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UCSF Osher Center for Integrative Medicine and UCSF Carol Franc Buck Breast Care Center

The patient is a 55-year-old woman with locally recurrent breast cancer presenting with an unusual pattern of recurrence. At our facility, this patient would be seen by practitioners working collaboratively at both the UCSF Osher Center for Integrative Medicine and UCSF Carol Franc Buck Breast Care Center (within the UCSF Cancer Center). These centers are located at the Mount Zion Hospital campus of the University of California–San Francisco in San Francisco, California. The architecture of both centers is specifically designed to facilitate healing through the use of natural elements such as wood, water, color, sound, and natural light. Examples include the use of water fountains, flowers, healing gardens, wood examination tables and cabinetry, feng shui design, and, equally important, a caring staff who are passionate about creating a new model for healing within an academic medical center.

Recognizing that optimal care arises from effective communication between practitioners (conventional or alternative) and with the patient, the Osher Center and Breast Care Center staff participate in regular meetings and designate primary practitioners for each patient within each center who coordinate care and ensure close collaboration. Initially, patients see a medical oncologist and surgeon who in addition to meeting with the patient and discussing the patient’s preferences, review the pathology, laboratory studies, and radiographic studies. The case is then presented at the weekly interdisciplinary Tumor Board meeting during which time a treatment plan including nonconventional and supportive care referral options is formulated. Referrals may include an array of options, at no cost to the patient, such as consultation with a nurse specializing in patient education and advocacy; consultation with a clinical psychologist to explore diagnosis and treatment-related issues; meeting with a consultation planner to help patients reflect on treatment preferences, organize questions, and determine priorities; and referral to the UCSF Cancer Resource Center (CRC), which contains an exhaustive array of education materials, provides nutritional consultations, and offers supportive care activities. Patients also have access to UCSF Osher Center and Cancer Center jointly sponsored programs including “Yoga for Cancer Patients and Caretakers,” “Meditation and Guided Imagery for Cancer Patients,” and the “Prepare for Surgery Program.” These classes are offered to patients at no cost. Patients also may be referred or request treatment from UCSF Osher Center Chinese Medicine practitioners, integrative medicine physicians, integrative psychiatrist physicians, osteopathic physicians, psychologists, nutritionists, massage and bodywork therapists, and meditation/relaxation practitioners (hypnotherapy, biofeedback, meditation, guided imagery practitioners). They may also participate in any of the Osher Center group programs including Yoga, Tai Chi, Mindfulness-Based Stress Reduction, or Nutrition workshops. Coordination of care between the two centers occurs through designated primary practitioners at each center, each of which participates in relevant case conference meetings and maintains dialogue within and across centers.

Patients seen at the Osher Center first participate in a detailed intake with one of our clinicians, who becomes the primary practitioner for the patient and is frequently a physician or Chinese medicine practitioner. The primary practitioner, who has been working collaboratively with the Breast Care practitioner, then presents the case at the weekly clinical conference. During this meeting, a more detailed treatment plan pertaining to nonconventional and supportive care therapies is formulated. In attendance at this meeting are practitioners from multiple disciplines, as mentioned above. Throughout the course of treatment at the Osher Center, there is regular communication between practitioners on patient progress during “continuity update” rounds in case conference meetings.

We will outline here an example of how we would think about this patient’s situation, what additional information we would want, and what we would recommend from the limited information that we have here. Each perspective is interwoven to produce a rich compilation of therapeutic modalities that come together in an integrated approach, combining our evidence-based treatments with techniques from...
ancient therapeutic disciplines, each of which have been effective in our experience.

**Surgical and Medical Oncologist Perspective**

This is an interesting history of a 55-year-old woman with locally recurrent breast cancer presenting with an unusual pattern of recurrence. She was initially diagnosed with a well-differentiated, estrogen-receptor-positive T2 N1 (1/17) M0 carcinoma of the left breast treated with lumpectomy, chemotherapy (5-FU × 6), and radiotherapy followed by 5 years of tamoxifen. Six years later, she developed a local recurrence in the left breast, was started on Arimidex, and elected to undergo bilateral mastectomy, despite negative testing for BRCA mutation. A preoperative extent of disease workup was negative. Curiously, a right sentinel node biopsy was performed as part of her contralateral prophylactic mastectomy, which given the absence of cancer or clinical findings in the right breast, was unusual. A more common scenario is that some lower-level lymph nodes could have been removed as part of the mastectomy, one of which contained metastatic disease.

If the local recurrence occurred in the same quadrant as her index lesion, the most likely explanation for this patient’s current findings is that she has developed concurrent local and distant recurrence (contralateral axillary lymph nodes are categorized as Stage IV disease). This explanation is particularly likely if her primary cancer (from 1996) was also of apocrine histology, which is an uncommon breast cancer variant. Additional surgical recommendations would be to consider recutting additional sections from the right breast, and if no breast cancer is found in the right breast, to perform no further surgery on the right axilla. Although a second right breast cancer is unlikely, if it is identified, then the management recommendations may be significantly altered and may include complete axillary dissection and chemotherapy.

In the setting of no right-sided breast cancer, the recommendation would consist of Arimidex, consideration of annual chest and abdominal scans to evaluate for recurrence, and consultation with a medical oncologist to determine whether the patient may benefit from Herceptin as the right axillary lymph node was Her2 3+.

**Mind-Body-Spirit Perspective**

Based on the limited psychosocial outline received, we would begin any intervention with this woman by scheduling an extensive intake interview. This would begin by asking her to tell her cancer story. We might ask questions to enhance and further open sensitive areas if there is some inhibition. Empathic responses, mirroring both the pains and strengths of the cancer struggle, help create an initial bond. This forms the foundation for trust and openness from which we can then explore more emotionally delicate areas.

Once the groundwork has been laid, we usually ask a long list of questions that would cover prior history with therapy, support groups, mind-body modalities, religious experience, and spiritual yearnings. We would ask a fairly detailed personal history and would want to know about past losses and traumas. Specifically, this patient has had anxiety since her diagnosis. Her mother also had a history of anxiety. We would want to determine whether the patient’s anxiety is related primarily to the cancer diagnosis and the current metastasis or whether she has a longstanding history of anxiety, which has been exacerbated by the diagnosis. The patient also states that there was much fighting between her parents and difficulty in the parent-child interaction. We would want to understand more fully what the nature of the household conflicts were and how those affected her growing up. Although all cancer patients experience some measure of anxiety, the particular impact of diagnosis and treatment is moderated or exacerbated by a person’s history and makeup. It is also important to understand what specifically makes her anxious. Is it loss, sense of failure, fear of death, disfigurement, loss of control, fear of pain, of increasing dependence? Does it revive old childhood fears and hurts?

The patient states that there was a lot of focus on education in her family. This suggests that achievement and academic performance may well have been avenues for parental approval and love. Thus, later in life, the patient may have felt that performing well was essential to her sense of well-being. With a metastatic diagnosis, those achievements could be challenged by a potentially more imminent mortality. She describes outstanding personal achievement as a stressful recent life event. We would want to understand if that is at least in part due to the fear of loss and the bittersweet nature of success under a shadow of metastatic disease.

The patient is a high-achiever, and often this kind of person feels particularly threatened by the loss of control that may accompany a serious diagnosis. The challenge of learning to live with uncertainty, although difficult for all, can be even more challenging for those used to managing life by maintaining tight control. This woman mentions no inner resources for coping. In fact, she suppresses her feelings to maintain a calm, in-control veneer. Relaxation comes from diversions rather than self-care aimed at opening to feelings and sensations and allowing her
emotional response to her situation to surface. Through working with our psychotherapist, we would want to see if there was any openness to exploring these deeply held feelings. However, we have found that not all woman benefit from greater emotional expression if their primary coping style is denial. Sometimes being in a good support group can open and model new ways of coping. But it is also possible to support a more contained emotional style with a more cognitive approach and education in the benefits of self-care, perhaps reinforced by research findings. We would need to establish what route of learning could lead to greater coping for this patient.

Furthermore, she sounds as if she is concerned with her appearance and weight gain. We would want to explore her response to her mastectomies and the impact of them on her sexual function. She states that her marriage is good. This may be an area where significant and effective work can be done to allow new avenues to develop for sexual and sensual intimacy. There are usually associated feelings of loss, grief, and anger at the disfigurement and impact of cancer therapies. All these would need to be explored as she permitted and practical suggestions made.

In addition to one-on-one or group therapy, this woman may also be an excellent candidate for our Mindfulness-Based Stress Reduction (MBSR) Program. MBSR is an intensive 8-week program designed by Jon Kabat-Zinn, PhD, and his colleagues at the University of Massachusetts in 1979. It is based on the 2500-year-old practice of mindfulness, and there are now more than 200 programs throughout the United States, as well as other countries, and dozens of published studies demonstrating its efficacy. There are many aspects of this person’s situation that make her a candidate to benefit from an MBSR program. Most fundamental is her diagnosis of breast cancer. A randomized controlled trial of 90 cancer outpatients, the majority of whom were breast cancer patients, showed decreased total mood disturbance; improved subscale scores for depression, anxiety, anger, and confusion; as well as fewer symptoms of stress. Given this patient’s history of anxiety and her high-stress lifestyle, she may benefit from this program. MBSR has been shown in multiple studies to reduce symptoms of stress and to be specifically beneficial for anxiety disorders.

The patient reports no religious preference. As a secular program, MBSR does not conflict with any religious philosophy, or lack thereof, and yet has been found to increase one’s sense of spirituality. With the profound existential issues that are often raised by a diagnosis of cancer, this is often the greatest benefit of the program. For this patient, we would invite her to attend the free informational session that precedes each 8-week MBSR cycle. This 2½-hour session gives people a clear idea of what the program is like, what commitment is required, and whether it seems well matched for them.

Traditional Chinese Medicine Perspective

The information presented is determined from the patient’s case review according to Western medical diagnosis with history of the present illness. In this particular case, the information is limited for providing a complete traditional Chinese medicine (TCM) diagnosis, due to the fact that information that is vital, such as examination of the pulse and tongue, which is the cornerstone of TCM diagnosis, was not included. It is still possible to discuss some of the possible treatments that might be provided as well as the reasoning and theory behind those selections.

Patients diagnosed with cancer frequently turn to complementary and alternative medicine (CAM). A review of surveys involving cancer patients from around the world showed the average prevalence of CAM use was 31%, with 3 of the most common modalities cited being herbs, relaxation, and spiritual healing.

A population-based study in San Francisco, California, showed that 72% of women with breast cancer used at least one form of CAM during their course of treatment. Despite the current popularity of CAM, most mainstream oncologists have little understanding of these therapies and are generally reluctant to integrate a discipline that is foreign to their training and not represented in the scientific literature. However, patients with cancer report feeling that their doctors “should be more interested in, more informed about, and more willing to discuss unconventional therapies.” It is particularly important to communicate well and directly with the patient and with the people involved in the patient’s care, such as their family. If this is done, then most people report a much better quality of life.

The Osher Center provides a unique situation in which an integrated treatment plan can be provided and any additional problems that may arise will be able to be addressed quickly and efficiently. The key words of health are harmony and integration—both in Chinese medicine and in a treatment plan that would be presented ideally at a center like the UCSF Osher Center.

In this particular case, the history of the breast cancer needs to be considered as well as numerous facts in her medical history and current presentation. The fact that there are 2 different presentations of the breast cancer, which may have been influenced by the use of tamoxifen, requires special attention to the potential aggressiveness of this case. Since there is a
history of Hashimoto’s thyroiditis, but she is not currently on thyroid replacement, it would be pertinent to regularly check these levels due to the potential impact that low thyroid hormone levels may have on the breast cancer both by influencing receptor sites and overall risk. Another test that should be performed with some degree of regularity are liver enzymes, due to the previous elevation without any apparent cause. The history of fibroids is important in the TCM treatment, along with the regular presence of hives. The current arm measurements indicate no evidence of lymphedema, but it will continue to be necessary to evaluate this with measurements and asking the patient if there is any discomfort or swelling. If lymphedema does arise, the integrative model already present at The Osher Center would allow for the most effective treatment, with multiple modalities, such as massage, yoga, and visualization, being shown to be extremely effective. The surgical impact is still not clear since she still has a drain with bandaging and is on antibiotics. It is hoped that she will continue to transition with limited pain.

**TCM Theory**

Traditional Chinese medicine is a system of medicine that includes acupuncture, Chinese herbal therapy, food recommendations, and energy-cultivating exercise therapy such as Tai Qi and Qigong. Primary attention is directed at the person’s internal environment and the imbalances that exist among the energetic components. These components known as qi Moisture, Blood, jing (essence), and shen (spirit) all exist in relationship to each other on a continuum within the context of yin and yang. Disease arises from the combination of an imbalance and the presence of toxins, which is an influence that can be of external or internal origin that diminishes health.

Although earlier texts considered treatment of tumors and lump formations, cancer as a term was first used in “Wei Ji Bao Shu” and “Ren Zhai Zhi Zhi Fu Yi Fang Lun,” both traditional texts written in 1264. The development of theory about treatment includes 2 diagnostic categories that interact: one is called Bian Zheng, meaning the constitutional pattern of the person, and the other is Bian Bing, meaning the pattern of the disease. In modern literature, treatment and etiology was summarized well by Professor Yu Wenjun in 1978. In summary, there are 5 major causes: (1) Deficiency of Zheng qi (genuine qi), (2) Fire toxins deeply rooted, (3) Stagnation of qi and Blood, (4) Accumulation and retention of Phlegm and Fluid, and (5) Emotional disharmony. There are 6 therapeutic methods: (1) Restore the normal functioning of the body to consolidate the constitution, (2) Remove toxic heat, (3) Activate the Blood circulation to eliminate Blood stasis, (4) Regulate qi and eliminate Phlegm, (5) Relieve the stagnation of Liver qi, and (6) “Soften the hard and dissolve the mass,” which is essential to the treatment of cancer. This framework continues to evolve and become more comprehensive in the overview of cause and treatment of cancer, incorporating traditional and more current research information to achieve a complete model for treatment. Cancer patterns typically involve Phlegm, Toxins, Deficient qi and Blood, and Blood stagnation. Breast cancer patterns include Liver qi stagnation, Blood stagnation, and accumulation of toxins, qi and Blood deficiency, and Spleen qi deficiency with Phlegm accumulation.

This case study appears to be presenting primarily with Kidney yin deficiency symptoms and with potential imbalances of Blood deficiency and qi deficiency. This is not a complete picture of diagnosis, but the emphasis can be placed on these imbalances due to the presence of insomnia, night sweats, nocturia, and anxiety.

General lifestyle recommendations for this patient would include encouraging adequate sleep, daily physical activity (walking, Tai Chi, or yoga). In addition, a referral to a nutrition specialist would be provided to counsel about dietary supplements and about shifting toward more organic and whole foods. (See nutritional medicine section for discussion of supplements with nutraceuticals.)

**Acupuncture**

Acupuncture treatments for an individual patient over time will vary depending on her presenting symptoms, pulse, and tongue findings. Aspects of variability include point selection, level of needle stimulation, and use of cupping and moxibustion. Clinical trials using acupuncture in the treatment of cancer have generally focused on specific areas, such as pain. In this case study, treatment of postoperative pain and attention to improving mobility can be quite effective. There are several studies supporting the use of acupuncture to treat this patient’s symptoms of hot flashes, night sweats, and insomnia. Acupuncture may be effective in treating these symptoms even when they are exacerbated by chemotherapy or hormone-related medications or when new symptoms such as vaginal dryness and decreased libido develop as a consequence of these cancer therapies. Incorporating weekly treatments of acupuncture can influence how well this patient sleeps and her overall quality of life and sense of well-being.

For this patient, the primary treatment principle would be to tonify the Kidneys and nourish Yin using the reinforcement method without moxibustion.
General point selection would include Ren-4 Guangyuan, KI-3 Taixi, and SP-6 Sanyinjiao. Kidney yin nourishment points would include UB-23 Taixi and UB-28 Pangguangshu. The Urinary Bladder (UB) points will also strengthen the bladder functions, and since these points are back points, they will also tonify Kidney yang, which is necessary to control fluids. Additional points would be used to calm the mind and relieve depression (KI-6, UB-52, DU-20), thereby decreasing her anxiety, which otherwise can deplete the essence ultimately leading to further imbalance. With a diagnosis of cancer, it is important to address and prioritize the spiritual needs of the client, which can be severely impacted from the diagnosis of a life-threatening illness. In her case, I would recommend using Lu-3 Tianfu and St-9 Renying Window of the Sky or Window of Heaven points to help balance and strengthen her spirit. Finally, addition of points and acupuncture treatment to attempt to influence immune response is important and takes into consideration new research. Moxibustion and needling on St-36 and GB-39 have raised white blood cell count levels in leukopenic patients.

**Herbal Therapy**

When Chinese herbs are prescribed clinically, they are not used as single agents, but instead are done as formulas, with multiple herbs mixed together. In this way, the formula addresses the toxin, or disease, as well as the individual’s constitutional imbalance. Each herb has particular energetics, such as temperature, nature, and taste. When combined, different herbs balance each other and allow the herbs to be better tolerated by the patient. Studies evaluating the anticancer properties of Chinese herbal therapies have primarily been preclinical investigations. When prescribing herbal formulations, practitioners should consider incorporating recent research into the traditional texts. Herbal formulas can be used in cancer patients to relieve stagnation by using qi and Blood-activating herbs; clear Heat via cooling herbs dispel dampness with drying herbs, and antidote toxins or dissolve Phlegm with herbs that remove or dissolve these pathogens. Tonic herals may improve the patient’s general condition and immune function, enhance resistance against disease, and may even prolong her survival period.

There is controversy in the scientific community about the potential estrogenic effect of certain herbs because many breast tumors are estrogen sensitive. While there is some indication that often the same herbs may significantly promote estrogen. Additionally, there are numerous concerns in regard to herb-drug interactions. This is a complicated and often controversial issue. Currently, there is particular focus on a few individual herbs, such as St. John’s wort. This is not necessarily due to the high level of activity for this herb, but instead the recent focus on its usage. Instead of attempting to concentrate on the specifics of each individual herbal interaction, it is important to consider the relative safety and the potential benefit, taking into consideration the context in which the herbs are being prescribed. Additional consideration must be given to the fact that when herbs are combined, adverse reactions intrinsic to the herbs may be reduced while the therapeutic effects may be potentiated.

Generally speaking, TCM herbal principles are based on the goal of “supporting the normal,” called Fu Zheng, with the ultimate aim of augmenting the natural host defense, improving neuroendocrine regulation, improving digestive system absorption and elimination, reducing tumor burden and recurrence, protecting bone marrow and hematopoietic function, limiting conventional treatment-related adverse effects, attaining physiological homeostasis, and improving immune function.

For this patient, since the primary imbalance is Kidney Yin deficiency with empty Heat, a base formula, which would be modified over time, would include the following herbs: Liu Wei Di Huang Wan (Six-Ingredient Rehmannia Pill), Shu Di Huang (Radix Rehmanniae glutinosae praeparata), Shan Zhu Yu (Fructus Corni officinalis), Shan Yao (Rhizoma Dioscoreae oppositae), Ze Xie (Rhizoma Alismatis orientalis), Mu Dan Pi (Cortex Moutan radicis), Fu Ling (Sclerotium Poriae cocos). Following the selection of this formula, individual herbs should be considered as additions. Mushrooms are a broad category in Chinese herbal therapy, so they are often given separately in a mixed formula. Ganoderma lucidum (Ling Zhi) is one example of a mushroom that maintains the liver, increases WBC, has a relaxing effect, and strengthens endurance. Additions can be made to this formula to help further alleviate the symptoms presented. To tonify Kidney qi to decrease urination and calm the mind, we would consider using Long Gu (Ox Draconis), Fu Shen (Sclerotium Poriae cocos pararadics), and/or Yuan Zhi (Radix Polygalae tenuifoliae). To settle emotions while helping soothe the skin rashes, the following herbs would be considered: Zhi Mu (Radix Anemarrhenae asphodeloidis), Huang Bo (Cortex Phellodendri), Sheng Di Huang (Radix Rehmanniae glutinosae), Shan Yao (Radix Dioscoreae oppositae), Shan Zhu Yu (Fructus Corni officinalis), Ze Xie (Rhizoma Alismatis orientalis), Fu Ling (Sclerotium Poriae cocos), Mu Dan Pi (Cortex Phellodendri).
Moutan radicis), and/or Yi Yi Ren (Semen Coicis lachryma-jobi). To resolve Damp-Heat and provide potential anticancer effects, the following herbs would be considered: Tian Kui Zi, Shi Shang Bai, and Bai Hua She She Cao. To improve immune function and reduce tumor load, the following herbs would be considered: Huang Qi (Astragalus membranaceus) and Gou Qi Zi (Ligustrum lucidum) tonifies Qi.\textsuperscript{32,35} To mitigate night sweats as well as strengthen cell function and improve liver function, Wu Wei Zi (Fructus Schisandrae chinensis) might be included.\textsuperscript{36}

These compose only a partial list of herbal therapies that would be considered in this patient, and specific herbs would be removed or added depending not only on the patient’s presentation but also on the overall interdisciplinary treatment plan for the individual patient. The actions of the herbs as anticancer agents are only in their preliminary investigations. Because of this, it continues to be very important to prescribe herbs based on the traditional function of the herb and then take into consideration the recent scientific research.

Nutritional Medicine Perspective

Given the substantial data that suggest a strong link between nutrition and breast cancer, we feel it is paramount to this woman’s overall well-being and prognosis to address a full nutritional regimen that would work in conjunction with her other therapies. Her current diet is described as a “typical American diet” in the case presentation. First we would obtain more detailed information about what foods she eats daily. This will help us understand both the nutritional content of her food and what relationship she has to food in her daily life. Crucial to tailoring a regimen that will be nourishing and satisfying is an understanding of what emotional role food plays in her life. Does she eat more or less when she is depressed, anxious, or stressed? Does she frequently skip meals? Recognizing that nutrition lies in the biochemical activity of the food she eats, in the behavior of eating, and in the emotional resonance that foods can have, we will focus primarily on these angles when treating this patient.

Over the past decade, there has been extensive biochemical and epidemiological research evaluating the association between diet and breast cancer. In a prospective study of percentage body fat and breast cancer risk in 12,159 postmenopausal women, investigators found percentage body fat to be correlated with a 2-fold increased risk of developing breast cancer when comparing women in the highest and lowest quartile groups.\textsuperscript{34} Survival studies of patients with breast cancer thus far have been observational, showing worsened prognosis associated with increased body weight.\textsuperscript{35}

This patient’s diet is described as consisting of daily consumption of sweets and fats, a typical American diet. Consumption of sugars and rapidly digested carbohydrates is associated with chronically elevated fasting insulin levels and obesity. Tumor growth in breast cancer appears to be stimulated by insulin and insulin-like growth factor (IGF-I).\textsuperscript{36} Insulin and IGF-I stimulate anabolic processes and can promote tumor development by inhibiting apoptosis and by stimulating cell proliferation. These molecules also stimulate the synthesis of sex hormones, which can be detrimental in hormone-sensitive cancers such as breast cancer. Because of these data, we would suggest a diet that is low in sugars and refined carbohydrates and would encourage eating carbohydrates that are known to produce a slower rise of insulin, such as complex carbohydrates found in whole grains. We would also encourage her to eat protein in the mornings, leading to a sustained energy and insulin release during her day.

There have been interesting developments in the past few years exposing the role of estrogen metabolites in influencing breast cancer risk. Estrogen is metabolized in peripheral tissues by one of two major competing pathways, yielding 16α-hydroxyestrone and 2-hydroxyestrone. Biologic in vitro studies have demonstrated that 16α-hydroxyestrone stimulates the estrogen receptor, promoting breast cancer cell proliferation.\textsuperscript{37} This metabolite is also seen in postmenopausal women at 50% higher levels when compared with healthy controls.\textsuperscript{38} In contrast, 2-hydroxyestrone binds with weaker affinity to the estrogen receptor, decreasing the actual estrogenic activity. This effect is thought to be protective, and epidemiological analysis shows that postmenopausal women who have a high ratio of 2-hydroxyestrone to 16α-hydroxyestrone also have a lower risk of developing breast cancer.\textsuperscript{39} Diet is one of the ways we can manipulate this ratio in favor of producing these protective metabolites. Cruciferous vegetables, such as broccoli, cauliflower, cabbage, and Brussels sprouts, contain dietary indoles that induce those enzymes of estrogen metabolism that favor the formation of 2-hydroxyestrone over 16α-hydroxyestrone.\textsuperscript{40,41} Additionally, animal studies suggest a high-fat diet lowers this ratio.\textsuperscript{42} This evidence suggests a potential for diet as an intervening therapy in breast cancer treatment, reiterating the need for vegetables and low fat intake as the core of this patient’s nutrition regimen.

Another group of dietary modifications we would suggest is based in research of the inflammatory cascade, which produces mediators that may affect tumor proliferation in vivo. Eicosanoids, such as prostaglandins and leukotrienes, are locally active compounds, which are synthesized from fatty acids such as...
Melatonin, a normal secretion of the pineal gland, has captured public attention recently because of its effects on mood, sleep, and jetlag. It has also been suggested that melatonin stimulates the immune system and may have anticancer properties. Several studies have tested the efficacy of melatonin supplementation for slowing tumor progression. One randomized, controlled trial suggested that patients with unresectable brain metastases from solid tumors who were treated with melatonin (20 mg daily by mouth, at 8 PM) experienced a significantly longer survival compared with those receiving supportive care only. Each of these compounds plays a role in modifying the inflammatory cascade to such an effect as to produce less inflammatory players, which have been implicated in the proliferation and spread of tumor cells.

Before suggesting these dietary changes to this patient, we would first have to assess what her current attitudes are toward food and her body. Otherwise, she will not be successful in making the changes and adopting the recommendations taken from the body of scientific literature on diet, metabolism, and cancer. Since she wants “vitality and performance” now, we would begin to reframe her perceptions by relating her food choices to feeling healthy and performing at her peak. To best serve this patient, we would want to learn more about her weight history, experiences with eating, perceptions of her body, sources of stress, and habituated patterns of thinking and behavior, what her relationships are like with food and eating, her experiences with exercise and movement, where her meals and snacks are coming from, who does food shopping and meal preparation, and how often she eats out and where.

We would also want to address the patient’s stress level, because this influences her life choices and behaviors, which in turn affects her eating behavior. We would guide this patient toward adopting healthy behaviors around food and ultimately help her to improve her relationship with food and with her body.

To begin to assess her current attitudes toward eating, we would want to explore how confident the patient feels about making specific dietary and behavioral changes and how ready she is to reexamine beliefs about food, her body, and her cancer diagnosis. Having her keep food and feelings journals, using the hunger scale, and recalling 24-hour food intake are some useful tools to help assess her progress. Her feelings about her life events will need to be addressed since they may manifest through eating and food choices. Her habits of distracting herself with TV and suppressing her uncomfortable feelings are warning signs of some internalized pain or discomfort. It is hoped that we would create an environment where she would feel safe to talk about how this discomfort might connect with her food choices and behaviors.

We would evaluate the types of fats she is consuming, the quality of the meats and other flesh foods she is eating (whether they are organically raised or conventionally produced), the amounts of fruit and vegetables (and whether they are heavily sprayed with...
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pesticides or conventionally grown and contain high amounts of nitrates). From an understanding of her current diet and her attitudes toward foods and eating, we would make our suggestions based on the most recent review of the scientific data to arrive at a nutritional plan that was holistic in its approach to engaging her mind and understanding while offering her body the biological tools it needs to help her be well.

In summary, the following is a basic framework of nutrition recommendations for this patient. These recommendations are based on a review of the current literature on breast cancer and diet, although some of the biochemical models outlined above are still the subject of inquiry. With regard to antioxidant supplements, some data suggest they interfere with the effectiveness of chemotherapy and radiation, whereas other data indicate these substances benefit the patient without reducing the anticancer therapy effectiveness. The food items listed below we believe to be safe at any point in breast cancer treatment. The high-dose antioxidant supplements, such as high-dose vitamin A and C and coenzyme Q10, are less understood in terms of how they interact with chemotherapy and radiation. Consequently, until there is a greater body of evidence demonstrating their noninterference during chemotherapy and radiation, we recommend taking them when the patient is not receiving radiation or chemotherapy treatments.

Foods:
- Increasing deeply pigmented fruits, vegetables to 7-9 servings a day, raw or steamed
- Daily flax seed oil and omega-3 fatty acid–containing foods such as cold water fish (tuna, salmon, trout, herring), walnuts, soybeans (not soybean oil) and canola oil
- Decreasing omega-6 fatty acid–containing foods, such as peanuts, soybean oil, corn and primrose oil, meat, shellfish, and eggs
- Increasing consumption of fiber and complex carbohydrates, whole grains
- Decreasing consumption of refined carbohydrates and sugar
- Increasing amount of cruciferous vegetables such as broccoli, cauliflower, bok choy, and cabbage
- Decreasing saturated fats in particular
- Increasing zinc-containing foods such as lentils and kidney beans, dark meat of chicken
- Increasing magnesium-containing foods such as whole wheat bread and spinach
- Increasing folate-containing foods such as leafy greens, dried beans, and peas
- Increasing foods containing vitamin C such as citrus fruits, strawberries, tomatoes, and peppers and foods containing vitamin A such as dark green leafy vegetables, carrots, and yellow or orange peppers

Dietary Supplements:
- Fish oil (omega-3 component of 3-6 grams per day)
- Boswellia serrata 25-50 mg per day
- Quercetin 1500 mg per day
- Bromelain 600-2400 mg divided 3 times a day on an empty stomach
- Curcumin 1500 mg per day
- Melatonin 5-10 mg before bed (for insomnia)
- Green Tea supplement: 400 mg in the AM
- Alpha Lipoic acid, 200 mg twice a day
- Calcium supplementation

Introduction of tea including fresh cornsilk during dry season or year round can increase the movement of fluid, as well as helping maintain consistent levels of blood sugar. Celery juice can also benefit detoxification as well as movement of fluid.

Gynecological Perspective

We would also want to address the gynecological quality-of-life issues that are often encountered in women with breast cancer. Many young women who get chemotherapy go into induced menopause and consequently experience hot flashes and other menopausal symptoms such as change in libido, vaginal dryness, changes in mood, and changes in sleep cycle. In addition, they may experience side effects from tamoxifen.

This patient is now 55 years old and has newly metastatic cancer. She previously had chemotherapy when she was first diagnosed in 1995. It is likely that she was premenopausal at that time and became postmenopausal with chemotherapy. If the onset of menopause was acute, her menopausal symptoms may have been severe. We would ensure that she is not currently having hot flashes or other menopausal symptoms. She also received tamoxifen for 5 years. About 25% to 50% of women on tamoxifen complain of hot flashes. I would want to know, now that she is off tamoxifen, if she has hot flashes that are bothersome. If she does, we would consider treating these with low-dose antidepressants, vitamin E 800 IU per day, black cohosh, and herbal products such as Estrohealth or Chinese herbs. Given that she has been menopausal for a while, she may have complaints of vaginal dryness, which can be treated with moisturizers like Replens. For sexual activity, lubricants such as Astroglide, Probe, or Silk are very helpful. Some women might be interested in topical forms of hormonal therapy, natural ones like Progest cream (safety not known) or creams, ointments, or gels of estrogens or compounded testosterone. For vaginal dryness, the first-line hormonal treatment is the estrin, and of all the topical hormonal therapies, this has the least systemic absorption and many women find it easy to use.
Many breast cancer patients notice that breast cancer treatment may result in a decrease in their libido. This is likely multifactorial, including factors such as stress and depression that may accompany a cancer diagnosis and from her own body interacting with the cancer and her medications. We would inquire about her current sexual lifestyle and integrate our therapeutic approaches using massage, yoga, and psychotherapy to cultivate awareness of how the mind and body interact. For herbal options, the amino acid L-arginine in combination with *Ginkgo biloba* may provide benefit.

This patient is having sleep difficulties mainly due to hot flashes and urinary frequency. In terms of the urinary frequency, she may have some component of detrusor instability (hyperactive bladder) that is causing her to have nocturia. She could see a physical therapist and undergo a biofeedback evaluation and possibly benefit from a pelvic muscle-training program. This is particularly helpful for mild symptoms due to hyperactive bladder. Alternatively, there are anticholinergic medicines such as Ditropan or Detrol that might help her should muscle training not work. The final point to consider is her bone density. She was started on Arimidex, which may cause bone loss, and she is on Fosamax. Given her history of taking prednisone, we would ensure she had bone density testing and continue her calcium supplementation.

### Massage and Yoga Perspective

For anyone presenting with medical issues, massage is approached as a nursing intervention that utilizes nursing skills to assess the physical, emotional, social, environmental, and spiritual aspects of a patient’s life. The initial assessment begins with how the patient is feeling at the physical level and must include the whole person, mentally, emotionally, and spiritually, in the context of life, work, family, and social relationships and environment. The therapist would want to know her goals, needs, values, and what brings her joy; she would inquire about daily habits and lifestyle choices, diet and exercise, stress and coping. Equally important is inquiring about postoperative pain and fatigue, any sleep disturbances, and any body image issues. The therapist will also want to know about any side effects related to her earlier chemotherapy such as chemotherapy-induced menopause symptoms. Important issues to learn more about include how she keeps hydrated, her nutritional status, current stressors and coping strategy, aversions to exercise, and where she derives personal meaning and identity.

On the physical level, the therapist would assess functional impairments and any habituated patterns of holding muscle tension and provide education about muscle physiology and the benefits of conscious relaxation. For this patient still in recovery from surgery, the therapist would ask for permission to examine the incision sites to assess wound healing and notice her relationship to her body. The therapist would also notice if the patient is a deep or shallow breather, if she unconsciously holds the breath or if she is a reverse breather. The therapist often teaches yoga breathing practices during a massage, explaining breath physiology and the rationale for oxygenating the system consciously. On the emotional level, the therapist assesses how the client is functioning: how connected is she to her feelings, how easy is it for her to express her feelings, how threatening are her feelings, and what are her traditional coping mechanisms? On the intellectual level, the therapist listens to the patient’s beliefs and ideas, for recurrent themes and habituated patterns of thinking. She would point out statements of self-deprecation with suggestions for reframing. She may ask her to clarify or rephrase something in a way that has less self-judgment and more self-acceptance. The goal is to improve her sense of well-being. On the social level, the therapists would want to know if the patient connected to adequate support. Does she have places she can let down her guard and speak openly and honestly? On the environmental level, she would ascertain if there are environmental stressors the patient could change or ways she could create more healing environments for herself. On the spiritual level, she would want to know if she has any religious affiliations or spiritual beliefs that she taps or could tap to derive meaning and comfort through the challenges she is facing.

Once our massage therapist has a clear picture of the patient, what her goals are, she can offer her aspects of the complementary medicine disciplines that might be suitable, from acupressure, massage, and yoga. The goal is to help guide this patient to make choices for herself that are inherently health promoting. If yoga doesn’t suit her, we can refer her to Tai Chi, Chi Gung, Feldenkrais, or to dance therapy. If she is touch averse, we can try energy work that does not make physical body contact, or our therapist could lead her through a yoga deep relaxation session or through a guided imagery process. She could instruct a variety of meditation techniques for the patient to find one that suits her personal style. The therapist might teach her reframing and self-talk; these are both nursing interventions that find frequent use in complementary medicine and could help this client meet and surmount personal challenges.

This particular client stresses her desire to maintain vitality and optimal functional performance. We would want to find out about her prior experience...
with chemotherapy. How significantly was her vitality compromised and for how long? How did she cope back then? Did she have any chemotherapy-induced menopausal symptoms? Currently, she reports hot flashes and urinary frequency leading to disturbed sleep patterns. There are acupressure points that could relieve some of these symptoms if she is open to trying self-help acupressure. She reports little time to exercise—it sounds as if she is able but not inclined—and she indicates that maintaining vitality and optimal function is a strong priority for her. This could be a problem, because on one hand, she may not want to make any changes, but on the other hand, change may be needed for her to maintain vitality. She wants to continue her professional status and lecture nationally, so her physical and emotional well-being is absent. As the massage progresses and she relaxes into being touched, the therapist will ask, “How does this feel?” or “Does this pressure feel just right, or should I be lighter or deeper?” These questions both assure the client is being cared for and encourage client awareness of her own physical sensations. The client will determine how much conversation occurs regarding her cancer diagnosis. The massage therapist offers support and encouragement with touch and speech, honestly and without platitudes. The aim is to develop a therapeutic relationship based on mutual trust, as she is able to verbalize her needs and feel the therapist’s willingness to meet her where she is physically and emotionally. This process is aided by the therapist’s adaptability in shifting techniques as appropriate from stroking, kneading, or rocking to holding pressure points or doing passive range-of-motion stretches.

The initial conversation between the patient and the massage therapist will help assess her readiness to learn in order to triage several teaching pieces into the first massage session and over the context of ongoing massages until most of these content pieces have been communicated and understood:

1. The importance of adequate hydration and good nutrition for maintaining skin and tissue integrity and for supporting body systems and functions
2. The physiological rationale and the practice method of learning how to breathe correctly to counteract shallow breathing or reverse breathing
3. Tissue and muscle physiology as they relate to fatigue and exercise, including weight-bearing, aerobic exercise, and flexibility exercise
4. Lymphedema prevention and assessment guidelines
5. The function of sympathetic and parasympathetic nervous systems with self-care behaviors for inducing relaxation
6. Self-help acupressure, massage, and yoga techniques for symptom management.

In *Choices in Healing*, Michael Lerner speaks about a “vital quartet” of categories that can offer techniques supportive of healing to people in cancer treatment: physical approaches, nutritional approaches, psychological approaches, and spiritual approaches. He suggests that techniques found in each of these categories are known for helping to maintain and improve functional status and quality of life and ought to be available as choices to anyone in cancer treatment, especially because functional status and quality of life are known predictors of outcome in cancer treatment. Massage, acupressure, and yoga have tools that can affect the physical level and to some degree the psychological and maybe even spiritual levels. Through stress reduction and increased relaxation, these disciplines may even help with food absorption, utilization, and elimination.

The massage protocols for the Osher Center for Integrative Medicine have been carefully developed to meet the needs of patients with stable medical conditions and related chronic pain in the context of a medical setting that sees increasingly acute patient populations. Our massage precautions and contraindications are designed to minimize risk and maximize potential benefit for the patient. Traditional Western medical doctors are available immediately should any condition be exacerbated or new symptoms arise.

In the mid-1980s, the massage community had many taboos about massaging people with cancer, taboos that were based in fear and not founded in science. Knowledge of cancer cell physiology allays some of the fear that massage would “spread cancer” through physical touch and pressure. Nonetheless,
the Osher center’s protocol of not applying pressure over known tumors and of avoiding any technique that would cause tissue trauma are based in what makes sense. Clinical experience validates the ability of massage to relax the physical body and counteract the pressures of stress. Massage makes a positive difference in how a person feels. People report less muscle tension, more range of motion, and more freedom of movement. They report feelings of peace and comfort and a renewed sense of the body being a safe place after massage. Physical therapy has long used massage for muscle relaxation and pain relief. Nursing has historically used massage, such as back and foot massage, as a relaxation practice to lower anxiety in hospitalized patients. Several nursing studies have shown massage could reduce stress and anxiety for cancer patients, but these studies were not widely acted upon or duplicated until recently. To date, nursing studies cite massage as a nonpharmacological intervention to relieve anxiety and pain in patients. However, new research is emerging in the area of immune function. One study showed that massage enhanced cytotoxic capacity of the immune system in people with HIV-positive status, and more recently, an unpublished study by Ironson and Hernandez-Reif indicates that massage produces significant benefits for women with stage 1 and stage 2 breast cancer.

It is hoped that research will help respond to the differences of opinion about stroking massage and its effect in moving the lymph fluid; about whether or not it is good to move the lymph when cancer is present; and about what may be the best massage techniques for safely supporting the lymphatic system. We know from research how important movement (ie, exercise) is and how many harmful consequences can come from chronic sedentary behavior. Some older studies indicate that muscle activity is a lot more effective in moving lymph than passive manipulation. In addition to the passive range of motion stretches within massage, we may suggest that this client consider the gentle yoga class as a way to increase her activity levels. A prime concern in any patient undergoing breast cancer treatment is lymphedema. Understanding the forces that are at work can lead someone to better self-care. Conscious attention and good daily habits can help women feel more empowered and less victimized.

The goal of the massage is to support her body in recovery from surgery. We want to allow this patient to relax as much as possible, to give her time that is dedicated completely to her own self, time when she can practice receiving and accepting care. It is a chance for her to experience self-care as a basic human necessity. From her sense of being deeply relaxed, insights may arise that provide her direction and motivation. Body image disturbances are common after surgeries that remove parts of the body. Massage, by evoking feelings of pleasure, may help this patient to reclaim her body as a place of joy—as a vibrant whole. Massage can help awaken faith in her self and her abilities to synthesize a new harmony out of the trauma of cancer and cancer treatment.

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