

Abstract:

As physicians are exposed to the rapidly growing varieties of skin cancers so does their knowledge and expertise in new treatments must too grow. A Physician trained in Mohs micrographic surgery is valuable because this new and upcoming technique is the most advanced treatment in the field of skin cancer today with a success rate of 99%. Physicians well versed in this technique provide with the ability to train and educate more physicians about Mohs surgery. After mastery, physicians can remove a tumor without any sufficient harm to the surrounding healthy tissue. The procedure involves removing the diseased tissue layer by layer and microscopically examining them until a healthy disease free layer is reached; "clear margins". A physician who is Mohs trained has extensive training in reconstructive surgery techniques as well to insure the best post operative healing. The advantages of Mohs surgery include complete cancer removal the day of the surgery, minimal lost healthy tissue, much higher cosmetic outcomes than previous methods, and reconstruction of site on the same day of the surgery.

Background:

Skin cancer is the most common type of cancer in the U. S. Skin cancer is caused by exposure to UV rays which damages the DNA in skin cells, causing them to proliferate uncontrollably and hold the potential to infiltrate deeper tissues and organs if not discovered in time. Risks are higher for those who are immune suppressed. Skin cancer comes in all shapes and forms but the most common types from mild to aggressive are basal cell carcinoma, squamous cell carcinoma, and melanoma. All have the potential to metastasize if not detected early enough.

There are many procedures readily available to treat skin cancer once detected. Procedures such as excisional surgery, electrosurgery, and cryosurgery to name a few, are all procedures currently used today to treat skin cancer. The cure rates for these procedures widely varies mainly because these methods somewhat blindly estimate how much tissue is diseased before excision. As a result, these methods are prone to unintended removal of either excessive amounts of healthy tissue resulting in poor post operative cosmetic outcome or the removal of too little of the diseased tissue resulting in remnants of a few diseased cells which provides for the recurrence and spread of the tumor in surrounding areas.

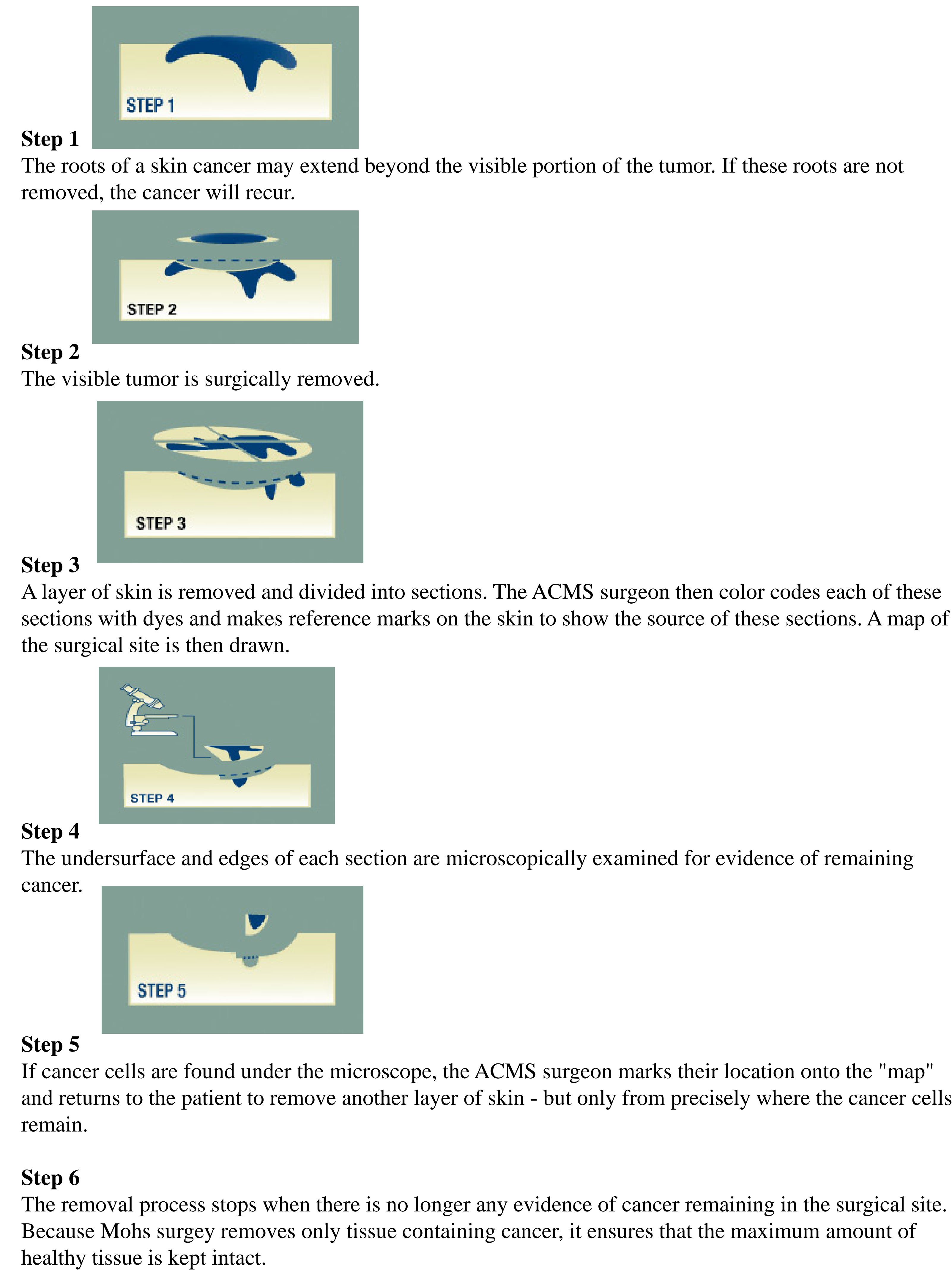
As a medical student in the 1930's, Dr. Frederick E. Mohs was involved in many cancer research studies which broadened his knowledge in the fast growing abilities of microscopic discoveries. As Dr. Mohs furthered his education, he applied his new found techniques to pinpoint cancer locations in various tissues that he subsequently cut out as a thin slice of tissue and then examined under a microscope. As a physician, Mohs' first lab setup consisted of a microtome, freezer, and a staining bench. Tissue specimens were processed, stained, and then examined under a microscope. After an unexpected mishap of performing an excision with fresh tissue, Mohs discovered that the results were exceptional. From then on, this technique of fresh tissue excision was born and is known today as Mohs Micrographic Surgery.

Rationale and Hypothesis:

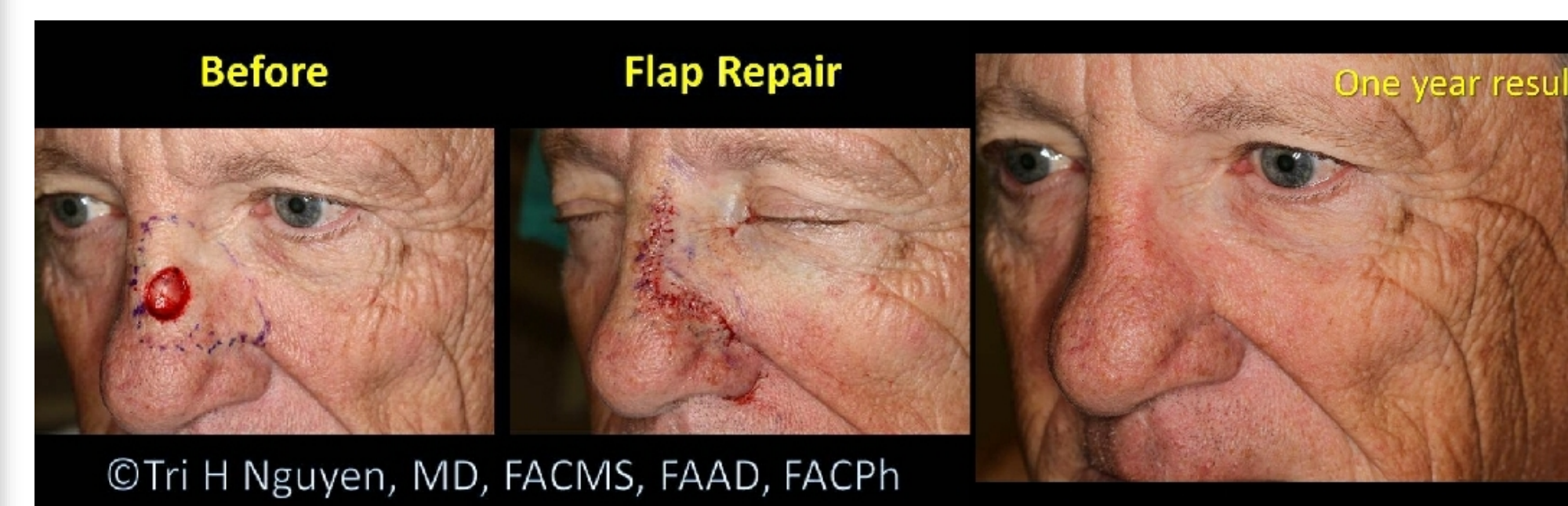
Mohs surgery is by far the best technique out of all the techniques out there today because there is no estimation involved when it comes to removal of cancerous tissue. This lack of Estimation leaving little to no chance of reoccurrence is what makes this method trump all other methods. These areas require preciseness of technique that is believed to be provided by Mohs. As a result, proper execution of the method will produce high success rates and extremely low recurrences compared to many other options for appropriate skin cancer treatment.

Methodology:

Indications for Mohs surgery include areas of cosmetic importance, recurring areas or areas that are likely to recur, locations in scar tissue/moles, large areas, grow rapidly, and areas with poorly defined perimeters. Prior to the Procedure there must be a routine preoperative evaluation paying close attention to potential issues stemming from allergies, abnormal clotting behaviors, and other contraindications. Once the evaluation is successfully completed and proper notes made, the physician may now prepare the area for operation by marking the targeted area on the patient.



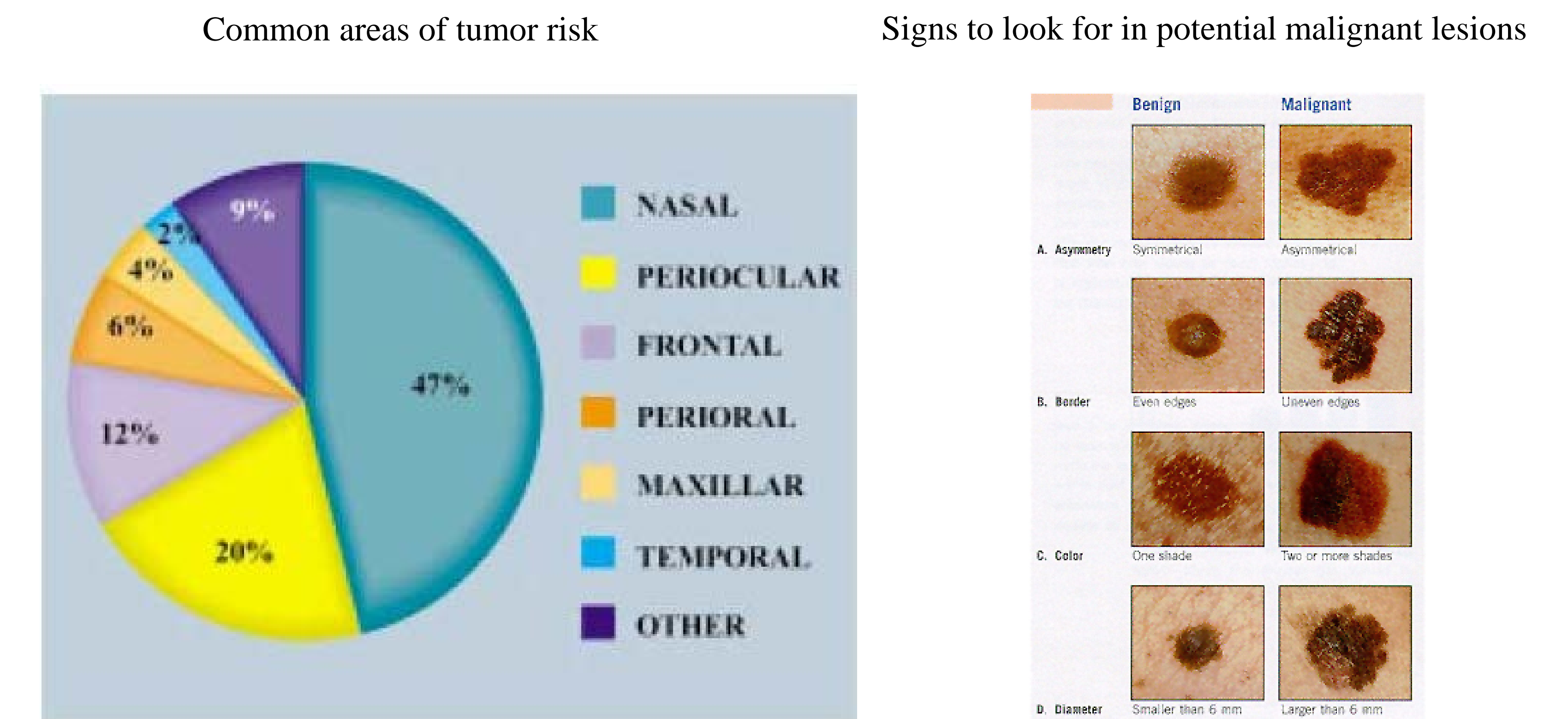
Results:



Figures demonstrate how the results of Mohs surgery prove effective in reducing postoperative scarring. Poor cosmetic outcomes are kept to a minimum and therefore, ensures the renewal of a patient's self esteem.

Discussion:

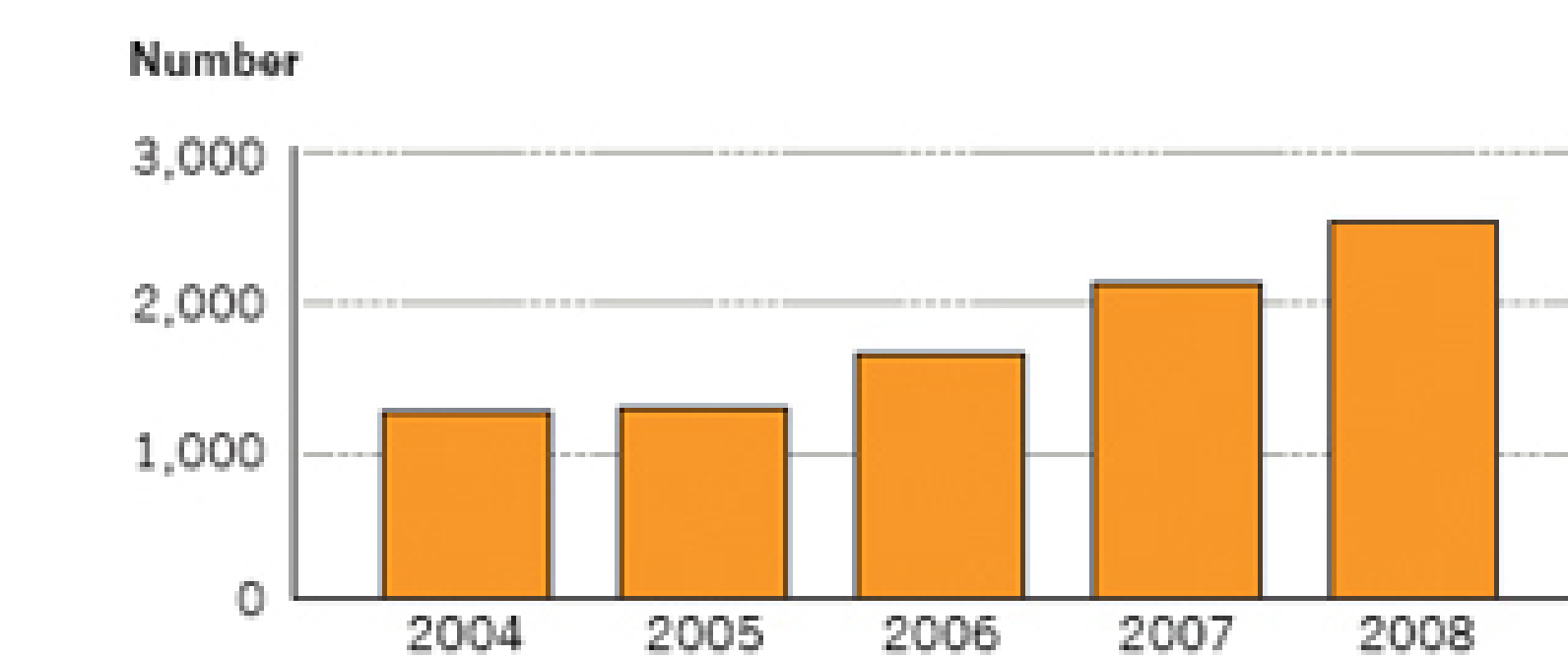
Surgery procedures all come with potential complications. Most common are infection, bleeding, and nerve damage. Infections are fairly rare provided that the proper sanitary surgical techniques are applied. For patients with operative areas that are high at risk, antibiotics are usually prescribed for preventative measures. Bleeding is minimized by paying close attention during the preoperative evaluation. Avoiding drugs that promote bleeding and anti coagulation in patients greatly minimizes the risks of excessive bleeding. Post operative bleeding is rare provided the patient keeps up with the necessary care plans. Nerve damage usually occurs during the tumor excision process. However, the body quickly regenerates the lost nerve fibers during the healing process. To achieve the least about of nerve damage it is very important that the physician is competent in their knowledge of anatomy. Being knowledgeable of the areas where nerves travel more superficially will allow the physician to map out the best plan of how to excise a tumor that is present in a high risk area.



Conclusion/ Future trends:

Mohs Micrographic surgeries prove to be the most effective treatment for skin cancer today. Future trends include confocal scanning microscopes which will allow visuals of the top two layers of the skin to be viewed simultaneously based on different refractive indexes of the different structures of the skin. There is current testing regarding the use of microscopes of the sort and the results look promising for the near future. Methods of including selective immuno-staining techniques have also been studied to help with tumor visibility. These stains can help with identifying hard to see premature tumors and increase the clarification of margins.

Yearly Number of Mohs Procedures Surgeries



As the general public knowledge and awareness of this treatment grows, so does the number of procedures.

In conclusion, Mohs' micrographic surgery presents with numerous benefits for the skin cancer patient today. Advantages including reduced recovery time, improved cosmetic outcome, and precise tumor eradication are only a few on the growing list that makes Mohs the number one skin cancer treatment that dermatologists choose for the widest variety of skin cancer tumors.

References:

1. "Skin Cancer Foundation." *Treatment Options*. Skin Cancer Foundation, 2014. Web. 05 May 2014
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3. "History of Mohs Micrographic Surgery." *History of Mohs Surgery*. ACMS: American College of Mohs Surgery, 2013. Web. 05 May 2014