

# Current Status of Lymphography

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## Summary

Lymphography is a simple, accurate, informative technique with a minimum amount of complications and is of value in the assessment of patients with Hodgkin's disease.

The indications for foot lymphography in Hodgkin's disease are (a) diagnosis of the disease clinically suspected but not confirmed; (b) staging of confirmed and clinically localized Hodgkin's disease; and (c) its treatment.

## Radiotherapy

For the radiotherapist, the outline of involved nodes assists in determining the treatment areas. Follow-up studies of the pelvis, abdomen, and chest permit an appraisal of response to treatment and of possible recurrences (9).

## Intralymphatic Chemo- and/or Isotope Therapy

Therapeutic lymphography may assist in the treatment of some patients with Hodgkin's disease.

## Follow-ups

Reevaluation of groups of nodes may show evidence of stability or progression of the disease (5).

**Adenographic Patterns.** Characteristic findings in Hodgkin's disease are the lacunar pattern (macro or microlacunar defects) which are seen as punched out, rounded, small, or large filling defects in the nodes (2, 7, 8). Minimal distortion of nodal architecture and normal or minimally disturbed contour of the nodes are frequently found. Pelvic and periaortic node involvement by Hodgkin's disease may occur histologically despite the normality of the adenographic pattern by lymphography. In some types of Hodgkin's disease with diffuse fibrosis, the lymph node architecture may not be recognized because of total replacement of the lymph nodes. Nonspecific enlargement of otherwise normal-looking lymph nodes, as well as coarse reticular pattern, may occasionally be observed. Increased numbers of nodes are often seen in infants and children.

There are no adenographic patterns pathognomonic of Hodgkin's disease (7). Total replacement of nodal architecture can be seen with diffuse metastatic disease, after retroperitoneal adenectomy, and in patients with retroperitoneal fibrosis. The coarse reticular pattern may be observed in other types of lymphomas, in some metastatic

nodes, and in patients with fungus disease, sarcoidosis, dermatopathic lymphopathy, rheumatoid arthritis, histiocytosis, and Waldenstrom macroglobulinemia. The nonspecific lymph node enlargement without filling defects may be observed with specific and nonspecific adenitis. Small, punched out, filling defects can also be seen with the replacement of nodal parenchyma (such as by fibrosis), in incompletely filled nodes, and postirradiation. False-positive examination may be seen in patients affected by concurrent or previous processes involving lymph nodes, such as infectious mononucleosis, and tuberculosis. In patients with lymphoma, lymphography may reveal involvement of supraclavicular (usually left) or inguinal nodes which should guide the surgeon as to the site for biopsy.

Stages I and II of the disease may prove to be extensive (Stage III) after lymphography. The incidence of retroperitoneal node involvement has been stated to be from 0 to 36% in Stage I, and from 14 to 51% in Stage II (1). Some authors believe that Stage IB does not exist. Symptomatic Hodgkin's disease often demonstrates retroperitoneal node involvement by lymphography.

The accuracy of lymphography for the identification of pelvic and periaortic node involvement is greater than i.v. urography and inferior cavography (4). Evaluation of the pelvic and periaortic chains of nodes is accomplished best by the combined use of these 3 techniques. When removal of radiographically involved nodes is attempted, the surgeon is guided to the possible area of involvement by the lymphogram. Intraoperative radiography will confirm if appropriate nodes or groups of nodes have been removed (3, 6).

During a collaborative study of Hodgkin's disease, we reviewed initial staging lymphograms of 273 patients. Following enrollment in this study, abdominal films were submitted at intervals until the contrast medium cleared, and 734 such follow-up studies were evaluated. Interpretation of initial staging lymphograms (24- or 48-hr roentgenograms) showed concurrence with the local radiologists in the case of 130 negative reports and 10 positive reports. There were 11 discordant reports; of these, in 3 patients we interpreted the study as positive, and the local radiologist interpreted it as negative. In 8 patients, we interpreted the study as negative, and the local radiologist identified it as positive.

It has not been the purpose of this collaborative study to evaluate the accuracy of lymphography, and information that would be necessary for such an evaluation has not been collected at the coordinating center of the study. However, a number of instances of probable or definite errors in the identification of intraabdominal disease have come to our

attention. This study is concerned only with localized (Stages I and II) Hodgkin's disease, and no details are submitted regarding the staging of patients who are considered to be of Stage III. Seven patients who were initially thought to be of Stage III on the basis of a lymphogram have undergone exploratory laparotomy and have been found to be free of intraabdominal disease. Five of these 7 laparotomies were accepted as adequate, while 2 were questionable because postoperative studies did not satisfactorily demonstrate biopsies of suspicious nodes. In 5 other instances, the clinical course has been benign at intervals of 4 to 17 months following positive lymphography. The natural history of Hodgkin's disease is such that intraabdominal nodal disease may well be asymptomatic for 4 months, but it becomes increasingly unlikely that such disease is present when a patient remains well for as long as 17 months.

Patients with errors of the opposite sort on lymphography are not reported in this study. These patients would have negative lymphogram interpretations but at laparotomy would be found to have intraabdominal nodal disease. Since intraabdominal disease would, in most instances, cause a patient to be classified as Stage III, he would not be reported. Therefore, we have no information on false-negative lymphograms that may have been seen in local centers of this study.

**Follow-ups.** Persistent opacification of nodes indicate probable abnormal microcirculation. We have observed this in some patients with Hodgkin's disease. The oily medium has persisted in diseased lymph nodes for as long as 2 and 3 years postinjection. Radiotherapy may contribute to the slow disappearance of the oily medium from the nodes, contrary to acute adenitis where hyperemia seems to cause rapid

deopacification of the nodes. We have seen the most prolonged opacification of nodes in lymphomas.

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