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Lymphedema: Pathophysiology, Diagnosis & Management
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Introduction
Lymphedema is a diaphragna condition that harkens back to the time of primitive man, in which the body’s natural defense system is compromised by any of the above-referenced contributing factors. The thoracic duct drains lymph from the entire body except from the areas of the lower extremities, where it is drained by the right lymphatic duct; the lymph then makes its way into the venous circulation through the right and left subclavian veins. (Fu, et al, 2009)

The lymphatic system is in tact in assisting in the transport of proteins and fats. By filtering lymph through lymph nodes, lymphatics play a pivotal role in the efficicne of the immune system. Lymphocytes travel in both directions by actively engaging in the fight against infectious processes occurring in the body. When lymph travels through the nodes, macrophages phagocyte T cells which alterate the nodes and attack viruses, bacteria, and toxins. (Nazarko, 2009; Ridner, 2013; Fu et al, 2009)

Pathophysiology of Lymphedema
When blood circulates from the heart out to the body, plasma contains proteins, water and waste products can collect in the interstitial spaces from where the lymphatic system filters the fluid and returns it to the circulation (Nazareen, 2009). An intact lymphatic system can effectively transport waste products and deliver the bloodstream via the mechanisms described earlier; however, any loss of integrity in the network can result in lymphedema as well as any severe skin trauma resulting from burns or other skin infections (NLN, 2011). With failure of any of the processes which accommodate the forward propulsion of lymph fluid through the network, the fluid builds up in the tissue and resulls in excess products, which can lead to disfiguration of lymph nodes themselves, either from fibrosis from chemotherapy or radiation treatments or muscle (fibrosis or lack of muscle tone), and changes in the condition of the lymph vessels, which should all be assessed. (Bernas, 2013; NLN 2011).

Clinical Presentation
In its early stages, lymphedema cannot easily be distinguished from edema. A patient’s initial presentation is usually dismissed as simple swelling or edema until elevation of the extremity, or diuretic therapy prove to be inadequate measures, and don’t resolve the swelling. During the beginning stages,(pitting is apparent, the skin is soft, and limb volume is resuls in the edema but as the disease progresses, pitting is no longer evident, the skin becomes hard, and elevation does not relieve the swelling. (King, 2006). Lymphedema can be a catastrophic condition which can result in the patient developing open, weeping blisters, usually on the affected lower extremities.

The following prominent clinical features have been identified (King, 2006, Naranjo, 2009):

1. Edema: Inability to pinch a fold of skin at the root of the thumb for greater than 3 months of duration which does not resolve completely and is associated with the affected limb.
2. Fibrosis: The skin becomes hard and tight; no longer pitter because of thickening and loss of the subcutaneous fat.
3. Papillomatosis: Affected skin resembles cobblestones as a result of dilution of the lymphatic system and formation of fibrous tissue. Skin becomes thick and hard.
4. Hyperkeratosis: Development of small blisters and bumps on the skin.
5. Lymphangiole: Leakage of lymph fluid from the skin.

The pathophysiology of Lymphedema
The thoracic duct drains lymph from the entire body except from the areas of the upper arm, the right side of the breast, and the side of the face which are drained by the right lymphatic duct; the lymph then makes its way into the venous circulation through the right and left subclavian veins. (Fu, et al, 2009)

Lymphedema: Pathophysiology Cont’d

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