Treatment Of Lymphedema Secondary To Gynecological Cancer

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The clinical diagnosis of secondary lymphedema is fairly straightforward in a limb at risk when there has been known disruption to the regional lymphatics (e.g. after inguinal/pelvic/abdominal node dissection/radiation for gynecological cancers as mentioned in the lead article in this issue). A detailed medical history, including past orthopedic, plastic, dermatologic, or vascular surgeries and their chronology relative to the onset or worsening of the edema is the cornerstone of a successful lymphologic evaluation. It is important to know that recurrence/metastasis of cancer and deep vein thrombosis have been ruled out as possible causes of the swelling prior to beginning any treatment for the LE. Assessments of pain, range of motion, strength, functional and sensory deficits provide the therapist with critical information needed to plan a safe and successful treatment program.

Clinical evaluation includes a detailed description of skin integrity, using body diagrams (both anterior/posterior and lateral) to draw unusual body contours, the location and condition of scars, skin grafts, radiation burns/burn scars, fibrotic areas, open wounds, location of papillomas, warts, lymph leakage, folliculitis, and palpable lymph nodes in the inguinal region, if present. The presence of toe/nail fungus and presence or absence of pitting and subcutaneous fibrosis should be noted. Presence or absence of pain, paresthesias, or other sensory impairments should be documented. A visual analog scale of 0-10 is easy to use to rate pain. Digital photographs are helpful to detail changes in skin color/textures as well as changes in limb shape as treatment progresses.

Accurate circumferential measurements taken at fixed intervals with standardized positioning noted are often more helpful in describing the limb segments than volumetric measurements that give a total difference in overall volume of the entire limb. Volumetric measurements are particularly helpful in cases of bilateral extremity edema when no “normal limb” can be used for comparison.

Individuals who have had pelvic or abdominal node dissection are at risk for lymphedema in both lower extremities as well as the suprapubic and abdominal areas, the genitals and buttocks. Therefore, during treatment, measurements should be taken of both limbs and abdominal/pelvic areas to track the progress of the treatment and to monitor areas at risk. Abdominal and pelvic girths can be measured by having the patient stand with feet shoulder width apart on a flat surface without shoes. The heel on the floor is considered the zero point and the therapist can record various heights from the floor—for example if the hip level is approximately 80 centimeters from the floor, the therapist can make a mark on the patient stand with feet shoulder width apart on a flat surface without shoes. The heel on the floor is considered the zero point and the therapist can record various heights from the floor—for example if the hip level is approximately 80 centimeters from the floor, the therapist can make a mark on the patient stand with feet shoulder width apart on a flat surface without shoes.

Treatment compression garment (if a waist height garment is indicated) can be measured in the same way, to accommodate asymmetry in the pelvis/abdomen/buttocks.

Complete Decongestive Therapy (CDT) treatment of lower extremity lymphedema secondary to gynecological cancer treatment utilizes collateral lymph pathways from the lower body to the axilla (armpit) on one or both sides depending on whether the lymphedema is in one leg or both. Care must be taken when applying abdominal breathing techniques to avoid causing pain or discomfort. Compression bandaging may need to be modified to accommodate tissue deficits/areas of grafted skin in the inguinal area if deep dissections were done. If there is more swelling in the proximal portion of the limb, the patient may not be able to tolerate as much pressure on the foot and ankle as an individual with more swelling in that area. Moreover, pain and paresthesias may be present in the leg due to extensive surgical dissection/scar tissue causing nerve compression, and adjustments in bandaging at the foot/ankle may have to be made to obtain optimal comfort for the patient.

GENITAL LYMPHEDEMA CONCERNS FOLLOWING GYNECOLOGICAL CANCER THERAPY

Overview

As specialists in the treatment of all forms of lymphedema, Certified Lymphedema Therapists must always ascertain the underlying cause of each swelling.
before commencing treatment. Serious contra-indications as well as current disease processes must be identified if present in order to make sensible adaptations for each edema type.

Normal characteristics of lymphedema are generally described as involving the distal most regions (farthest from the trunk) early in the process. As such the hand/wrist and foot/ankle areas usually swell first, advancing to include more proximal areas progressively over time. When swelling involves truncal tissues (chest, back, abdomen, hip, buttock, genitals) with or without more distal-areas, the clinician must first understand the underlying reason for this less typical presentation.

If the genital tissues are involved without associated limb involvement we must assume that a disturbance in the lymphatic flow has an origin somewhere in the trunk, since the lymphatic vessels and nodes draining these tissues reside in the pelvic and abdominal regions. Sometimes lymph nodes dissected for the purposes of staging and assessing the progression of cancer create a temporary edema known as postsurgical edema. In time most of these local traumatic edemas resolve, while others persist in a chronic fashion or return some months or years later. These persistent or late onset swellings can be correctly diagnosed as true secondary lymphedemas since they indicate substantial damage to lymphatic tissues.

Adapting MLD

When genital lymphedema is present following gynecological cancer it is important to modify the manual lymph drainage program to promote a collateral flow of lymph away from the blocked or deficient lymphatic tissues. Cervical, uterine, and ovarian cancers require sampling of intra pelvic or retroperitoneal lymph nodes. As a result intact inguinal lymph nodes groups, although present, empty respective lymphatic loads into these blocked surgical regions. It is common to assume that intact nodes are somehow contributing to the improvement of lymphatic flow, however in such cases, encouraging draining towards the blockage is counterproductive. It must be noted that retrograde flow (reflux) has caused the genital tissues (and lower extremities) to swell since the deep lymphatics which drain those tissues have been damaged. Thus, all techniques should be performed so as to collateralize the flow away from rather than towards the respective inguinal node groups.

At times, lymph node sampling may cause only one side of the lower two quadrants (area below the navel, legs, genitals) to swell sparing the other side. In such cases an understanding of the anatomy of the deep lymphatics would still mandate that MLD avoid directing fluid across the midline of the body -(inter-inguinal anastomoses) to the uninvolved region, since neither inguinal lymph node group can handle additional lymphatic loads.

Additional Considerations

Genital tissues are fragile, highly extensible, low pressure skin areas. As such they may become rapidly engorged and markedly disfigured by accumulations of lymphatic fluid. Additionally, the susceptibility to infection is much higher than it would be in limb areas due to the greater concentration of resident skin microbes, moisture retention and skin on skin contact. Since these tissues are so fragile it is common to see lymphatic cysts (small transparent blisters) develop which greatly increase the risk of serious infection. Comparatively, the timeline for development of papillomas is far briefer in genital tissues suggesting a more rapid progression towards stage 3 lymphedema as compared to limb areas.

Treatment

Our current understanding of the anatomy, based upon investigations conducted by lymphologists worldwide; strongly suggests that human lymphatic anatomy has a substantial (perhaps 10X) reserve capacity to withstand additional demand, aging and erosion without collapse. As previously discussed, MLD must always follow a logical, sensible strategy formulated with the goal of collateralization of flow within the remaining healthy lymphatic tissues. Areas presently without swelling but at risk due to mechanical insufficiency of proximal lymphatics must be correctly considered during our MLD sequencing so as to avoid taxing functional reserves. The form of sequencing proven to be most clinically successful involves amplifying the flow rate in both superficial and deep lymphatic systems. Even in cases of surgically induced, secondary lymphedema, we can assume that the former preoperative anatomy was robust and well endowed with collateral, even redundant lymphatic pathways. Keeping this basic fact in mind we approach treatment with the expectation that improved drainage is possible via collateral vessel interconnections (anastomoses) even when surgical disruption is encountered. Lymphatic vessels normally permit reflux when engorged since they are thin walled in structure and widen to accommodate fluid overload. Anastomosis with adjacent vessels, especially in visceral regions, allows for the possibility of improved collateral drainage as pressure is relieved towards healthy pathways.

Perhaps the single most important aspect to consider is the beneficial physiological effect of deep breathing (diaphragmatic) on the genital tissues. As the diaphragm rises and falls it creates a mechanical “milking” motion on the thoracic duct, causing improved flow within distal vessel trunks. This exercise may be coupled with abdominal treatment, if not contraindicated, to “train” collateral vessels towards circumventing damaged tissues. In the superficial system treatment relies upon utilizing intact ipsilateral axillary node groups, avoiding the median sagittal watershed. Posteriorly, lumbar and gluteal tissues are treated towards the inguino-axillary anastomoses. Similarly the lower abdomen and supra-pubic
tissues must be treated away from the median sagittal watershed and the inguinal lymph nodes towards the axillae.

**Compression**

Perhaps the most productive modality to employ for the management of genital lymphedema is compression, since progression of swelling can be halted and effectively reversed in many cases. There are several concerns and practical limitations however that confound our attempts at compression, causing clinicians to struggle with genital treatment in ways that are unique to the area. Tissue tolerance to round-the-clock compression is decreased and frequently creates raw, irritated, even eroded skin areas. Bacterial and yeast colonization increase the incidence of cellulitic infections disrupting the continuity of care and threatening the patient's health.

Compliance is paramount and self-care skills must be developed immediately due to the needs for meticulous hygiene, toileting and personal care. Material usage is generally high as soiled or erosive products must be replaced regularly and immediately to avoid negative effects. All of these practical concerns coupled with the emotional and psychological effects of genital LE present unique challenges and often lead to poor outcomes.

As compared to male genital swelling, where tissues are more external to the trunk, compression strategies for the female are less complex, but still present many of the above-sited challenges. If labial swelling exists, an hourglass shaped piece of foam padding lined with absorbent disposable layering can be used within a compression garment. The structure and thickness of the pads can be altered for one sided or bilateral swelling differences. The compression component can be as simple as a Lycra bike short or as comprehensive as custom made pantyhose containing a special compressive crotch panel; when the margins of edema extend into the supra-pubic region these pads can be shaped to include all involved tissues.

Sometimes thicker pads must be crafted to exert inward pressure on the supra-pubic and lower abdominal regions.

There are many options for post-treatment compression garments, both ready to wear and custom thigh highs, thigh high with waist/chap style stockings, waist height one leg or two leg panty stockings, light weight panty shapers, micro fiber panty garments, as well as alternative night compression garments made of fabric and foam. Matching the patient’s functional abilities, therapeutic compression requirements, physical ability to don and tolerate the garments as well as their psychological acceptance of the style of garment are critical to achieve a successful outcome.

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