LYMPHEDEMA: Demystifying the Lymphatic System (NW Melanoma Symposium)
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Objectives:
- What is the lymphatic system?
- What is lymphedema?
- What causes lymphedema?
- What does lymphedema look like?
- How does melanoma treatment affect the lymphatic system?
- What is the lymphedema risk for melanoma patients?
- How is lymphedema treated?
- How can we reduce our risk of lymphedema?

What is the lymphatic system?
Blood or circulatory system:
- consists of the heart, arteries, veins & capillaries
- the heart pumps blood to organs, muscles, nerves & bones
- arteries provide oxygen & nutrients to the body
- veins transport waste products to the kidneys & liver, then returns the blood to the heart (90%)
- about 9% protein

Lymphatic system:
- consists of lymph nodes, lymph organs, vessels & capillaries
- is a one-way system
- absorbs lymph fluid (water, salt, proteins, waste products, bacteria) from the interstitial space (10%)
- transports the lymph fluid back to the blood system via the veins at our neck
- about 2% protein

What is lymphedema?
- A swelling of a body part caused by an abnormal accumulation of lymph (interstitial) fluid. When the amount of the lymph fluid exceeds the ability of the lymph system to drain it.
- Most often affects an arm or leg but can be occur anywhere including head & neck, trunk and even the genitalia.
- It is not life-threatening.
- It can be managed.

What causes lymphedema?
Either Secondary (acquired - when we know what caused the swelling)
- Cancer treatments: removal of lymph nodes or radiation
- Malignant tumors
- Trauma or injury
- Infections with bacteria, viruses, fungi or worms (filariasis – affects 100 million worldwide)
- Reconstructive surgery
- Surgical procedures
- Obesity
- Pregnancy-induced lymphedema
- Dependent positioning of arms or legs
- Chronic venous insufficiency
- Chronic deep vein thrombosis
- Lipedema

Primary (idiopathic - we may not know the cause)
- Familial – inherited
- Genetic defect – parts of the lymph system are absent or deformed
- Affects 1 in 6000 persons in U.S.
- Can occur at: birth (congenital), age 1 to 35 (praecox), > 35 (tardum)
What does lymphedema look like?
- Slow onset, progressive
- Pitting in the early stages
- Can start distally, proximally or somewhere in between
- Stemmer’s sign is positive
- Top of the foot “buffalo hump”
- Loss of ankle contour
- Asymmetric (if bilateral)
- Cellulitis can occur
- Rarely painful
- Discomfort is common

How does melanoma treatment affect the lymphatic system?
Usually from: Surgery – lymph node removal

What is the lymphedema incidence for melanoma patients?
Basically, unknown . . .

How is lymphedema treated?
“Complete Decongestive Treatment/Therapy”
1. Manual Lymph Drainage
   Light skin ‘stretches’ pull on anchor filaments
2. Compression Therapy
   Bandaging
   Compression Garments
3. Remedial Exercises
4. Meticulous Skin and Nail Care
5. Instructions in Self-Care

Goals of Treatment/Therapy:
- Utilize remaining lymph vessels and other lymphatic pathways to enhance lymphatic return
- Decongest swollen body parts
- Avoid the re-accumulation of lymph fluid.
- Prevent/eliminate infections.
- Maintain normal or near normal size of the limb.

How can we reduce our risk of lymphedema?
- avoid trauma/injury
- reduce infection risk
- exercise guidelines (slow, progressive)
- maintain optimal weight
- avoid constriction
- compression garments (especially for air travel)
- avoid temperature extremes
- early diagnosis and treatment

Website links:
- American Physical Therapy Association  http://www.apta.org
- National Cancer Institute  http://www.cancer.gov/cancertopics/pdq/supportivecare/lymphedema/Patient/page1

Resources:
- Földi’s Textbook of Lymphology for Physicians and Lymphedema Therapists, 2nd Edition December 2006
  Michael Földi, MD, DSc and Ethel Földi, MD
- Lymphedema Management: The Comprehensive Guide for Practitioners, 2005 Joachim E. Zuther
- Google images!