Lymphedema is chronic swelling caused by impairment in lymphatic system drainage. There are two types: primary and secondary. Primary lymphedema affects one to two million people in the United States, with congenital LE often presenting at birth, and LE praecox, which accounts for 65%–80% of primary cases, can present from birth through 35 years of age. LE tarda develops after age 35 and is the rarest primary form. Gender is a factor; women are affected more than men. The lower extremities are affected more often than upper extremities. LE generally is bilateral.

Secondary lymphedema affects two to three million people in the United States. Causes of secondary lymphedema include alteration in the lymphatic system, trauma, surgery that dissects or removes lymph nodes, radiation therapy, infection, tumor growth or metastasis to lymph nodes, scarring, chronic disease such as cerebrovascular accident, rheumatoid arthritis, and spina bifida. Filariasis—a parasitic infection—can also cause secondary lymphedema.

The lymphatic system is present throughout the body and its purpose is to remove waste and foreign material by-products produced when clearing the body of infection and disease. Fluid in the lymphatic system is composed of protein, water, fats, and cellular waste. The fluid is transported through the lymph vessels to the lymph nodes and empties into the blood vessels. The lymph vessels are thin, allowing larger proteins to filter through easily. When an obstruction develops in the flow of lymphatic fluid, the large proteins filter through the vessels and invade the interstitial tissue, which causes an accumulation of a highly concentrated, protein-filled fluid in an area distal to the blockage. The fluid in the interstitial space causes inflammation that results in skin changes and fibrosis.

Signs and Symptoms

With secondary lymphedema, presentation is either acute or chronic. Acute LE is associated with surgery, radiation, insect bite, or minor trauma. Generally, acute LE lasts no longer than three months and develops no later than two years after surgery or causative incident. Patients with suspected LE may complain of heaviness, aching, weakness, and swelling in the affected extremity. Swelling is usually more pronounced at night or after prolonged standing or sitting.

Pathophysiology

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