Treatment Advances in Skin Cancer

Dear Physician Colleagues,

In this issue of Ochsner Cancer Institute’s “Outcomes in Oncology” newsletter, Dr. Suneeta Walia, of Ochsner’s Dermatology Department and Director of the Ochsner Cancer Institute’s “Mohs Surgery Center” discusses the important problem of non melanomatous skin cancer in our Region and the treatment opportunities available for such cancers through the “Mohs technique”. Nonmelanomatous skin cancer is the most common cancer affecting Americans today. Dr. Walia informs us of the increased frequency of skin cancer in America, particularly among the elderly and those with a history of excessive sun exposure. The use of the Mohs technique to eradicate these cancers highlighted in this issue of “Outcomes in Oncology” provides the opportunity for functional preservation and improved cosmetic outcomes for the skin cancer patient.

The Ochsner Cancer Institute has opened a state of the art “Mohs Skin Cancer Treatment Center”, led by Dr. Walia, at the Benson Cancer Center. The skin cancer treatment team of nurses, physicians, and other health care professionals at Ochsner are second to none. This “Home Team” of specialists of the Benson Cancer Center of the Ochsner Cancer Institute is a great resource to patients of Louisiana, and the Gulf South, with known or suspected skin cancer.

As our stated mission, the purpose of “Outcomes in Oncology” newsletter series is to provide the health care professionals of the Gulf South with timely and accurate accounts of important cancer problems that they may encounter in their daily practice.

Thank you for participating in this important educational effort provided by the Ochsner Cancer Institute.

Sincerely,

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Background

Skin cancer is the most common form of cancer in the United States. Each year Americans develop more new cases of this type of malignancy than cancer of the breast, prostate, lung, colon and all other types of cancer combined.\(^1\) One in every five Americans will develop a skin cancer over the course of his or her lifetime.\(^2\) Review of Medicare procedural data showed, between 1992 and 2006, an increase of 77 percent in incidence of nonmelanoma skin cancers (NMSC).\(^1\)

By 2006, there were an estimated 3.5 million cases of NMSC in the population over the age of 65.\(^2\) The high rates of NMSC together with the alarming increase in incidence make skin cancer a major public health issue. Cutaneous squamous cell carcinoma (cSCC) represents about 20 percent of the NMSC cases each year. As opposed to basal cell carcinoma (BCC), cSCC is far more likely to metastasize and result in systemic morbidity or mortality. As of 2013, the estimated incidence of cSCC in the United States was around 700,000 new cases per year. The mortality rate for cSCC is approximately 1.5 percent of cases per year, and it is estimated that between 3932 and 8791 Caucasian Americans died secondary to cSCC in the United States in 2012.\(^3\)

Even when there are no systemic sequelae, NMSC may result in significant functional and/or cosmetic morbidity. Delay in the treatment of cutaneous carcinomas results in larger tumor size.\(^4\) BCC and cSCC tumor size has been shown to double if treatment is delayed for more than one year.\(^5\) An increase in size of cSCC is associated with a greater likelihood of metastasis, higher risk of recurrence, as well as higher probability of disfigurement with treatment.\(^6\) These factors are also associated with an increased cost burden on the health care system.

Detection and Treatment

Both primary and secondary prevention are crucial in combating the skin cancer epidemic. Patients must be educated regarding the importance of photoprotection, which leads to lower incidence rates. Regular skin checks with early evaluation and management of suspicious lesions lead to management of more superficial, smaller tumors with less morbidity and decreased treatment costs. When a suspicious lesion is noted, it should be biopsied, and once malignancy is confirmed, the lesion must be definitively treated with one or more of a variety of modalities, such as excisional surgery, Mohs micrographic surgery, curettage and electrodesication and/or radiation. The choice of treatment may be multifactorial, including aspects such as histopathologic characteristics of the tumor, anatomic location, potential functional and cosmetic outcomes, availability of medical resources, patient preference and patient comorbidities.

Mohs Micrographic Surgery (MMS)

Mohs Micrographic Surgery (MMS) was initially described by Dr. Frederick Mohs in the 1930s.\(^7\) It is a highly specialized technique for the precise and total removal of skin cancer whereby 100 percent of the excised tissue is examined while the patient waits. The surface of a skin cancer can be compared to the tip of an iceberg in that the margins of the tumor may extend well beyond the boundaries of the tumor that are detectable by the human eye.\(^1\) In MMS, a skin cancer is excised one layer at a time. At each stage of the surgery, a thin layer of tissue is removed and the margins are inked to allow localization of the tumor to a very specific area. A special map is drawn of the surgical site, which notes the sectioning and inking patterns. The tissue is then immediately processed and examined under the microscope by the Mohs surgeon. The surgeon is able to determine if the tumor has been removed in its entirety or if more tissue must be excised to obtain clear margins. If tumor remains, it can be localized to a precise portion of the wound bed. The next layer can then be taken from this exact position, and so it repeats until the cancer is cleared. Thus, the surgical defect in Mohs closely approximates the actual microscopic extent of the tumor itself, which minimizes morbidity.\(^7\) MMS takes place in an outpatient setting under local anesthesia. The goal of this method is to achieve histological clearance of malignancy at the time of excision and prior to reconstruction while the patient is still in the office (Figure 1). This allows the surgeon to be absolutely certain that the tumor has been completely removed prior to closing the surgical defect, all of which occurs during the Mohs surgery appointment. Thus, the excision, review of pathology and surgical repair take place by the Mohs surgeon on the same day and during a single appointment.
During fellowship training in MMS, the physician learns how to precisely identify the malignancy, remove the tumor while preserving the maximum amount of normal tissues, interpret the histopathology and reconstruct the wound. Specialized training is critical since the efficacy of the procedure is highly reliant on the surgeon’s procedural skills, as well as his or her histological interpretation of the specimen. Because 100 percent of the excised tissue is examined, the margins required to obtain histologic clearance are significantly smaller than the generally accepted 4 millimeter margins recommended during standard surgical excision. Thus, in addition to being the most effective treatment for skin cancers with a cure rate between 97 to 99 percent, MMS is considered a tissue-sparing technique that allows for minimal scarring.

Indications

Studies have shown MMS to be a cost effective method of treatment for cutaneous malignacies.\(^8\),\(^9\) With an increase in the number of physicians trained in the MMS technique, coupled with the exponential increase in the number of skin cancers, the use of MMS has risen dramatically in recent years. The American Academy of Dermatology put forth guidelines for appropriate use of the MMS technique in 2012 to maximize the resources of the current health care system. Indications for the use of MMS include anatomic areas considered functionally or cosmetically sensitive (face, nose, ears, lips and eyelids), recurrent malignancies, aggressive tumor features on pathology, prior irradiation, large tumor size and tumors in immunosuppressed patients.\(^8\) Preservation of the maximum amount of normal tissue in these areas may make a huge difference in the postsurgical outcome. For example, a few millimeters of spared tissue may affect the patient’s ability to obtain good eye closure, nasal airway patency or oral competence. As a technique proven to be cost effective and with a set of guidelines to assist physicians regarding appropriate use of this specialized method of treatment for skin cancers, MMS remains the gold standard for treatment of many NMSCs.

Reconstruction

Mohs surgeons receive specialized training in repairing surgical defects. Because one of the indications for MMS is functionally and cosmetically sensitive anatomic areas, the Mohs surgeon is often faced with challenging reconstructions. Repair of defects on the head and neck, in particular, often requires specialized training as these areas contain many functionally significant anatomic structures. Following removal of carcinoma, the primary goal of the surgeon is to reconstruct the area with minimal impingement on the function of structures such as the eyes, nose, lips and ears. Additionally, the face is divided into numerous cosmetic units. When considering repair options, it is necessary to honor the boundaries of the various subunits to obtain the best possible cosmetic result. Figure 2 illustrates a bilobed transposition flap for repair of a nasal defect in a patient with BCC treated with Mohs. Figure 3 demonstrates a case in which a single defect required both a flap and a graft in order to preserve the integrity of the cosmetic units. The Mohs surgeon must have a variety of closure techniques, including flaps and grafts, in his or her arsenal in order to achieve the best possible functional and cosmetic outcome. While new treatments for skin cancer are constantly emerging, Mohs surgery has withstood the test of time and will continue to be a staple in the treatment of NMSCs, especially as the incidence of these types of cancers continues to increase.

Questions or more information
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The Mohs Surgery Process

Step 1
The roots of a skin cancer may extend beyond the visible portion of the tumor. If these roots are not removed, the cancer will recur.

Step 2
The visible tumor is surgically removed.

Step 3
A layer of skin is removed and divided into sections. The ACMS surgeon then color codes each of these sections with dyes and makes reference marks on the skin to show the source of these sections. A map of the surgical site is then drawn.

Step 4
The undersurface and edges of each section are microscopically examined for evidence of remaining cancer.

Step 5
If cancer cells are found under the microscope, the ACMS surgeon marks their location onto the “map” and returns to the patient to remove another layer of skin - but only from precisely where the cancer cells remain.

Figure 1
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Figure 2A: Pre Mohs

Figure 2B: Defect after 3 stages of Mohs surgery

Figure 2C: Bilobed flap repair

Figure 2D: 3 months post Mohs

Micrographic Surgery and reconstruction

Figure 3A: Pre Mohs Micrographic Surgery

Figure 3B: Defect after 4 stages of Mohs surgery

Figure 3C: Advancement Flap and Full Thickness Skin Graft Reconstruction

Figure 3D: 3 months post Mohs

Micrographic Surgery and reconstruction
Upcoming “Outcomes in Oncology” Topics:

**August:** Colorectal Oncology  
**September:** Hepatobiliary Malignancy  
**October:** Breast Cancer  
**November:** Gynecologic Oncology  
**December:** Neurooncology

Upcoming CME Oncology Activities:

**July 31-August 2, 2014**  
Piedmont Society of Colon & Rectal Surgeons  
Ritz Carlton, Amelia Island, FL

**September 12-13, 2014**  
Pharyngoesophageal Dysfunction and Gastroesophageal Reflux Symposium  
Roosevelt Hotel, New Orleans, LA

**September 26-27, 2014**  
Cutaneous Malignancies Conference  
Sheraton Hotel, New Orleans, LA

Information and registration for all conferences are available on our website at ochsner.org/cme.

References


Important Melanoma Treatment Protocols at Ochsner Cancer Institute

**E1609:** A Phase III Randomized Study of Adjuvant Ipilimumab Anti-CTLA4 Therapy versus High-Dose Interferon Alfa-2b for Resected High-Risk Melanoma

**E3611:** A Randomized Phase II Study of Ipilimumab at 3 mg/kg or 10 mg/kg Alone or in Combination with High Dose Interferon-Alpha in Advanced Melanoma

To refer a patient, please call the Mohs Micrographic Surgery Clinic at 504-842-3940. For 24/7 phone consults and/or patient transfers, please call the Regional Referral Center at 1-855-OHS-LINK (647-5465).