

**Method and materials:** Experiments were undertaken in edematous and non-edematous subjects in supine and sitting position at rest. A little bit of RISA solution (0.01 to 0.02 ml, lg/dl) was injected into the lymphatics at the back of the foot and radioactivity was recorded continuously for about 30 to 40 minutes at the inguinal region or at the middle of the thigh on the same side. The room temperature was 23° to 24°C.

**Results:**

1) Radioactivity curve at the inguinal region in supine position. In non-edematous subjects, the curve began to rise about one to several minutes after injection of RISA and increased in height stepwise with the period of about one minute. In edematous patients, the curve rose steeply without staircase.

2) Radioactivity curve at the middle of the thigh. In supine non-edematous subjects, the curve began to rise abruptly scores of seconds to several minutes after injection of RISA and after arriving the peak, fell gradually. Sharp, tall, spikes with the duration of 10 to 15 seconds were superimposed on the curve at the interval about one minute. In sitting non-edematous subjects and supine or sitting edematous patients, the spikes increased in frequency, duration and/or height.

3) Pressure curve of V. saphena magna fluctuated slightly, but there were no spikes, as seen in the radioactivity curve at thigh.

**Comment:** The periodic change in radioactivity at thigh or inguinal region may be due to rhythmic lymphflow or lymphstagnation, independent of respiration and arterial pulse.

**Summary:** Little bit of RISA solution was injected into the lymphatics of the foot and periodic change in radioactivity was observed at the thigh and inguinal region. This may be due to rhythmic contraction of lymphatics, which may play some role in preventing edema formation in human leg, especially in sitting position at rest.

OLSZEWSKI, W.; BOROWICZ, J.; OLEZEWSKA, K.; MACHOWSKI, Z.:  
MUSZYMSKI, M.; SAWICKI, Z. & NIELUBOWICZ, J.

**Histology and Electron Microscopy of Lymph Capillaries Vessels,  
and Nodes in Lymphedema**

The challenging problem of etiology of primary lymphedema remains unsolved. The present study was devoted to answer the following questions: a) is there any obstruction to lymph flow in primary lymphedema, and if so, is this at capillary or any other level, b) what are lymph collector and node changes in primary lymphedema, c) how to differentiate this changes with those observed in secondary lymphedema. Patients with limb lymphedema were classified according to the clinical and radiological appearances into: a) primary lymphedema/a-, hypo-, and hyperplastic/, b) obstructive lymphedema/after excision of lymph vessels and nodes. In primary lymph-

dema, a-, and hypo-plastic type no lymph capillaries could be found. There was increased deposition of protein and formation of collagen fibers. Search for postcapillary venules with lymphocytes traversing their wall, or any other sites of passage of lymphocytes from blood to tissue space gave negative results, despite of 20-150 cells-cu mm in peripheral lymph. Histology of lymph collectors revealed degenerative, sometimes semi-obstructive changes in vessels wall elements. Lymph nodes were depopulated of lymphoid cells, their medulla replaced by fat tissue. In hyperplastic lymphedema skin capillaries were largely open with some defects in interendothelial junctions due to elongation of capillaries. This most evidently differentiates that condition from primary a-, and hypo-plastic lymphedema. Lymph nodes were fibrotic, with connective tissue surrounding islands of lymphoid tissue. The electronmicroscopic picture observed in hyperplastic lymphedema did not differ much from that seen in obstructive lymphedemas. For differentiation of various types of lymphedema electron microscopic investigation seems to be indispensable. Differentiation upon radiological findings may be mistaken.

**BENINSON, J.**

Henry Ford Hospital (Detroit, Michigan — U.S.A.)

#### **Recurrent Acute Toxic Lymphangitis**

Over the past 18 years the author has seen 15 patients with essentially the same repetitive course of illness. Clinically, they all classically had the sudden onset of high fever and chills with or without the preceding malaise seen in acute lymphangitis; however, they did not present the peripheral signs of lymphangitis. In addition, almost 2/3's went on to delirium and about 1/3 became comatose. Usually all the symptoms preceded tenderness and swelling of the involved extremity by as much as 6 to 36 hours and rarely up to 72 hours. Two patients presented with gastric symptoms which led to one patient having 3 and another 2 complete gastrointestinal series which were negative. One patient had been treated for acute thrombophlebitis upwards of 40 times with subsequent venography showing completely normal veins. All of these patients responded dramatically to massive penicillin dosage and were controlled by penicillin prophylaxis plus pressure-gradient supports.

**MAYALL, J.C.; FERRETTI, U.R.; MEHRI, E.; ROJAS, J.A.; MACCA-  
CIEL, M.L. & ARRUDA, A.**

Rio de Janeiro — Brazil

#### **Lymphatic Lesions after Varicose Veins Surgery**

The AA. observed lymphedemas of the lower legs on the post op. of the patients operated by strippers with cutting edges and when the surgeon makes