



SENTIMAG is a navigation system that uses magnetic particles to locate Sentinel lymph nodes. Application fields include Breast Cancer, Colon Cancer, Prostate and Gynecological Cancers. It is used with a magnetic tracer (MAGTRACE). It achieves the same results as standard radioactive tracers and allows the breast surgeon the possibility to work on his or her own and therefore simplifying the workflow. Below is the full interview:

Can you brief us about yourself?

My name is Dr. Sama Al-Zibdeh, I am a breast surgeon from Jordan and I am considered the first female breast surgeon in my country. As you know, it is rare to find female surgeons in the Arab world in general, but in the last few years, we have seen more women working in the surgical field and those who choose to deal directly with women and perform breast surgeries like myself. I graduated from medical school in Iraq-Baghdad, and then I studied 7 years in General Surgery. During that time, I felt that I was interested in women who were suffering from cancer and I felt that I had a connection with them.

Once I had completed my surgical training, I decided to do something to help our communities across the Arab world and I chose breast cancer surgery. I was lucky enough to have a three-year training in one of the foremost centre's in Breast Cancer in Sydney, Australia's Breast Cancer Institute. I had excellent training here because that center does not only focus on surgery itself but also incorporates breast imaging so I can read mammograms and I can perform ultrasounds, as well as MRI tests. I gained

a great deal of experience since we witnessed various cases that helped me a lot. When I finished my fellowship there, I decided to come back to my country so I stayed in Jordan and then I worked in the Kingdom of Saudi Arabia and Dubai. So, I was officially a breast surgeon as of 2005 and since then, I have been only doing breast surgeries.

What are the advantages of being a female working in breast surgeries in our countries?

I think this is a blessing because for many years, women avoided visiting physicians to seek advice or for general checkups due to many barriers and cultural issues. Hence, being a female working in this field will make the patients feel less shy to expose themselves and talk about their breasts. Moreover, a female surgeon is able to understand exactly what a woman can feel.

At what age should a woman start checking her breasts?

Women who feel a strange lump or experience pain or anything unfamiliar should try to seek advice from a professional physician. If there isn't any dedicated breast surgeon in their country, then they can visit their gynecologist or family physician since he or she is able to examine the breast in a different and more specific way. The doctor can know if it is a serious condition or a simple one that is only due to hormonal changes. If women have no issues, when should they start doing their breast self-exam which is a simple exam performed by the women themselves? It can be done at home and doesn't require any training. There are many resources on the internet and videos on how to do it. For young ladies, we ask them to do a breast self-exam until the age of 35. We advise it to be done a day after menstruation and once per month; you can alternatively do it anytime during the month. Once you get familiar with your breast tissues, then you will have a kind of memory about how your breast feels. If you start to feel something different or if you experience new symptoms, then this is excellent and you can help yourself by visiting a physician.

From age 35 till 40, a woman should visit her family physician, breast surgeon or even her gynecologist to have an ultrasound because sometimes it can show things that the woman herself couldn't feel while doing her breast self-exam. In addition, the physician will perform a clinical examination.

When you reach the age of 40 and even if you don't have any complaint, a visit to any dedicated clinic or center is a must in order to have your first mammogram. If a woman at any age has a problem or noticed something unfamiliar, she should immediately visit a dedicated center to examine her case. If a woman has a significant family history, first or second-degree relatives who had breast or ovarian cancer, she must not wait until the age of 40 because these ladies are at higher risk. If women have been exposed to certain hormone medications or radiation, they should be also visiting breast clinics sooner. We cannot tell those cases to stay at home and come only at age 40; we recommend them to visit earlier if they notice something different in their breast just like if they are at a higher risk. Cancer can happen at any age, whether a woman has had children or not, and it might happen in the left or right breast. But if we want to be scientific, there are certain risk factors that increase the chance of having breast cancer. For instance, it's more common among older women but that is not to say that young ladies are not also at risk. Also, breastfeeding is a protective factor but there is no guarantee. I always tell the patients you are always at risk because you are a woman.

How much does the environment play a role in risk factors?

We can have genetic as well as environmental factors and we can keep talking for hours about environmental factors like toxins found in food and cosmetics and in everything around us. But again many people lead a healthy lifestyle and still have cancer. Studies show that women who have an unhealthy lifestyle and gain weight without doing any regular exercise have a higher risk of having cancers in general. Until we have studies from all over the world and all ethnic groups we cannot say that there is a specific reason but we can talk about risk factors. I wish we could have a specific reason.

What do you think about the importance of awareness campaigns?

Women are very anxious and I think campaigns are a positive thing because nowadays we have awareness everywhere and people are talking about it. Women have become more conscious about checking their

breasts and they want to see specialists and dedicated breast clinics, so yes we see more women coming in for the examination. But on the other side, and from my own experience, sadly there is a high level of anxiety around the subject still. I want women to come all year round not only during the campaign, and I don't want them to panic since we should not exaggerate or create fear around it.

What are the different stages of breast cancer?

In general, there is a universal rule for any cancer that we stage it according to three elements: the size of the tumor, and then we check the lymph nodes to see if they are affected, also we look into the tumor if it's spreading beyond the local area which is the breast or the region which is the lymph node so it becomes systemic which means that its spread into different organs such as the brain or lungs or bones. Once we know this information by performing the special tests and physical examination sometimes including CT scan, ultrasound, a check of the whole body by doing the complete workup which we call a staging workup, then we have all the data to classify cancer into stages:

- 1. Stage 1 is when the cancer is small, less than 2 cm in the breast without lymph nodes, this is the best stage to detect since the cancer is so early and the treatment is not heavy.
- 2. Stage 2 means that there are some spreads into the lymph nodes but the tumor is still small less than 5
- 3. Stage 3 when the tumor becomes bigger more than 5 cm with some changes in the nipple and the



skin. It looks like an orange peel and the nipple is inverted and, we have more lymph nodes involved.

4. Stage 4 any size of the tumor or any number of the lymph nodes is involved but it is spread outside the local and the regional area. The tumor spreads into other organs in the body which we consider to be 'Metastatic'. Stage 4 doesn't mean the end and we should not treat it as such. Of course, it would be best to diagnose it early for optimal results; but if we look at stage 4, the treatment is heavier and the chemotherapy will be taken for a long time with high concentrated dosage. In some cases, the patient must undergo surgery. Frankly, we don't expect any specific results as we don't know how the body will react to treatment; in some cases, treatment works very well and they can stay free of the disease or at least controlled. The rule is that if we can catch the tumor earlier this would be ideal.

What are the different treatments one can undergo?

To make it simple, surgery is



part of the treatment and it can be done to remove part of the breast or the whole breast. Surgery involves removing the lymph nodes depending on each case and removing one node called the sentinel lymph node biopsy which means we don't remove the whole axillary nodes glands.

We just take one and check if it is positive for cancer cells than we have to clean all the other nodes, and if it is negative we don't perform a major surgery to remove the woman's axillary nodes because once we do this surgery there is a high chance of having complications in the future such as shoulder pain and swelling, these symptoms obviously deteriorate the quality of day-to-day life. Nowadays, surgery has many advantages, even if we do a mastectomy we can still preserve the natural skin of the breast with the nipple, so this is called skin and nipple scale mastectomy.

Also, we can do an immediate reconstruction of the breast using implants or the woman's body tissues. It is a kind of plastic surgery along with the cancer surgery and I think this is something good for the woman not to think that they will end up with flat chests.

The second element in treatment is chemotherapy, which is most of the time an intravenous medication but now we have a lot of oral medications and usually, we follow protocols since we give a mix of medications and we follow a certain dosage which could be given on a weekly basis or every three weeks. The response will be monitored by an oncologist. Sometimes women need to undergo the surgery first and then chemotherapy or vice versa. It depends on the stage

of the tumor or the case itself. The third element is the hormonal therapy which is about giving injections, or tablets because some tumors are very sensitive to estrogen and progesterone so we give certain medications to block these hormones then we can achieve some sort of control of the cancer cells. We have also immunotherapy and the famous one is called HERCEPTIN which is not chemotherapy, it was actually a breakthrough in medicine in treating breast cancer. This is an antibody that works in blocking the receptors of a growth hormone called human growth factor.

However, it cannot be used in all cases. I think nowadays, many treatments are evolving and I have to mention that hand in hand we have conventional and non-conventional treatments like alternative medicine such as focusing on eating healthy and doing exercises. I'm not saying we treat cancer with these ways personally but it goes hand in hand because it helps detoxify the body and improve the immune system and it makes the women respond to treatment better. So I always tell patients don't ignore your soul, your food, don't stop exercising and try to make a balance. Don't forget that we are using heavy toxic treatments and we need to counter the effect of toxicity on the tissues.

You have already collaborated with Sysmex before, by using one of our devices in the Sentimag. Can you tell us how much it helped you to make a better diagnosis?

Actually, I use it after diagnosis when we are operating on the tumor so we want to do a procedure called

sentinel node biopsy. I'm a big fan of it for many reasons and I encourage all breast surgeons to try it. The reason is that there is no dye involved as methylene blue or vital blue so I don't have issues with allergy and with permanent pigmentation of the skin. This can be done when the woman is under general anesthesia, so she doesn't see needles going into her breast and won't have any anxiety. Once you learn the technique and get used to it, it becomes very useful, easy and simple.

The technique itself is easy like any sentinel node mapping technology but the difference is that you don't have to do tests in other departments and get approvals. In addition, there are no other persons involved as when you do nuclear medicine mapping with the radioactive material. To clarify, I know that some techniques remain the gold standard and the preference for surgeons, but I think every breast surgeon should give this modality a try.

For me, these are the main points, and when I summarize it, I find it very easy for women as they don't need to go from one department to another and won't need to worry about insurance, double payment or approval issues. With a procedure that is done in another facility, they don't have this anxiety of going back to have their needles injected while they are awake.

If you compare it to blue dye, it can be given when a woman is under general anesthesia, but again you don't have the mapping device so you have to dissect and it depends on your experience and visualization of blue dye.