Melanoma Surgical Practice Guidelines

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By Daniel Coit, MD [1], Marc Wallack, MD [2], and Charles Balch, MD [3]

The Society of Surgical Oncology surgical practice guidelines focus on the signs and symptoms of primary cancer, timely evaluation of the symptomatic patient, appropriate preoperative evaluation for extent of disease, and role of the surgeon in diagnosis and treatment. Separate sections on adjuvant therapy, follow-up programs, or management of recurrent cancer have been intentionally omitted. Where appropriate, perioperative adjuvant combined-modality therapy is discussed under surgical management. Each guideline is presented in minimal outline form as a delineation of therapeutic options.

Since the development of treatment protocols was not the specific aim of the Society, the extensive development cycle necessary to produce evidence-based practice guidelines did not apply. We used the broad clinical experience residing in the membership of the Society, under the direction of Alfred M. Cohen, MD, Chief, Colorectal Service, Memorial Sloan-Kettering Cancer Center, to produce guidelines that were not likely to result in significant controversy. Following each guideline is a brief narrative highlighting and expanding on selected sections of the guideline document, with a few relevant references. The current staging system for the site and approximate 5-year survival data are also included.

The Society does not suggest that these guidelines replace good medical judgment. That always comes first. We do believe that the family physician, as well as the health maintenance organization director, will appreciate the provision of these guidelines as a reference for better patient care.

Society of Surgical Oncology Practice Guidelines: Melanoma

Symptoms and Signs

Early-stage disease

- Asymptomatic
- Asymmetry
- Border irregularity
- Color: variegated
- Diameter: > 6 mm
- Itching, bleeding with minor trauma

Advanced-stage disease

- Primary
  1. Nodularity
  2. Friability, bleeding
  3. Satellites

Regional disease

- Patients may present with metastatic involvement of regional nodes even with no known primary.
Systemic disease

1. Unusual for patients to present initially with visceral metastasis in the absence of a known primary

**Evaluation of the Symptomatic Patient**

**Diagnosis of the primary tumor**

- Plan biopsy with definitive therapy in mind
- Incisional vs excisional biopsy

1. Excision increases staging accuracy.
2. Excision is not always possible (eg, lesions on digit, palm sole, face, or ear)
3. For lesions on digit, palm, sole, face, ear, incisional biopsy of the clinically thickest area is appropriate.

Shave biopsies are inappropriate.

**Diagnosis of metastatic disease**

- Excision

1. Best if no primary known, especially for isolated node

Fine-needle aspiration

1. Sufficient to diagnose recurrence of known melanoma

**Appropriate timeliness of surgical referral**

- Lesions fulfilling criteria for early-stage disease (see above) should be biopsied without a period of observation.

**Preoperative Evaluation for Extent of Disease**

**Complete history**

- Sun exposure
- Prior moles
- Nonmelanoma skin cancers
- Family history of melanoma

**Examination**

- Complete dermatologic examination
- Regional and remote lymph nodes
- Regional and remote soft tissue

**Laboratory studies**

- CBC
- Chemistry profile

**Radiology**

- Chest x-ray
- CT scan only for advanced stages
- Pelvic CT for patients with inguinal adenopathy to guide extent of lymph node dissection
Role of the Surgeon in Initial Management

Evaluation of pigmented lesion

Diagnosis by biopsy

Surgical considerations

- Primary tumor

  1. Margin of excision (may vary with location):
     - In situ primary: 0.5-cm margin
     - <1-mm thick primary: 1-cm margin
     - 1- to 4-mm thick primary: 2-cm margin
     - >4-mm thick primary: >2-cm margin

  2. Moh's surgery not appropriate

Type of closure (variable):

- Primary
- Split-thickness skin graft
- Local rotation flap
- Free flap
- Digital amputation in highly selected patients (eg, subungual lesions)

Regional nodes

  1. Intent
     - Elective
     - Selective with intraoperative mapping
     - Therapeutic
     - Palliative

  2. Procedures
     - Neck dissection
     - Axillary dissection
     - Groin dissection

  3. Extent of lymph node dissection
     - Radical vs modified radical neck dissection
     - Indications for elective inguino-femoral-pelvic lymph node dissection

In-transit metastases

  1. Excision
  2. Injection
  3. Laser ablation
  4. Hyperthermic isolated limb perfusion
  5. Amputation

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Melanoma is now the seventh most common malignancy in the United States, and the rate at which its incidence has increased (approximately 4% per year since 1973) is higher than that for any other cancer. According to American Cancer Society estimates, approximately 38,300 new cases of melanoma were diagnosed in 1996, and 7,300 deaths were attributable to this cancer. Early signs of melanoma often arise in the context of a preexisting nevus. Early signs of melanoma include the so-called ABCDs: lesion asymmetry, border irregularity, variegated color, and diameter over 6 mm. Other, less specific symptoms include itching or bleeding with minor trauma.
More advanced primary melanomas may present as a nodular skin lesion, which may be friable or bleeding and occasionally may have clinical satellitosis. More advanced lesions are often amelanotic. Of patients with melanoma that is clinically metastatic to regional lymph nodes, 10% to 15% may present with regional node involvement in the absence of a known primary. Fewer than 2% of patients with metastatic disease present with visceral metastatic melanoma in the absence of a known primary.

Evaluation

The initial step in evaluating a patient with a symptomatic or suspicious pigmented lesion is to obtain a biopsy. The biopsy should always be planned with definitive therapy in mind. In general, total excisional biopsy is preferred over either incisional or shave biopsy. Excision increases the likelihood of accurately staging the primary tumor, which is important in planning therapy and determining prognosis.[1]

Total excision is not always possible, however, as tumors on a digit, palm of the hand, sole of the foot, face, or ear often cannot be completely excised without compromising plans for definitive therapy. In those cases, incisional biopsy of the clinically thickest area of the tumor is appropriate. Partial-thickness shave biopsies should be avoided, as valuable staging information can be lost with this technique.

In an effort to minimize the number of biopsies required for suspicious pigmented lesions, research is being conducted on a new technique, epiluminescence microscopy (ELM). Although ELM is not intended to replace biopsy in the definitive diagnosis and staging of melanoma, it is hoped that it will increase the accuracy of clinical diagnosis, thus minimizing the number of biopsies of otherwise benign lesions. At present, ELM remains an investigational.

In the patient presenting with a solitary enlarged lymph node and no relevant prior history, excisional lymph node biopsy is preferred. This affords the pathologist more tissue for immunohistochemical evaluation to establish the diagnosis and to differentiate between carcinoma, lymphoma, and melanoma. In the setting of recurrent disease, fine-needle aspiration of accessible disease often suffices to confirm the clinical suspicion.

With regard to the urgency of diagnosis and management, once a lesion is felt to be suspicious, little is to be gained by delaying a diagnostic biopsy. Therapy should be undertaken as soon as all clinically relevant concerns have been addressed, preferably within days to weeks of diagnosis.

Preoperative Evaluation for Extent of Disease

Any patient with a newly diagnosed melanoma should undergo a complete history and physical examination. The history should pay particular attention to any family history of melanoma, as well as any previous melanoma, any pigmented nevi, or prior malignancy in the patient. In addition, the patient's previous history of sun exposure should be determined.

Physical examination should include a complete dermatologic examination, as a small proportion of patients have other dysplastic nevi or synchronous multiple primary melanomas.[2] In addition to examination of the primary site for evidence of clinical satellitosis, a careful examination for any in-transit disease should be undertaken. Both regional and remote lymph node basins should be examined, and attention should be paid to any remote soft-tissue metastasis, particularly in patients with more advanced-stage disease.

Blood tests are generally of low yield in screening for occult metastatic disease in melanoma. Nonetheless, in patients at risk for metastases (eg, those with primary lesions > 1 mm), laboratory studies should include a CBC and screening chemistry profile. In particular, liver function tests should be ordered, as an elevated lactic dehydrogenase (LDH) has been associated with metastatic disease to the liver.

Standard radiologic evaluation should include diagnostic, high-quality postero-anterior and lateral chest x-rays. Extensive CT scans, MRIs, and nuclear medicine scans are generally of low yield, and multiple series have found these imaging studies to be unnecessary.[3] There is controversy over the extent of radiologic evaluation required for patients with thick (> 4.0 mm) cutaneous melanoma, who are at significant risk of systemic disease.

In patients who present with clinical lymphadenopathy, a thorough physical examination (as detailed above) should be performed. The extent of radiologic work-up required for such patients is controversial. In patients with inguinal lymphadenopathy, pelvic CT scans have been used to assess for pelvic lymphadenopathy; such information is helpful in guiding the extent of groin dissection.[4] Laparotomy has been used for this purpose in the past, and some investigators are exploring the
role of laparoscopy. In patients with known systemic metastasis, the extent of the work-up depends on the intent of the proposed procedure. For procedures performed with curative intent, (eg, in patients with remote nodal/soft tissue or pulmonary metastasis), a comprehensive evaluation for extent of disease is mandatory. This should include a CT scan of the head, chest, abdomen, and pelvis. The F18 flurodeoxyglucose-enhanced total-body PET scan may be more sensitive for evaluating systemic metastasis than are standard radiologic techniques.[5] At present, this promising imaging modality remains investigational.

For patients undergoing palliative resection of systemic metastatic disease, a more limited radiologic evaluation for extent of disease is appropriate. In such cases, a chest x-ray should suffice for most patients.

**Staging**

The current American Joint Committee on Cancer (AJCC) staging system reflects the fact that, for patients with localized melanoma, prognosis is most closely related to primary tumor thickness. Patients with thick cutaneous melanomas > 4 mm or invading into subcutaneous fat have a high risk of metastasis and death, and have been classified as stage III, together with patients who have regional disease. Within the group of patients with regional nodal recurrence, prognosis correlates with the tumor burden in the nodes; the number of positive nodes involved may be a better predictor of outcome than the size of the largest node involved.

The TNM staging for melanoma is shown in Table 1, along with approximate 5-year survival rates by stage.

**Treatment**

In addition to having a prominent role in diagnosis and evaluation (as detailed above), the surgeon plays a critical role in definitive management of melanoma.

**Primary Lesion**

Wide excision of the melanoma is appropriate in virtually all cases. The excision margin required to minimize the likelihood of local recurrence is now well established, and depends on the thickness of the tumor: For in situ melanoma, a margin of 0.5 cm is sufficient. For melanomas < 1-mm thick, a 1-cm margin is appropriate,[6] whereas for melanomas measuring 1 to 4 mm in thickness, a 2-cm margin is needed.[7] For melanomas > 4-mm thick, the margin necessary to minimize local recurrence is unknown, although most experts feel that it ought to be at least 3 cm.

Subungual melanomas usually require digital amputation. For subungual melanomas of the thumb, every effort should be made to preserve the meta-carpophalangeal joint to maintain function. Moh's chemosurgery is inappropriate, even for the management of very thin melanomas. The type of closure depends on such factors as the margin of excision required and the anatomic location of the lesion. Many excisions can be performed with primary closure. When primary closure is impossible, local rotation flaps may be employed to optimize the cosmetic results. Split-thickness skin graft may be required for lesions of the distal extremity. Rarely, a microvascular free flap is needed for lesions that involve extensive portions of the weight-bearing surface of the foot.

**Lymph Node Dissection**

The indications for elective lymph node dissection in the setting of clinically and radiologically negative nodes remains controversial. In the absence of conclusive data, the decision to proceed with elective lymph node dissection should be made on a case-by-case basis by the patient and surgical oncologist. Recently, the technique of intraoperative lymphatic mapping with selective lymphadenectomy of patients with a positive "sentinel node" has been described.[8] This procedure is used to pathologically stage patients with melanoma who are at risk for regional metastases and who have clinically negative nodes. The value of this procedure for the individual patient with regard to improving the cure rate over wide excision and observation has not been demonstrated. This is currently the focus of an ongoing, prospective, randomized clinical trial.

Patients with clinically positive nodes should undergo a thorough therapeutic lymphadenectomy in the absence of systemic metastases. In the presence of metastatic disease, palliative lymphadenectomy should be undertaken to avoid sequelae of unrestrained growth of tumor in the regional nodal basin.

Lymph node dissections in the neck, axilla, and groin have been standardized and are well described.[9] The extent of lymphadenectomy may be modified to suit the individual needs of the patient, with the goals of preserving optimal cosmetic and functional results while minimizing the
likelihood of regional recurrence.

**Metastatic Disease**

In-transit metastatic disease may be managed by local excision or carbon dioxide laser ablation,[10] with the expectation of further recurrence in the majority of patients. Local injection of smaller dermal in-transit metastasis with dinitrochlorobenzene (DNCB) has led to complete regression of both injected and noninjected lesions. In patients with extensive metastatic in-transit melanoma, hyperthermic isolated limb perfusion has produced objective response rates ranging from 20% to 100%, depending on the agents used.[11] Only a fraction of the overall responses are complete, however, and not all complete responses are durable. Several ongoing clinical trials are attempting to define the role of hyperthermic isolated limb perfusion in the management of patients with regionally recurrent melanoma. In the past, major limb amputation was used in these patients, although, with the advent of limb perfusion, the indications for this procedure are exceedingly rare.[12] Since patients with remote nodal and soft-tissue metastases fare best after complete resection, this should be attempted when possible. Noncurative resection of symptomatic remote nodal/soft-tissue metastases in the setting of known visceral metastases can yield significant palliation in selected patients. Curative resection of isolated visceral metastatic disease can result in long-term disease-free survival in highly selected patients. The best results are obtained after resection of a solitary pulmonary metastasis. Resection of brain and gastrointestinal tract metastases is usually performed with palliative intent, with very few long-term survivors.[13]

**References:**


**Links:**