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The Role of Mohs Micrographic Surgery in Skin Cancer Treatment

MOHS PROCEDURE AND ITS ROLE IN THE TREATMENT AND REMOVAL OF SKIN CANCER

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Mohs surgery, what is this procedure and what is its role in treating skin cancer

You are listening to ReachMD XM 157, The Channel for Medical Professionals. Welcome to the Clinician's Roundtable. I am your host Dr. Mary Leuchars and joining me today from New York is Dr. Desiree Ratner, Associate Clinical Professor of Dermatology at Colombia University Medical Center. Dr. Ratner is board certified dermatologist, who specializes in Mohs micrographic surgery and she is also a director of Dermatologic Surgery at Colombia Medical Center.

Today we are discussing the Mohs procedure and its role in the treatment and removal of skin cancer.

DR. MARY LEUCHARS:

Welcome Dr. Ratner.

DR. DESIREE RATNER:

Thank you for having me.

DR. MARY LEUCHARS:

What is Mohs procedure?

DR. DESIREE RATNER:

Mohs surgery was invented by Dr. Frederick Mohs, who lived in Madison, Wisconsin. So, it is not an acronym for anything. Most people think that is what it is and Mohs micrographic surgery refers to a technique used to remove skin cancers that allows complete visualization of the margins of the specimen to make sure that the tumor is completely removed.

DR. MARY LEUCHARS:

How did Dr. Mohs develop this procedure?

DR. DESIREE RATNER:

He was actually a medical student at the time that he began playing around with skin cancer and at that time he was using zinc chloride paste to fix the tissue and at that time what he would do is he would paint these in chloride paste on to the skin cancer of the patient and send the patient home to fix basically and then the patient would return the next day, and he would remove the tissue and process it so he could look at it under the microscope and make certain that it was completely removed and if it was not completely removed he would again put the zinc chloride paste back on send the patient home to fix and repeat the process the next day until the skin cancer was completely removed. He didn't start with people obviously, he started working initially with rats and over the time perfected the procedure and he ended up going into general surgery. He was not in fact a dermatologist and his research and clinical experiences basically changed the way we practice dermatologic surgery.

DR. MARY LEUCHARS:

When was his technique generally adopted by the medical community?

DR. DESIREE RATNER:

The zinc chloride paste technique was actually used for a long time by not a whole lot of people and in the 1970's really the ability to process frozen section became widespread and that is the point at which many more physicians started performing this type of surgery.

DR. MARY LEUCHARS:

So, let's talk about the full steps of the Mohs procedure in detail.

DR. DESIREE RATNER:

Well to start with the lesion is numbed with a little area of normal looking skin around it, and before I do any cutting with the scalpel I use a curette, which is a very useful tool to remove the mush that kind of protect the skin cancer. Skin cancer is mushy. Normal skin is not mushy, so I can use the curette to get a rough idea where that spot is going.

DR. MARY LEUCHARS:

Sorry to interrupt, you do this procedure in your room? In your, in your.

DR. DESIREE RATNER:

Oh! Yes I do it under local anesthesia in standard office rooms, which are set up for surgery.

DR. MARY LEUCHARS:

And so you get the curette and you remove any sloughed dead tissue.

DR. DESIREE RATNER:

It's actually viable tissue. It is viable tumor tissue and that is all completely removed. So, often times there is a little divot in the middle of the area where the skin cancer was and then I take a narrow margin of normal looking tissue around the and under that using standard blade and forceps and scissors and that tissue is mapped so that I know exactly where the tissue was on the patient and how it was oriented. I can then take that tissue to my laboratory technician who processes it and does it in such a way that I know up from down and left from right. While this whole processing thing is happening the patient has a bandaged placed on the surgical site and they wait and they may wait anywhere from half an hour to a couple of hours and assuming that everything has been completely removed then the reconstruction can be performed after that.

DR. MARY LEUCHARS:

And when you have a patient scheduled for Mohs procedure will you have already done a biopsy to determine the exact diagnosis or you going on a visual and clinical diagnostics?

DR. DESIREE RATNER:

Generally, the patients who are referred to me have already had a biopsy either by their dermatologist or another type of physician and they are referred to me with a known biopsy proven diagnosis.

DR. MARY LEUCHARS:

And Dr. Ratner how does this procedure differ from the standard frozen section histology that physicians must be more familiar with?

DR. DESIREE RATNER:

It actually defers significantly and the difference is vertical versus horizontal sectioning. Vertical sectioning is what traditionally performed by regular pathology labs and it involves bread loafing. So, if you imagine a loaf of bread and imagine that is your tissue sample basically slices are taken through it. The problem is that lets say a little root of tumor is extending in between two of those slices that tumor will actually remain and the margins will be declared clear by the pathologist. In horizontal frozen sectioning, what happens is

we are able to look at the entire periphery and the entire deep surface of the specimen as if it were an orange peel or orange rind and with that 100% visualization even the tinniest roots of the tumor can be visualized and precisely pinpoint and then removed.

DR. MARY LEUCHARS:

If are you just joining the discussion, your listening to the Clinicians Roundtable on ReachMD XM 157, The Channel for Medical Professionals. I am your host Dr. Mary Leuchars and I am speaking with Dr. Desiree Ratner. We are discussing Mohs surgery and its application in the treatment and removal of skin cancer.

DR. MARY LEUCHARS:

What are indications of the Mohs procedure?

DR. DESIREE RATNER:

The Mohs procedure is performed most commonly for what are called high-risk skin cancers usually non-melanoma skin cancers and these are lesions whose location is in what we call high-risk anatomic location on the central face, ears, lips, eyelids, areas where conservation of tissue is really a necessity in terms of performing the reconstruction. Hands, feet, genitalia also are included in high-risk locations. Also, lesions that are large, greater than 2 cm is generally the cut off size that we talk about that are recurrent so they have been treated with something else and they have come back after previous treatment. If they have an aggressive histologic growth pattern, which indicates a basal cell carcinoma means morpheaform or micronodular and in the case of squamous cell carcinoma is more poorly differentiated lesion. The other features that are of concern on biopsy are perineural or perivascular invasion and in some cases there are acantholytic tumor, squamous cell carcinomas, which are thought to be slightly higher risk and then lastly patient's who immunosuppressed are also at higher risk for developing aggressive tumors.

DR. MARY LEUCHARS:

Is Mohs technique a first line treatment from melanoma as well or not?

DR. DESIREE RATNER:

That is actually a complicated question. The literature is very strong in terms of standard margins for treating melanomas both in situ and invasive. There are Mohs surgeons, who are very good at performing immunostaining for melanoma and they use the technique to trace out the margins of in situ or thin melanomas in the same way, as this will be performed for nonmelanoma skin cancer. I am actually one of the physicians, who perform modified Mohs for melanoma, as I don't believe that the pigments are visualized as well as on frozen section that I use. So, I send my tissue out to be processed as they would be in Mohs surgery, but by my regular pathology lab so that way I have there to turn around, I know whether the specimen is clear and if need be I can go back and take more tissue.

DR. MARY LEUCHARS:

What are risks of Mohs surgery that you discuss with your patient?

DR. DESIREE RATNER:

The risks of Mohs surgery is the same, as you would have with any other surgery bleeding, infection, scar, risk of recurrence and that is about it.

DR. MARY LEUCHARS:

Is there ever need for involvement of a plastic surgeon during the procedure?

DR. DESIREE RATNER:

That depends to significant degree on the Mohs surgeon and how comfortable they are with reconstruction. In my practice, I reconstruct about 95% of the patient's that I see. There are some who acquire involvement of an oculoplastic surgeon for example if they have lesions that are on lash line or involving the tear duct. If there is a patient who requires a total nasal reconstruction under general anesthesia that would be someone that I would refer and then there are patients, who require the services of for example a surgical oncologist or an ENT to perform either outer table removal or lymph node dissection, so generally the patient's with larger procedure requirements they end up referring out for consultation.

DR. MARY LEUCHARS:

In USA is it only dermatologic surgeons who perform Mohs procedure?

DR. DESIREE RATNER:

That's correct, but there is actually more than one group of physicians, who perform the procedure the group to which I belong is the American College of Mohs Surgeons, and these are fellowship-trained individuals, who are trained in Dermatology first. So, they have done a dermatology residency followed by a year or two-year fellowship exclusively in dermatologic surgery including Mohs surgery and reconstruction. The second group of people, who perform this procedure is considered now procedural dermatologist these are again fellowship trained individuals, who performed one or two year fellowship. This one is approved by the ACGME and this is a growing number of physician's assistants and more recently approved then you further get in training. The third group is called the American Society for Mohs surgery and these are dermatologists, who have an interest in the technique, who have performed 75 cases I believe including one proctored by a member of the society and these individuals also perform the technique.

DR. MARY LEUCHARS:

And how many patients do you perform this surgery on annually?

DR. DESIREE RATNER:

Between 7 and 800 patients annually.

DR. MARY LEUCHARS:

And how did you personally develop an interest in this area of dermatology?

DR. DESIREE RATNER:

Its actually the area that drew me initially to dermatology when I did my first rotation in dermatology one of the stops that I made was within in the operating room of a Mohs surgeon and once I went in, I basically never came out and I knew from the Surgery of Medical School that was what I was going to do.

DR. MARY LEUCHARS:

Is there any advance in the way Mohs surgery is performed? Do you think there is any way to improve the technique that currently exists?

DR. DESIREE RATNER:

Well, yes the whole area of immunostaining is actually the area in which this is transforming the most. Using immunostain, as I mentioned, we could do most of melanoma additionally there are other chambers such as the FSP or dermatofibrosarcoma protuberans for sebaceous carcinoma. So, using immunostain beyond the normal H&E we can actually track these tumors out to a greater degree using frozen sections.

DR. MARY LEUCHARS:

Where can physicians access more information about these topics if they want to educate their patient so they might be referring to specialist such as yourself?

DR. DESIREE RATNER:

They should look at the web site for the American College of Mohs surgery and that web site is www.mohscollege.org.

DR. MARY LEUCHARS:

For physicians who might be considering embarking on training particularly in the Mohs procedure do you have any tips for those doctors?

DR. DESIREE RATNER:

Well these are physicians who would have to perform a dermatology residency basically before embarking on any kind of fellowship

training for individuals who are already dermatologist the ASMS or American Society of Mohs Surgery is the venue that these dermatologists generally go through.

DR. MARY LEUCHARS:

Do you think there is any value in physicians traveling to areas where the incidence of skin cancer is high or higher than where they are currently practicing.

DR. DESIREE RATNER:

I think the skin cancer incidence is going up everywhere. So, while there may be more skin cancers at this point in State of California or Florida, the incidence is increasing all over the country.

DR. MARY LEUCHARS:

So, you would expect that medical schools nationally would have a good grounding on the knowledge of you known skin cancers and also in the training of dermatology specialist. Every college should have a good foundation in that knowledge.

DR. DESIREE RATNER:

I think in most medical schools the medical students will have exposure to dermatology and at least at my institution I give a lecture on skin cancer and Mohs surgery for the second-year students. So, they do get some exposure to it.

DR. MARY LEUCHARS:

Well, Thanks very much for joining us today Dr. Ratner, we have been discussing Mohs surgery and skin cancer.

I am Dr. Mary Leuchars and you have been listening to the Clinician's Roundtable on ReachMD XM 157, The Channel for Medical Professionals. We welcome your comments and questions through our website at ReachMD.com, which now features our entire medical library and on-demand podcasts. Thank you for listening.