## The Impact of the Angelina Jolie Story

In the past few weeks there has been a flood of questions relating to the Angelina Jolie story. Angelina's story has highlighted two important issues that relate to women who are at high-risk for developing breast cancer. The first issue concerns the aesthetic appearance of a woman following mastectomy. Many women at high risk for breast cancer are showing considerable interest in the idea of reducing their risk of developing breast cancer by surgically removing their breasts, also known as Prophylactic Mastectomy (PM). Many of these high risk women have reached the conclusion that if one of the world's icons of beauty can decide to electively remove her breasts, then maybe it is a reasonable option for them. In this issue we will review advances in plastic surgery that makes PM a reasonable option for women at risk. In next month's Ask the Doctor, we will discuss the second issue that Angelina's story has brought to the forefront which is the issue of who should be tested for the BRCA gene.

One of the major factors that led to Angelina Jolie's decision to have a Prophylactic Mastectomy was undoubtedly related to the significant advances that have been made in reconstructive plastic surgery. Reconstructive surgery has now evolved to the point where many of our patients state that their breasts look better following surgery than they did before

Not only can we often improve upon the shape of women's breasts as part of cancer treatment, but recent advances in surgery have allowed us to save women's nipples. The key to a successful Nipple-Sparing Mastectomy (NSM) is to make certain that the nipples have an adequate blood supply following the removal of the underlying breast tissue. Failure to obtain an adequate blood supply can result in the loss of part or the entire nipple. Fortunately, we have gained extensive experience with this procedure and loss of nipple tissue is now uncommon. It should be noted that in women with larger breasts, nipple preservation is usually not technically possible. Also, even with successful preservation, nipple sensation is lost, although some women do gain a partial return of sensation after a few years.

The long-term safety of NSM is also of concern. Although every effort is made to remove all breast tissue, it is always possible that some microscopic tissue is left behind. The literature indicates that 5-10% of women who undergo PM will develop a breast cancer over their lifetime, which is approximately half the risk of developing breast cancer for the average risk woman. This 5-10% risk of a new breast cancer may prove to be an over estimate as it is based on old studies which included women with subcutaneous mastectomies. In the past, subcutaneous mastectomies were often done for women to reduce the pain associated with fibrocystic condition, and in these cases it was common to leave significant amounts of breast tissue behind. Surgeons now go to great lengths to remove all of the breast tissue. In my experience, I have yet to see or hear of a cancer developing in a woman following a NSM using modern techniques.

Despite the potential benefits of the prophylactic mastectomy, the decision to remove both breasts in order to reduce the cancer risk is not one that should be taken lightly. The operation takes 5-6 hours to perform, patients are hospitalized for two days on average and complete recovery takes 4- 8 weeks.

The reasoning behind Angelina Jolie's decision to have a prophylactic mastectomy is easy to understand. She watched her mother die of ovarian cancer. Because of her family history of both breast and ovarian cancer she underwent genetic testing and was found to be positive for the BRCA1 mutation (see next month's ask the doctor). As a result of testing positive for the gene, she had a lifetime risk of 80% for developing breast cancer. By having both breasts removed she reduced her risks of developing breast cancer by 90-95%.

Another important issue to keep in mind in considering the potential benefits of PM is that it is an elective procedure. Women who are considering this procedure should take the time to evaluate their personal risk and options. Fortunately, we can now follow "at risk" women with relative safety since the Magnetic Resonance

Imaging (MRI) (link) is very effective in detecting early cancers in these high risk women. In addition, the risk of developing breast cancer can be reduced by taking a hormone blocking drug like Tamoxifen.

While this article focuses on issues related to women who are at high-risk for developing breast cancer, it is important to recognize:

Many women who have a family history of breast cancer overestimate their personal risk and do not need any additional screening studies other than their yearly mammogram

For women with fatty breasts and no family history, a yearly mammogram is all that is needed for screening

Women with dense breasts and no family history can be adequately followed with a yearly mammogram along with a screening Ultra Sound (US)

For women who are found to be at higher risk the addition of a screening MRI can be lifesaving.

Angelina's story should be a wake-up call to all women to take the issue of risk assessment seriously. Women with a family history of breast cancer should seriously consider the option of formal risk assessment by a specially trained health care provider including testing for the BRCA gene. Only a very small percentage of women test positive for the BRCA mutation. Thanks to Angelina Jolie, women who do test positive for the BRCA mutation are now more likely to seriously consider the option of prophylactic mastectomy. In my experience, women who elect to have this procedure experience a tremendous sense of relief and sense of satisfaction that they made a personal decision to reduce their risks for developing breast cancer.