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Lymphology 7 (1974) 157-160

Lymphographic Demonstration of the Inferior Epigastric Lymphatics: A Case Report

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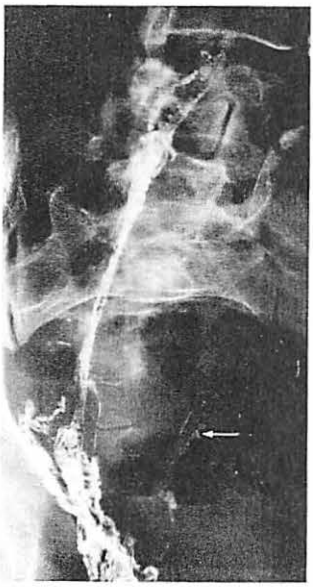
Summary

The inferior epigastric lymph nodes and vessels were demonstrated by foot lymphography in a patient without obstruction of the main iliac lymph flow. Histologic examination of the ipsilateral iliac lymph nodes showed normal findings. In patients scheduled for lymphadenectomy with control films taken during the operation, the inferior epigastric nodes may, unless recognized preoperatively, be mistaken for internal iliac nodes, with the result that the surgeon searches in vain for non-existent pelvic lymph nodes.

Exact knowledge of the normal anatomy and variations of the lymphatic system is a prerequisite when lymphography is used as an aid for surgeons during lymph node dissection, e.g. in radical operations for carcinoma of the uterine cervix.

The main peripheral lymphatic trunks lie along the branches of the arterial tree and in the pelvis the lymph nodes are named after the adjacent arteries.

The external iliac artery has two branches: the deep circumflex iliac artery and the inferior epigastric artery. The deep circumflex iliac artery originates behind the inguinal ligament and runs laterally and backwards along the iliac crest, anastomosing peripherally



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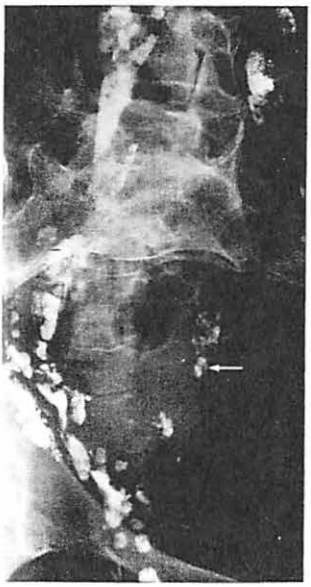

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Fig. 1. Lymphograms in right anterior oblique projection of the right iliac region showing inferior epigastric lymphatics. Radiograms in lateral projection confirmed the finding, but were not good enough for photographic reproduction.
a) Lymphangiogram showing the inferior epigastric lymph vessels (arrow).
b) Lymphadenogram showing the inferior epigastric lymph nodes (arrow).

with the iliac branch of the ilio-lumbar artery. The inferior epigastric artery originates slightly above the inguinal ligament and runs medially and upwards on the dorsal surface of the rectus abdominis muscle.

Lymph nodes and vessels along the deep circumflex iliac artery are illustrated in Mascagni's famous copper-plate engravings from the eighteenth century. *Poirier* (1) reported from 2 to 4 circumflex iliac nodes. They were, however, frequently absent. It is well known that the circumflex iliac nodes are occasionally demonstrated by foot lymphography. In lymphographic examinations of 200 patients with histologically confirmed normal lymph nodes, the circumflex iliac lymphatics were visible in 7 (3.5%) (2).

The inferior epigastric nodes were described by *Poirier* (1) who found 3 to 6 small nodes along the inferior third of the artery. Occasionally these nodes also were absent. *Waldeyer* (3) reported 2 to 3 nodes in this region.

Lymphographic demonstration of abdominal wall lymphatics has been reported in patients with lymphatic obstruction due to metastasis (4). However, lymphographic demonstration of the inferior epigastric nodes in patients without recognizable obstruction of the main pelvic lymphatics has, to our knowledge, not been reported.

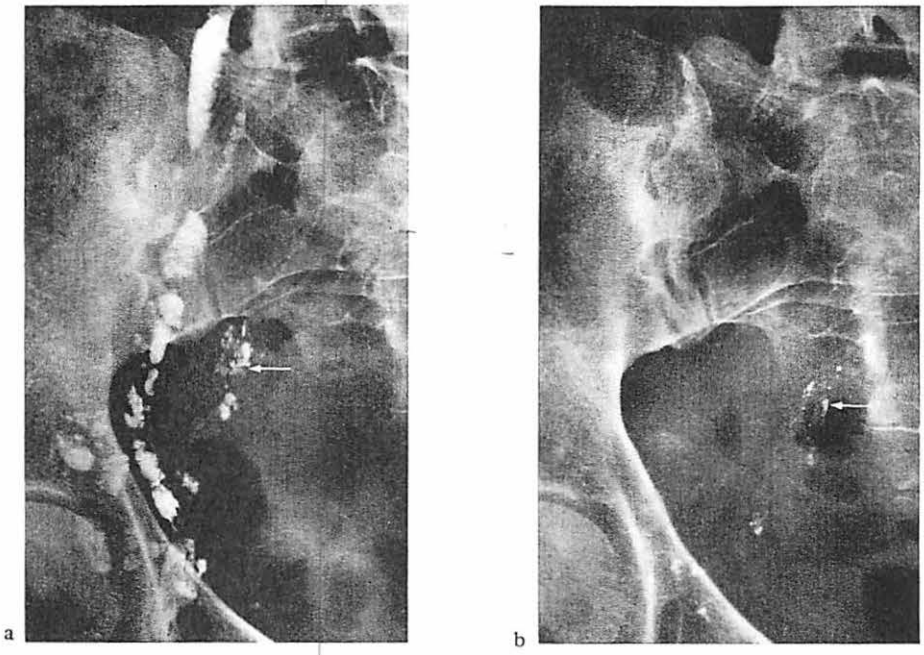

Fig. 2. Pre- and postoperative radiograms of the right pelvic region in antero-posterior projection.
a) Preoperative film. The inferior epigastric nodes (arrow) may erroneously be thought to be the internal iliac nodes.
b) Postoperative film. The inferior epigastric nodes are the only visible ones (arrow). They should not be mistaken for pelvic nodes remaining after operation.

Case History

A 35 year old 4-para was treated in 1970 by conization because of carcinoma in situ of the cervix. In April 1974 an exophytic, ulcerating, recurrent carcinoma of the cervix was diagnosed and treated by radium insertions, followed six weeks later by radical hysterectomy and pelvic lymph node dissection. Lymphography was performed prior to the radium insertions and a new series of radiograms taken preoperatively. The lymphographic examination showed no obstruction of the lymph flow and an unusual filling of lymphatics in the anterior abdominal wall along the path of the right inferior epigastric artery (Fig. 1). Radiograms taken during the operation showed a complete pelvic dissection with the lymph nodes in the anterior abdominal wall projected over the right half of the pelvis. Serial histological sections of the removed nodes showed no metastasis in the lymph nodes of the right side. A small focus of carcinoma cells was found in a node from the left iliac region.

Discussion

The position of the lymph nodes in the anterior abdominal wall along the path of the inferior epigastric blood vessels had been verified by screening with palpation of the anterior abdominal wall. These nodes were undoubtedly the inferior epigastric nodes described by *Poirier* (1) and *Waldeyer* (3).

No pathology was found by histologic examination of the right iliac lymph nodes. The small lymph node metastasis on the left side could, of course, not cause any changes in the contralateral lymph flow.

The possible lymphographic demonstration of the inferior epigastric lymph nodes is of importance in patients scheduled for pelvic lymphadenectomy under X-ray control. The radiograms available in the operating theatre are in antero-posterior projection only. The inferior epigastric nodes are projected over the small pelvis and may, unless recognized in advance, easily be mistaken for nodes left behind in the internal iliac region (Fig. 2), where complete dissection is particularly difficult (4, 5).

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Lymphology 7 (1974) 160-168

Distribution and Ultrastructure of the Initial Lymphatics of Some Skeletal Muscles in the Rat

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Summary

The distribution and ultrastructure of initial lymphatics capillaries were studied in m. spinotrapezius, m. gastrocnemius, and m. soleus of the rat. It was found out that the initial lymphatic network starts in the form of blind capillary processes in the area of stems of terminal venules. The lymphatic capillaries converge from these areas into larger perimysial spaces, where they fuse into a larger lymphatic capillary having 30-60 μm in diameter. This capillary runs along together with the blood vessels into the muscular hilus, where it divides into 2-3 branches, also of capillary character.

The ultrastructure of all followed parts of the lymphatic network was quite congruent with the general description of the structure of the lymphatic capillaries. Multiple mast cells were detected in the close neighbourhood of the terminal venules and lymphatic capillaries, and so their possible influence on the dynamics of the contacts of endothelial cells of the lymphatic capillaries is discussed in connection with the regulation of the lymph production in the skeletal muscle.