sentinel node sampling

Sentinel lymph node







Treatment

- Wide and Deep Excision: Surgical excision not only is critical for establishing the diagnosis but is also the definitive management of malignant melanoma

- The guidelines for surgical margins are largely based on the thickness of the primary lesion

- Lymphadenectomy: Complete surgical lymphadenectomy is indicated in patients with clinically involved nodes diagnosed by examination, fine needle aspiration and/or sentinel lymph node biopsy.

Treatment

TUMOR THICKNESS	EXCISION MARGIN	REGIONAL LYMPH NODB TREATMENT
In situ	0.5 cm	None
Less than 1.0 mm	1cm	None
1.0 to 4.0 mm	2 cm	Sentinel lymph node biobsy
Greater than 4.0 mm	2 to 3 cm	Sentinel lymph node biobsy (e – ve clinical nodes)

Treatment

- Advanced Melanoma. The prognosis for stage IV melanoma is poor, with only ***10% to 15%*** of patients living past5 years.

- Modalities include immunotherapy (high-dose interleukin 2, interferon alpha, combination therapy, adoptive immunotherapy, and vaccines), systemic chemotherapy (dacarbazine and fotemustine), isolated limb perfusion, and radiotherapy

- Each of them is with limited success in highly selected cases. However, there are no provocative data indicating that any of these treatments reliably prolongs survival in stage IV melanoma.

- In the absence of effective medical therapy, surgical management of metastatic melanoma may offer a survival benefit to selected patients with isolated or limited metastatic burden

Thank you