



شبكة المعلومات الجامعية

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شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم



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بالرسالة صفحات

لم ترد بالأصل

B1.V.7

A Study for Detection of Axillary and Non-Axillary Sentinel Lymph

Nodes in Operable

Breast Carcinoma, using Patent Blue Dye.

Thesis

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To my family

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Introduction

Introduction

THE LYMPHATIC SYSTEM

General considerations:

Lymph is absorbed from the intestinal space into blind ending lymphatic capillaries. Lymphatic capillaries are 10 to 50 μm in diameter and consist of a single layer of endothelial cells with a discontinuous basement membrane ⁽¹⁾. Overlapping interendothelial junctions function as valves with openings that are 10 to 25 nm wide, permitting the entrance of small particles. Pinocytosis may be responsible for the vesicular transport of larger particles through the endothelium. Collagen filaments anchored to the surrounding connective tissue prevent the collapse of lymphatic capillaries.

The filling of lymphatic capillaries can be explained by the osmotic pressure gradient and by fluctuating intraluminal pressures caused by contractions and forward flow of lymph ^(1,2). Lymph formation, active contractions and external pressures generate lymph flow. Peristalsis in lymph vessels occurs at 10 to 15 contractions per minute by longitudinal and circular smooth muscle in the media. A transmural distending pressure of 2 to 4 cm H_2O is required for these contractions, which spread at a velocity of 4 to 5 mm / s. The flow is unidirectional because of the lymphatic valves sustained external pressure enhances it ⁽³⁾.

Lymphatic capillaries drain into collecting lymphatic vessels, which in turn drain into a lymph node. The afferent vessels drain into a marginal

sinus and subsequently into medullary sinuses between the germinal centers. These centers contain large numbers of phagocytic cells that can accumulate protein colloids, such as the radiolabeled tracers, but not vital dyes. The plexuses within the lymph node drains to the efferent lymphatic vessel, which joins the artery and vein in the hilum. Direct drainage of the marginal sinus into the efferent vessel also exists⁽⁴⁾.

There are two main types of relation between lymph vessels and lymph nodes. In the first type, the lymph node receives lymph from the afferent duct, filters it and then discharges it into the efferent channel. In the other type, the lymphatic vessel runs through the lymph node or over its surface without discharging its contents into that node⁽⁵⁾.

LYMPH DRAINAGE OF THE BREAST:

Axillary lymph node status in breast cancer patients remains the single most important predictor of outcomes⁽⁶⁾.

A wise concept was postulated in this respect as mentioned "Surgery of malignant disease is not the surgery of organs, it is the anatomy of the lymphatic system". So appreciation of the major nodal groups is essential to understand breast lymphatic drainage⁽⁷⁾.

The axillary lymph nodes:

The primary route of the lymphatic drainage of the breast is through the axillary lymph node groups. The boundaries of these groups of lymph nodes found in the axilla are not well demarcated. Thus, there have been

considerable variations in the names given to the lymph node groups;figure(1).

The most common terms used to identify the axillary lymph nodes groups are: the external mammary (Pectoral group), the scapular (posterior group), the central group, the axillary vein group (Lateral group), the subclavicular (apical group), and the interpectoral (Rotter's) groups ⁽⁷⁾.