

The Prognostic Value of Age, Sex, and Subsite in Cutaneous Head and Neck Melanoma: A Clinical Review of Recent Literature

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Abstract

Context: Cutaneous head and neck melanoma is a challenging disease owing to its aggressive nature and often times advanced stage at presentation. Age, sex, and subsite are three prognostic indicators which can be determined prior to treatment or testing, and can allow the practitioner to counsel the patient before initiating therapy.

Evidence Acquisition: A PubMed search was conducted utilizing various terms relating to the subject matter. Articles over the past 25 years were analyzed and appropriately selected for review.

Results: It appears that patients older than 65 have a decreased overall 5 year survival compared to their younger counterparts. Male patients have poorer prognosis compared to female patients as noted by the decreased overall survival, decreased disease specific survival, and shorter time to distant metastasis. Scalp subsite was most uniformly accepted as having the worst prognosis in the head and neck, and may even serve as an independent prognostic indicator.

Conclusions: Advanced age, male sex, and scalp subsite all portend poor prognosis in patients with cutaneous head and neck melanoma.

Keywords: Melanoma, Sub-Site, Age, Prognostic Factor, Sex

1. Context

Melanoma is a malignant tumor of the melanocytes, cells responsible for producing the pigment melanin (1). While it has been described to affect both cutaneous and mucosal surfaces, cutaneous melanoma has been examined more closely than its mucosal counterpart, and more information has been reported in the oncologic literature. Cutaneous melanoma is most commonly found in the head and neck region and accounts for up to 20% of all cutaneous melanoma each year (2-5). Risk factors for the development of cutaneous head and neck melanoma (CHNM) include sun exposure, lighter skin tone, and number of nevi (6-9). Immunosuppression, environmental exposures, and personal history of non-melanoma skin cancer have also been suggested to increase risk (10, 11).

In the United States and other industrialized countries, the incidence of cutaneous melanoma has been increasing, especially in the Caucasian population (12). Although the exact reason for this increase is unknown, it has been suggested that increased amounts of leisure time in industrialized countries has led to greater time spent outdoors. Despite the known risk of skin cancer, a study by Scerri et al. reported that 48% of people feel that sun tanning and

Table 1. Risk Factors for Cutaneous Head and Neck Melanoma Based on English Literature

Risk Factors for Cutaneous Melanoma of the Head and Neck
Sun Exposure
Lighter Skin Tone
Nevi
Immunosuppression
Environmental Exposure
History of Skin Cancer

increased sun exposure is not harmful as long as sunburn does not occur (13).

Diagnosis of CHNM hinges on physical examination followed by biopsy of suspicious lesions. Careful examination of the asymmetry, border, color, diameter, and evolution of skin lesions are all crucial in determining the likelihood of pigmented lesions being melanomatous (6). Of these, irregular border has been shown to be the strongest predictor of malignancy (14). Typically, excisional biopsy with wide margins is recommended; however, in the case

of larger lesions, a core biopsy may suffice. Treatment of melanoma is generally centered on wide surgical excision and reconstruction if needed. The definitive role of chemotherapy and radiation has been suggested, but is unclear.

Table 2. ABCDE Acronym for Examination of Skin Lesions

Key Components of Examining Skin Lesions
Asymmetry
Borders
Color
Diameter
Evolution

As CHNM poses a significant challenge to the patient and practitioner alike, prognostic factors can be extremely helpful in determining a thoughtful, patient-centered care plan. Ulceration, melanoma sub-type, tumor thickness, and presence of distant metastasis all portend a poor prognosis (15). Multiple studies of sentinel lymph node status in head and neck melanoma have suggested a shortened disease free survival in patients with positive sentinel lymph nodes and as such, have recommended sentinel node biopsy for certain lesions for staging and prognostication (15, 16).

Recently, specific studies addressing the prognostic value of age, sex, and subsite were performed and have suggested significant prognostic value in each of the above-mentioned parameters. As these three sources of information are readily apparent at the initial examination, they could provide valuable information for patient counseling prior to initiating therapy. This paper seeks to collate the recent literature and provide a succinct discussion of the value of age, sex, and subsite in the prognosis of CHNM. A full discussion of all prognostic factors is beyond the scope of this paper; the reader is referred to the oncologic literature for a comprehensive reading source.

2. Evidence Acquisition

Using keywords such as melanoma, head and neck, prognosis, age, sex, and subsite, a thorough PubMed search was conducted to find high quality articles pertaining to the central theme of this paper. Articles from the past 10 years were gleaned for pertinent information, and subsequently reviewed by each of the authors. Articles deemed to provide valuable information to the topic were isolated for further analysis and included in the content of the current study.

3. Results

Understanding the prognostic value of age, sex, and subsite allows the practitioner to counsel melanoma patients prior to undergoing treatment. Although there are many other prognostic factors as previously mentioned, these are among the few factors that do not require any additional workup or testing.

Age is often times not reported as a prognostic factor, but rather as an epidemiologic marker of certain malignancies. Ciocan et al. (17) report that CHNM typically occurs in patients older than 70. Despite the greater incidence in this age group, previously there were no studies done analyzing age at presentation and outcome. Stokes et al. (18) performed a study using the surveillance, epidemiology, and end results (SEER) database examining age, sex, site, stage, and histology. Patients were grouped into 3 age categories, 1 - 44, 45 - 64, and 65+. They were also classified as being early (stages 1 and 2) or late (stages 3 and 4). Their study included 12,195 patients with CHNM, and revealed that patients older than 65 more commonly presented with early stage CHNM compared with the two younger groups ($P < 0.001$) (18). It also appeared that the 45 - 64 and 65+ categories were male dominated.

Overall survival was calculated as compared to age-matched cancer free controls and reveals a statistically significant drop in 5-year overall survival for each consecutive age group compared to the previous. Using a multivariate regression model, the study found that increased age is an independent poor prognostic variable for CHNM (18).

In a review of head and neck melanoma, Cheriyan et al. (6) state that men are at higher risk for CHNM than women (6, 19, 20). However, similar to age, sex has never been independently studied as a prognostic variable in CHNM. In a 2014 study by Arce et al. (21), 13,507 patients with CHNM were examined, of which approximately 30% were female and 70% male. Males were found to present with higher stage tumors ($P < 0.001$) and at more advanced ages ($P < 0.001$) than their female counterparts (21). Interestingly, the 5-year disease specific survival for females was 90.4% compared to 87.1% for males. Females were found to be 23% less likely to die from CHNM than males (21).

In a study of approximately 27,000 patients with CHNM, Tseng et al. (4) found similar findings, also suggesting that female sex was associated with a better overall survival and prognosis compared to male patients. Joosse et al. (22) specifically analyzed overall survival difference between men and women with cutaneous melanoma. Although their study was not limited to CHNM, they concluded that female gender conferred significantly improved overall survival, disease specific survival, and time to distant metastasis.

Studies suggest that cutaneous melanoma affecting the head and neck already has a worse prognosis than cutaneous melanoma of the remainder of the body with significantly lower overall survival (5, 23-25). To specifically analyze prognosis of subsite within the head and neck, de Giorgi (26) reviewed 67 patients with CHNM and stratified them into one of two groups, those with scalp lesions (8 patients) and those with face or neck lesions (59 patients). The 5-year overall survival for patients with scalp CHNM was 66.7% while the 5-year overall survival for patients with face/neck CHNM was 81.8%. Patients with scalp malignancy had an increased risk of death compared to other subsites (26).

Wanebo et al. (27) examined a series of 83 patients with CHNM stratified by stage, location, and thickness. They found that ear and scalp CHNM portended the worst prognosis in CHNM (5-year approximately survival 30% - 40%) compared to 78% for face CHNM and 58% survival for neck CHNM (27). An independent study from MD Anderson cancer center in 1970 stated that the scalp subsite has the poorest prognosis and is an independent poor prognostic factor in CHNM (28). In 2006, these findings were further delineated by Leong et al. who claimed that scalp CHNM had the highest recurrence rate and had three times greater mortality than any other subsite of the head and neck (29). Lachiewicz SEER database study of 50,000 patients revealed that scalp and neck CHNM were the poorest prognostic indicators when compared to other head and neck subsites (25).

Table 3. Stratification of Subsite Prognosis Based on 5-Year Survival

Prognosis Based on 5-Year Survival
Scalp 30% - 40%
Neck 58%
Face 78%

Based on articles over the past 25 years, it appears that advanced age greater than 65, male sex, and scalp subsite are poor prognostic indicators in patients with cutaneous head and neck melanoma. Practitioners should be aware of these indicators of outcome and provide appropriate information to patients during their pre-treatment counseling.

4. Conclusions

It appears that age, sex, and subsite are important prognostic factors when evaluating patients with cutaneous head and neck melanoma. Male sex, age greater than 65, and scalp subsite confer poor prognosis and lower

5 year overall survival when compared to females, patients younger than 65, and those with cutaneous melanoma of the face or neck. Patients with ear CHNM have also been reported to have poor prognosis, but the literature is less robust than the claims made for scalp CHNM.

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Footnotes

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