



Clinical Inquiry-In women who have undergone breast cancer surgery, including lymph node removal, do blood pressure measurements taken in the ipsilateral arm increase the risk of lymphedema?

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Annotation. For many years, the healthcare industry has spread concerns about measuring blood pressure in the arm of patients who have had breast cancer surgery. These concerns are still endorsed by various medical societies and healthcare organizations. Nevertheless, these measures lack a solid foundation in evidence-based medicine and may be rooted more in historical and traditional practices. The objective of this study was to examine the existing evidence-based research and guidelines pertaining to ipsilateral arm blood pressure measures in women who have undergone breast surgery for cancer, which may involve lymph node resection.

Keywords: Lymphedema, lymphedema, Blood Pressure Measurement, Blood Pressure Cuff, sphygmomanometer, breast cancer, axillary lymph node dissection, sentinel lymph node biopsy

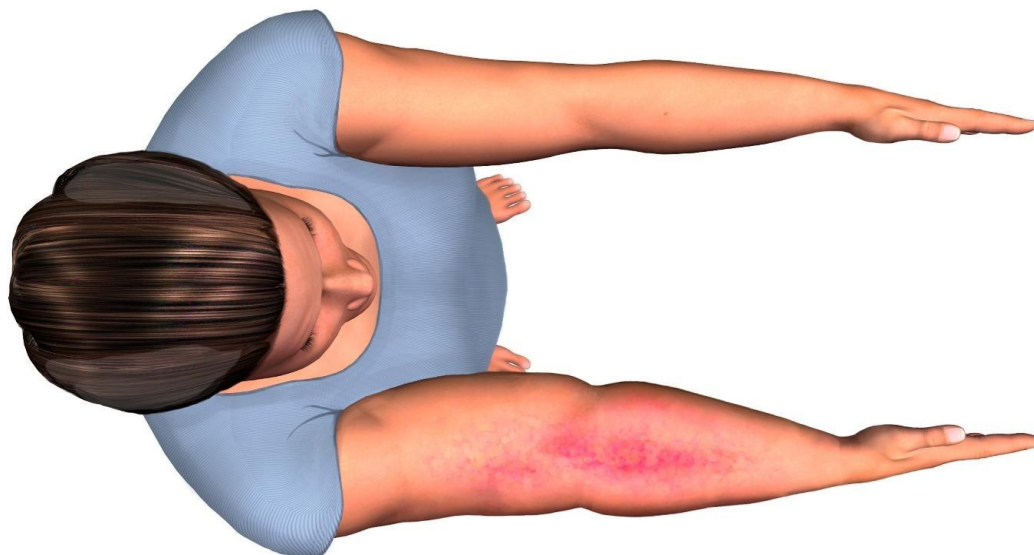


Asmaa, a 38-year-old Egyptian lady, underwent a mastectomy on her left breast due to stage III breast cancer. Following the completion of the eradication and radiation treatment, she continues to experience psychological repercussions as well as sporadic episodes of dizziness.

As a result of these experiences, Asmaa developed a fear of venturing out unaccompanied to avoid losing consciousness. However, as time went on and her family became occupied, she decided to venture out alone to visit relatives. Unfortunately, her worst fear materialized when she experienced dizziness along the way, prompting concerned onlookers to gather and revive her.

Upon awakening, her primary concern was to caution others against touching her left arm, the location of her mastectomy and subsequent lymph node removal. Any contact, forceful handling, pressure application, or injection administered to the arm results in immediate swelling.

Lymphedema is an atypical enlargement that may occur in the arm, hand, breast, or torso as a consequence of surgical intervention and radiation therapy for breast cancer. The occurrence of this edema may manifest in certain individuals several months or even years following the cessation of treatment. It arises due to the excision of a minimum of two or three lymph nodes located beneath the arm during a mastectomy procedure, hence impeding the tumor's growth.



A woman who may have lymphedema may feel an unusual sensation - such as tingling or numbness - that occurs before any visible swelling. Common symptoms of a tumor include pain, a feeling of fullness or heaviness, bloating or swelling, decreased flexibility, or tightness in the areas of the hand, arm, chest, breast, or armpit, so early treatment is important, and protecting the arm from this swelling is even more important.

Awareness bracelets

Last year, certain individuals, including Maha, Nour, and Rahima, initiated efforts to promote the concept of wearing a bracelet inscribed with the slogan "My arms are a red line" as a means of raising awareness about breast cancer. Despite being available at nominal prices, the bracelets have not gained broad popularity.

Notably, non-medical civil organizations suggested this notion, along with other initiatives, aimed at assisting women who have undergone mastectomies.





How to deal with a breast cancer patient

- It is necessary to provide psychological and family support for the patient and not be afraid to deal with her, or even panic about the possibility of family members contracting the disease, because breast cancer is hereditary in only 15% of cases.
- Treat the hand as “expensive”, do not expose it to bumps or burns, and do not carry heavy objects with it.
- Wear rubber or plastic socks during simple household chores to avoid any damage.
- Be careful when cutting the nails on the affected arm.
- Be careful while removing armpit hair, and use an electric shaver without any sharp tools.
- You should never take injections in the arm.
- Use a compression bandage, and perform physical therapy on the arm, such as a light massage.
- Avoid wearing tight, sharp or harmful jewelry.
- Wear a bra that closes in the front to avoid any twists or difficulty in untying it from the back.
- Wear comfortable, non-compressive clothes, get used to wearing cotton, and avoid wearing clothes made of synthetic fibers.
- If a wound occurs in the arm, it must be disinfected immediately by applying a sterilizer or antiseptic and then taking an antibiotic, because the swelling results from the removal of the lymph nodes, whose function is to defend the body against microbes and germs, and therefore not treating the wound makes the patient more vulnerable to infection.
- Doing light exercise after the operation contributes greatly to recovery and resistance to relapses.

Drawing blood for a patient who had her breast surgically removed

When drawing a blood sample from a patient who has previously undergone a mastectomy, the sample must be drawn from the side opposite the site from which the mastectomy was performed. If both breasts are removed together, blood must be drawn from the foot.

Usually, if both or one breast are removed, the axillary lymph nodes on the same side are also removed. These lymph nodes are responsible for draining dirt and leaving breast cell metabolites through the lymphatic fluid. Therefore, these nodes are removed from the same side for fear of (metastasis). Cancer cells move to those nodes, from there to the lymphatic circulation, and from there to all parts of the body



When these lymph nodes are removed, the body cannot get rid of the dirt and remains of metabolic products at the site of removal, and thus what is called lymphoma or lymphedema occurs, which is the accumulation of lymphatic fluid in the patient's arm and remaining without drainage between the tissues of the arm, which is considered the most common and occurring complication of mastectomy. With time, there is filtration or transfer of lymphatic fluid from the tissues to the bloodstream, and here what happens that concerns us in this whole matter occurs. What is called hemodilution occurs, that is, an increase in the proportion of the fluid over the proportion of cells and solid components of the blood, and then it will affect the result of any examination whose sample was drawn from that arm, so you must stay away from it. that area as much as possible

Removing lymph nodes leaves an immune void in that area

It is considered an emergency camp to attack any intruder on the body

From all of the above, if the right breast is removed, the sample is taken from the left arm and vice versa. If both breasts are removed, the sample is taken from the foot.

Overview of the Problems

Axillary surgery, including sentinel lymph node biopsy (SNB) and axillary lymph node dissection (ALND), as well as axillary lymph node irradiation, have been observed to enhance the chance of developing lymphedema (LE) in breast cancer patients. One These therapies are believed to interrupt the continuous flow of lymphatic vessels, resulting in reduced outflow of lymphatic fluid, buildup of fluid in the surrounding tissues, and subsequent swelling in the corresponding upper limb. The prevalence of lymphedema (LE) in women who have undergone breast cancer surgery has been determined to be 21%, and it can manifest many years after the surgery. The numbers are 1 and 2. Nevertheless, in people who experience LE, symptoms typically manifest during a period of 5 years following treatment. Two More precisely, 75% of cases show development during a span of 2 years, whereas 90% exhibit development within 3 years after the commencement of treatment. One

The use of a cuff on the same arm to measure blood pressure has long been considered a risk factor for the development of lymphedema (LE) after breast cancer treatment, independent of the extent of lymph node removal. The first theoretical foundation for this concept is believed to stem from papers in the 1930s, which proposed that elevated venous pressure may be a fundamental factor contributing to lower extremity issues. Two Theoretical hypotheses suggest that the underlying mechanism involves damage to lymphatic vessels caused by cuff pressure, as well as the creation of lymphatic fluid triggered by pressure. The numbers 2 and 3. Nevertheless, most case reports and studies attributing the development or worsening of lymphedema (LE) to the at-risk arm point to intrusive treatments, such as needle jabs, which carry a potential for infection and subsequent inflammation, rather than blood pressure (BP) measures. One Adding BP readings to the list of "medical procedures" that should be carefully avoided in the same arm may complicate matters, as it is a less intrusive technique. Prior case-control and cohort studies have failed to establish a correlation between blood pressure readings in the arm at risk and a heightened likelihood of lower extremity (LE) complications. One Unsubstantiated, non-scientific suggestions have been spread throughout the medical field and are present in guidelines issued by prominent cancer and lymphedema organizations [Table 2]. The National Cancer Institute, National Lymphoedema Network, and National Breast and Ovarian Cancer Centre acknowledge the absence of scientific proof concerning the effectiveness of BP cuffs following breast cancer surgery [Table 1]. However, they continue to advocate against the use of BP cuffs on extremities at risk [Table 2].

Table 1



International Declarations Regarding the Exclusion of Blood Pressure Measurements in High-Risk Arms Following Breast Cancer Surgery

National Lymphoedema Network ⁴	“Studies have not determined the actual risk of having BP taken on the at-risk arm.”
National Cancer Institute ⁵	“Generally <i>anecdotal</i> recommendations for taking preventive measures include...”
National Breast and Ovarian Cancer Centre ⁶	“It is currently unknown whether certain procedures such as ... blood pressure monitoring increase the risk of lymphedema.”

Table 2

Global Precautionary Guidelines for the Prevention of Lymphedema following Surgical Treatment for Breast Cancer

National Lymphoedema Network ⁴	“...if possible, use an uninvolved or not-at-risk extremity when taking blood pressure. In doctors’ offices or hospitals, where machine BPs are regularly taken, the patient can request a hand BP measurement and have the medical provider only pump the cuff to just a little above the usual BP, thereby avoiding repetitive pumping or painful squeezing.”
National Cancer Institute ⁵	“Avoid ... blood pressure monitoring in the affected arm, which could cause a tourniquet effect and obstruct lymph flow.”
National Breast and Ovarian Cancer Centre ⁶	“... as a precaution, use the unaffected limb for these actions [blood pressure monitoring] whenever possible.”
American Cancer Society ⁷	“Have your blood pressure taken on the unaffected arm, if possible. If both arms are affected, blood pressure can be taken on your thigh. Or, you can ask that blood pressure be measured by someone using a hand pump and stethoscope rather than using a machine; the machines often use high pressures for a longer time.”



Research has shown that breast cancer survivors have psychological distress and anxiety due to avoiding certain activities and having an unfounded worry of developing lymphedema as a result. One Opponents of avoiding cuff BP measurement sometimes cite the utilization of compression garments and pneumatic pumps in the management of chronic lower extremity (LE) conditions, as well as the common usage of pneumatic tourniquets on at-risk arms by hand surgeons, which has not led to any issues related to LE.

Conclusion

The historical advice for avoiding blood pressure measurement in the same arm after breast cancer surgery, which involves removing lymph nodes, have been primarily derived from anecdotal, theoretical, and non-evidence based sources. In preventative guidelines, ipsilateral blood pressure readings are sometimes included with other more invasive procedures, such as blood samples. It is crucial for both the patient and healthcare practitioner to be watchful for swelling in the at-risk upper extremity after surgery. However, scientific studies based on evidence do not show any higher risk of arm swelling or lymphedema when blood pressure measurements are taken on the same side as the surgery. These studies suggest that there may not be a need for rigorous rules to avoid measuring blood pressure in the same arm after breast cancer surgery, which includes lymph node resection. These stringent criteria may impose an undue strain on the patient and render the acquisition of blood pressure measures excessively onerous in certain patients.

Recommendation:

In women who have undergone breast cancer surgery, including lymph node removal, cautious consideration should be given to blood pressure measurements taken in the ipsilateral arm to minimize potential risks of lymphedema.

Rationale:

Breast cancer-related lymphedema is a chronic condition characterized by the accumulation of lymphatic fluid, often resulting from the disruption of lymphatic pathways during surgery, particularly lymph node removal. While the direct link between blood pressure measurements in the ipsilateral arm and an increased risk of lymphedema is not definitively established, there is a theoretical concern that such measurements might exacerbate lymphatic congestion or compromise the already compromised lymphatic system.

Several studies and expert opinions suggest that trauma, infections, or increased pressure on the affected limb may contribute to the development or worsening of lymphedema. Although evidence specifically addressing blood pressure measurements and lymphedema risk is limited, it is prudent to exercise caution, especially considering the potential impact on lymphatic circulation.

Therefore, clinicians should consider the following recommendations:

1. **Alternative Measurement Sites:** Explore alternative sites for blood pressure measurements, such as the contralateral arm or lower extremities, to minimize the potential impact on the ipsilateral arm's lymphatic system.

2. **Gentle Technique:** If blood pressure measurements in the ipsilateral arm are unavoidable, employ a gentle and careful technique to mitigate the risk of trauma or increased pressure that could potentially contribute to lymphedema.

3. **Patient Education:** Educate patients about the potential risks associated with blood pressure measurements in the ipsilateral arm and encourage them to communicate any concerns or symptoms related to lymphedema promptly.

4. **Individualized Assessment:** Conduct an individualized risk assessment, taking into consideration the patient's overall health, the extent of lymph node dissection, and the presence of pre-existing lymphedema.



5. Interdisciplinary Collaboration: Foster collaboration between oncologists, surgeons, and rehabilitation specialists to develop comprehensive care plans that address the unique needs of breast cancer survivors, including strategies to minimize the risk of lymphedema.

It is crucial to acknowledge that further research is needed to establish more concrete guidelines in this specific context. Until then, a cautious and individualized approach to blood pressure measurements in women who have undergone breast cancer surgery, especially those with lymph node removal, is advisable to prioritize patient safety and well-being.

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