Presentation and Management of Common Skin and Soft Tissue Tumors

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- Skin tumors are the most common of all tumors that occur in the body.
- Thy can arise from any histological structure in the skin, e.g. epidermis, connective tissue, glands, muscles, nerves.
- They are classified into benign, premalignant, and malignant tumors.
- Benign tumors include hemangioma.
- Malignant tumors include basal cell carcinoma, squamous cell carcinoma, and malignant melanoma.

Hemangioma

- It is the commonest skin tumor, and the commonest benign tumor of infancy.
- It classified based on the likelihood of proliferation or regression to:
  1. Involuting; will regress on its own.
  2. Non involuting; won't regress on its own.

Involuting hemangioma (hemangioma of childhood):

- It makes up to 95% of all hemangiomas.
- It is a neoplasm of endothelial cell origin, i.e. it is a hamartoma, not a true neoplasm.
- Present at birth or during the first 2-3 weeks after birth, and grows rapidly for 4-6 months.
- Undergoes complete spontaneous slow involution; usually completely disappears at the age of 5-7 years.

Classification:

A. Superficial (strawberry nevus):
   - A type of capillary hemangioma (a nevus vasculosum capillary hemangioma).
   - Very superficial in the dermis.
   - Appears as a sharp demarcated, red, slightly raised lesion with an irregular surface.

B. Deep (cavernous hemangioma):
   - Arises from below subcutaneous tissues.
   - Appears as a blue tumor covered by normal skin.

C. Combined:
   - Combined dermis and deep dermis.
   - Firm, usually purple to blue depending on the depth.
   - May extend deeply into subcutaneous tissues.

Note

» Both benign tumors and hamartomas are composed of normal cells in excessive quantities, but benign tumors have a normal arrangement whereas hamartomas have an abnormal arrangement of cells.

» In involuting hemangioma, the deeper they go the bluer they become, whereas the more superficial the more cherry red they get.

Treatment:

- No need for treatment, just observe, unless it involves a vital organ or interferes with physiological functions, e.g. eyelid.

Non involuting hemangioma:

- True benign tumors.
- Usually present at birth.
- There is no rapid growth phase; its growth is proportional to the growth of the child.
- Persists to adulthood.
- Causes severe aesthetic (cosmetic) problems.
- May cause arteriovenous fistulas eventually leading to cardiac failure.
- Treatment is not satisfactory.

Port wine stain:

- An extensive intradermal hemangioma, just below the epidermis, which is mostly made up of a collection of dilated venules and capillaries. It has a deep purple red color.
- May involve any portion of the body, usually as flat patches in the face.
- Usually follows the correlation of sensory branches of the 5th nerve; so if it involves one branch of the trigeminal, it will spread to half of the face, whereas if it involves both branches it will spread to the whole face.
- Microscopically, it appears as thin walled capillaries distributed throughout the dermis, lined by thin mature flat endothelial cells.
- Treatment:
  - » Unsatisfactory.
  - » Tattooing.
  - » Radiotherapy: causes a scar as it destroys both blood vessels and the skin overlying the lesion.
  - » Laser has a special wave length affecting the blood vessels without affecting the skin, but it is expensive.

Basal Cell Carcinoma (BCC; Rodent Ulcer)

- The most common malignant cancer of all skin tumors.
- Locally invasive malignant tumor, which may lead to massive ulceration.
- Very rare to metastasize.
- Affects ages over 40, and men are more affected than women.
- Risk is increased in:
  - » Individuals with high cumulative exposure to UV light through sunlight, e.g. live in tropical areas.
  - » Those with fair, white skin, especially when the person has blond or red hair and blue, green, or grey eyes, e.g. westerners working in KSA.

- Mostly presents in the face and the neck.
- Grows slowly (not aggressively), steadily and painlessly, and several months or years may pass before the patient finally visits a doctor.
- Death may occur due to secondary complications of invading deeper tissues or major blood vessels.
- Appearance:
  - » Small translucent, skin elevated nodule with rolled pearly edges.
  - » Telangiectatic vessels may occur on the surface.
  - » Flat and white or waxy appearance with firm palpation.
  - » Histologically, it appears as elongated strains of basal cells that infiltrate the dermis.

Based on appearance, there are 4 forms:

1. Erythematous (superficial) basal cell carcinoma:
   - Occurs most frequently on the trunk.
   - Appears as a reddish plaque with an atrophic center, and smooth, slightly raised borders.

2. Pigmented basal cell carcinoma (frequent in our country):
   - Sometimes mistaken with melanoma, but it is darker.
   - Extends deep to the subcutaneous tissue.
3. Nodular basal cell carcinoma.
4. Cystic basal cell carcinoma.

Treatment:

- Curettage and electrodessication (cautery), with excising a safety margin of 2-3 mm.
- Surgical excision (the best treatment): small moderate sized lesions, with removal of the subcutaneous tissue and do reverse face lift flab if the lesion occurs in the face.
- Radiotherapy: good for treatment of structures that are difficult to reconstruct but hospitalization is not required. Should not be used in patients under 40 years, due to mutation, or in patients who failed to respond to radiation therapy. Treatment usually lasts 4-6 weeks.

Squamous Cell Carcinoma (SCC)

- The second most common cancer in light skinned people, but the first in dark skinned ones.
- There is a potential for metastatic spread.
- The causative agents are the same as basal cell carcinoma, along with:
  - » Excessive contact with hydrocarbons such as tar, gasoline, and paints.
  - » Exposure to ionizing radiation.
  - » Chronic ulcers.
  - » Scars of thermal burns healed repeatedly by fibrosis, which may lead to Marjolin's ulcer.

- Most common sites are the face and neck, e.g. ears, cheeks, and the lower lip, and the back of the hand.
- Presents as:
  - » Locally invasive without metastasizing.
  - » Premalignant tumor, as Bowen's disease or chronic radiation dermatitis.
  - » Rapidly growing, widely invasive with metastasis, especially SCC arising from normal skin.
  - » Initially starts as an erythematous plaque or nodules with indistinct margins.
  - » Surface may be: flat, verrucose (warty) or ulcerative.

- Histologically, malignant epithelization is seen extending down into the dermis like horns of pearls.

Treatment:

- Surgical excision with 4-5 mm margin in all directions.
- Radiotherapy: the more well differentiated the tumor, the more it resembles normal skin, the less potential to metastasize, and the less radiosensitivity, and vice versa.

Note

» Sarcomas metastasize through blood, while carcinomas metastasize through lymphatics.

Malignant Melanoma (MM)

- Incidence is over 300,000 of skin tumors every year in USA, 9000 of these are melanomas, i.e. 4.6%.
- 2/3 of all skin tumor deaths are from melanomas.
- Incidence of and survival also were increased from 41% to 67%.
- Whites have a higher incidence than blacks, but there is no sexual predominance.
- Risk factors:
  - » UV radiation.
  - » Family history.
  - » Average person has 15-20 nevi, 1/3 of the melanomas arise from the pigmented nevi.

Types of **nevi:**

1. Junctional nevi:
   - Small circumscribed light brown or black colored, flat, slightly raised and rarely contain hair.
   - Mainly lies between epidermis and dermis.
   - May be formed in mucous membranes, genitalia, soles and palms.
   - More likely to be malignant.

2. Intradermal nevi:
   - Small spots, color ranges from blue to bluish black, flat and dome shaped.
   - Compound; found in both epidermis and dermis.
   - Less likely to become malignant.

3. Dysplastic nevi:
   - Pink base with indistinct irregular edges.
   - Usually have embryonic tissues, i.e. ectoderm, mesoderm, or endoderm.
   - Most dangerous type in newborns.
   - Family history is important.
   - Most lesions are small, and suspicious lesions must be excised.
   - Congenital: excision in 1% of newborns also with dysplastic is considered to be premalignant.

Histological classification:

a. Superficial spreading melanoma (the commonest): arises from a preexisting mole; common in blacks without sexual predominance.
b. Nodular melanoma: becomes large and ulcerated before it is noticed.
c. Lentigo maligna (melanoma): most commonly occurs in old patients, especially from a preexisting mole.
d. Acral lentiginous melanoma.

Criteria **that suggest melanoma from mole, and consequently suggests its excision:**

- Color: focal shades with red, blue, white or darkening in color.
- Size: recent rapid diameter enlargement of more than 10 mm.
- Shape: irregular margin, notching and indentation.
- Surface: ulceration, bleeding, crusting, irregular elevation.
- Symptoms: pruritus, inflammation and pain.
- Location: back, lower extremities, location is subjected to BANS; Back, posterolateral part of the Ar posterolateral part of the Neck and Scalp; they are the anatomical areas that have a higher risk rate and a lesser survival rate.

Staging (Clark's classification):

- Based on the histologic level of invasion of the tumor.
- Performed after excisional biopsy.

Level	Feature	Mortality and morbidity rates
I	In situ; above basement membrane (confined to the epidermis)	0%
II	Invades the papillary layer of the dermis	4%
III	Lesions reach the junction of the papillary and reticular layers	33%
VI	Lesions invades the reticular dermis	61%
V	Lesion invades subcutaneous tissue	78%

Node dissection:

- Advised prophylactically as:
  - » Level I and II: no need of dissection.
  - » Level III: some will do it and some will not.
  - » Level IV and V: dissection is mandatory.

- Not advisable in:
  - » Lymphatic drainage of sites involved.
  - » Patients over 70 years old.
  - » Serious concurrent disease.
  - » Unresectable distant metastasis.

Prognosis:

- Depends on the tumor size and depth of invasion.
- Less than 2 cm diameter and less than 0.7 mm depth is curable by wide local excision.
- Nodular melanoma with ulceration has a poor prognosis.
- Lesions in the extremities have a better prognosis than trunk lesions.
- Women have a better 5 year survival rate than men.

Nonsurgical treatment (immunotherapy):

- Small metastatic lesions treated with BCG may be tried on healthy patients.
- Melanoma is radioresistant; so radiotherapy is rarely used in treatment and may be used in palliation.
- Chemotherapy with phenylalanine and alanine-mustard and other drugs.
- Survival is better in limbs because a limb can be isolated and treated.
- Long term palliative treatment of large lesions which underwent surgery is with radiotherapy and chemotherapy.