

This Week's Citation Classic®

Glatstein E, Guernsey J M, Rosenberg S A & Kaplan H S. The value of laparotomy and splenectomy in the staging of Hodgkin's disease. *Cancer* 24:709-18, 1969.
(Depts. Radiology, Surgery, and Medicine, Stanford Univ. Sch. Medicine, CA)

This paper reviews the experience with 65 selected patients with biopsy-proven Hodgkin's disease subjected to laparotomy, splenectomy, liver biopsy, and para-aortic lymph-node biopsy. The most important finding was that the spleen was identified as being the most common site of an occult involvement in this disease. Liver involvement was not seen in the absence of splenic involvement. It was concluded that laparotomy with splenectomy was a valuable procedure for accurate staging of intra-abdominal sites of involvement in Hodgkin's disease prior to the institution of radiation therapy with curative intent. [The SCI® indicates that this paper has been cited in over 375 publications since 1969.]

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July 24, 1985

Early in my residency in radiation therapy, a number of events occurred that culminated in the writing of this paper. The recognition that higher doses of radiation could control masses of Hodgkin's disease with high probability had led to a strong desire to achieve accurate staging so that all known sites of Hodgkin's disease would be identified, treated, and hopefully cured.

In 1967, Herbert Abrams, who had been reading most of the lymphangiograms that then constituted the radiologic evaluation of subdiaphragmatic staging, left to go to Harvard. At the same time, the late Henry S. Kaplan, then chief of radiology and the principal investigator of the Hodgkin's studies, went on a six-month sabbatical. Thus, the remaining Stanford radiologists at that time were inexperienced at interpreting lymphangiograms throughout that six-month period. A disproportionate number were interpreted as "worrisome" or

"suspicious," complicating both interpretation of stage and decision on appropriate protocol for treatment.

During this time, a standard policy had evolved that, if a patient went to diagnostic laparotomy because of an equivocal lymphangiogram, not only would the appropriate para-aortic nodes be biopsied, but a splenectomy would also be performed. During this period of time, I observed several patients who went to surgery ostensibly for "suspicious" lymphangiograms that proved to be negative. Often, unsuspected splenic involvement was detected by the coincidental splenectomy. Thus began a retrospective review of patients with Hodgkin's disease who had undergone laparotomy with splenectomy to determine the frequency of splenic involvement. An underlying hypothesis was that, if systemic symptoms were present, then subdiaphragmatic involvement could be anticipated. There were so many exceptions to this hypothesis that it was ultimately rejected.

When Kaplan returned from his sabbatical, he and his colleague, Saul A. Rosenberg of the Medical Oncology Department, reviewed the findings and promptly recognized that subdiaphragmatic staging was poorer than had been thought. They initiated a study in which all patients were explored to confirm the findings of this retrospective study to assist in determining appropriate radiation portals for each patient. The first two patients on this investigational staging protocol were both thought to have only supradiaphragmatic involvement. Laparotomy revealed occult splenic involvement in both patients. Thus, surgical staging procedures quickly became standard for many patients with Hodgkin's disease.

This paper is important for two major reasons. First, it expanded our knowledge of the patterns of disease and emphasized the limitations of any clinical evaluation. The recognition of the spleen as the most common site of occult intra-abdominal Hodgkin's disease and its importance as a predictor of ultimate hepatic extension added to our understanding of the natural history of Hodgkin's disease. Secondly, it distinguished between clinical and pathologic staging (the basis of the present Ann Arbor staging classification for Hodgkin's disease), a distinction that is relevant to the staging of most neoplasms. For current reviews on staging laparotomy and splenectomy for Hodgkin's disease, see references 1 and 2.

1. Kinsella T J & Glatstein E. Staging laparotomy and splenectomy for Hodgkin's disease: current status. *Cancer Invest.* 1:87-91, 1983.
2. Kaplan H S. *Hodgkin's disease*. Cambridge, MA: Harvard University Press, 1980. 689 p.