

Lymphography in Surgically Unresectable Adenocarcinoma of the Exocrine Pancreas

N. Reed Dunnick, M. D.*, Klara Horvath, M. D.*, Gordon L. Head, M. D.*, Richard A. Bender, M. D.**

* Diagnostic Radiology Department, The Clinical Center, National Institutes of Health, Bethesda, Maryland 20014

** Medicine Branch, National Cancer Institute, Bethesda, Maryland 20014

Summary

Bipedal lymphograms were performed on 28 consecutive previously untreated patients with biopsy proven and surgically unresectable carcinoma of the pancreas. Four of these patients had findings indicating lymph node metastases. In three of these 4 patients, the lymphogram provided the only evidence of metastatic disease. The information provided by bipedal lymphography may be useful in treatment planning.

Clinical Material and Methods

All patients admitted to the National Cancer Institute between December, 1975 and December, 1977 with biopsy proven and surgically unresectable (Hermreck stages II and III) adenocarcinoma of the pancreas are included (2). They were previously untreated and had a bipedal lymphogram as part of their routine pre-treatment evaluation. Additional studies included abdominal ultrasound, computed tomography, hypotonic duodenography, metastatic bone series, and radioisotopic liver-spleen scans. There were 18 males and ten females who ranged in age from 41 to 64 years with a median age of 58 years. All studies were performed in the Department of Radiology at the Clinical Center, National Institutes of Health. The lymphograms were independently reviewed by three radiologists (NRD, KH and GLH) and when the interpretation differed from that originally rendered, the interpretation of the reviewing radiologists was used.

Both two hour channel films as well as twenty-four hour films were examined. The presence of large filling defects within opacified para-aortic lymph nodes which were not traversed by lymphatic channels were regarded as

evidence of metastatic tumor involvement. Gross distortion of lymph node architecture and displacement of opacified lymph nodes were also felt to indicate tumor involvement. Total obstruction of lymphatic flow which prevented opacification of para-aortic lymph nodes was presumably due to lymph node replacement by tumor and thus regarded as evidence of tumor. Small filling defects (less than 3 millimeters) were not felt to be specific enough to indicate metastatic tumor. Since enlarged lymph nodes with a normal internal architecture may be produced by pancreatitis, this finding was not interpreted as being positive for tumor (3). Incomplete filling of high paraaortic lymph nodes was a frequent problem in interpretation. However, since this is commonly seen on normal lymphograms, it was not used as a diagnostic criteria.

Results

Four of these 28 patients had abnormal lymphograms which we felt indicated involvement by metastatic carcinoma of the pancreas. In each case the most striking abnormalities involved the para-aortic and paracaval lymph nodes. The opacified lymph nodes were enlarged with a bizarre internal architecture (Figure 1). In no case was a filling defect traversed by a lymphatic channel. In one case complete obstruction of the lymphatic channels prevented filling of the para-aortic lymph nodes (Figure 2).

There was no correlation between a positive lymphogram and site of the pancreatic tumor. Two patients had tumor in the head, one in the head and body, and one in the tail of the pancreas. Only one of the four patients with



Fig. 1a

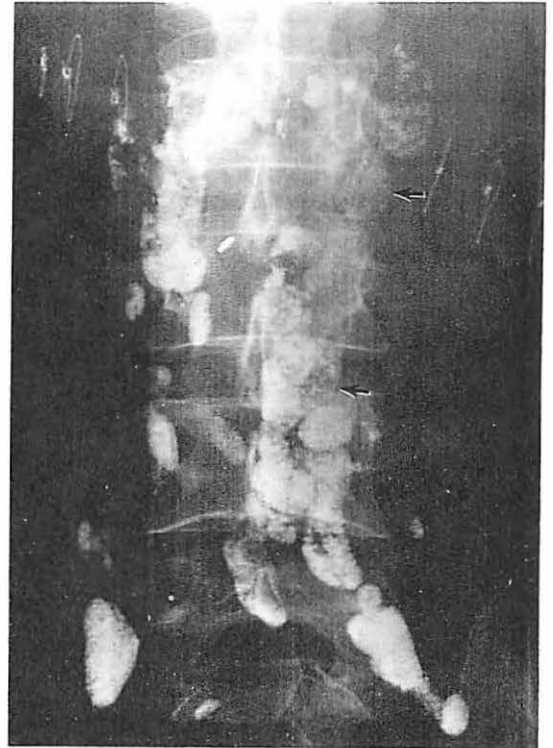


Fig. 1b

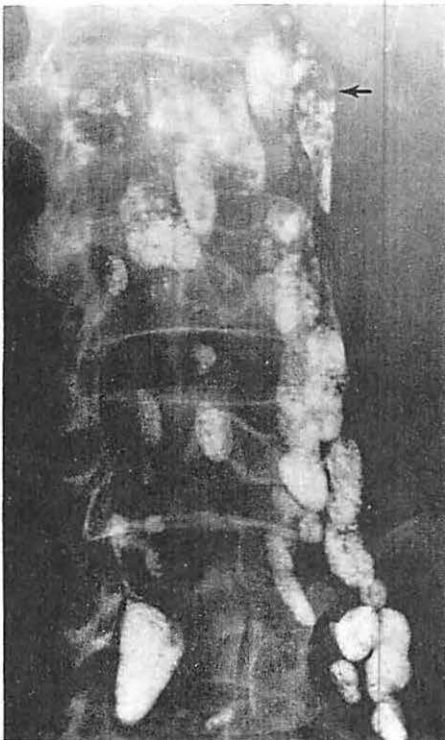


Fig. 1c

Fig. 1a-c 60 year of male with unresectable carcinoma of the tail of the pancreas. Lymphogram in (A) RPO (B) AP and (C) LPO projections demonstrate several paraaortic and paracaval lymph nodes which are mildly enlarged and have complete distortion of the internal architecture. Large filling defects can be seen in several lymph nodes (arrows).

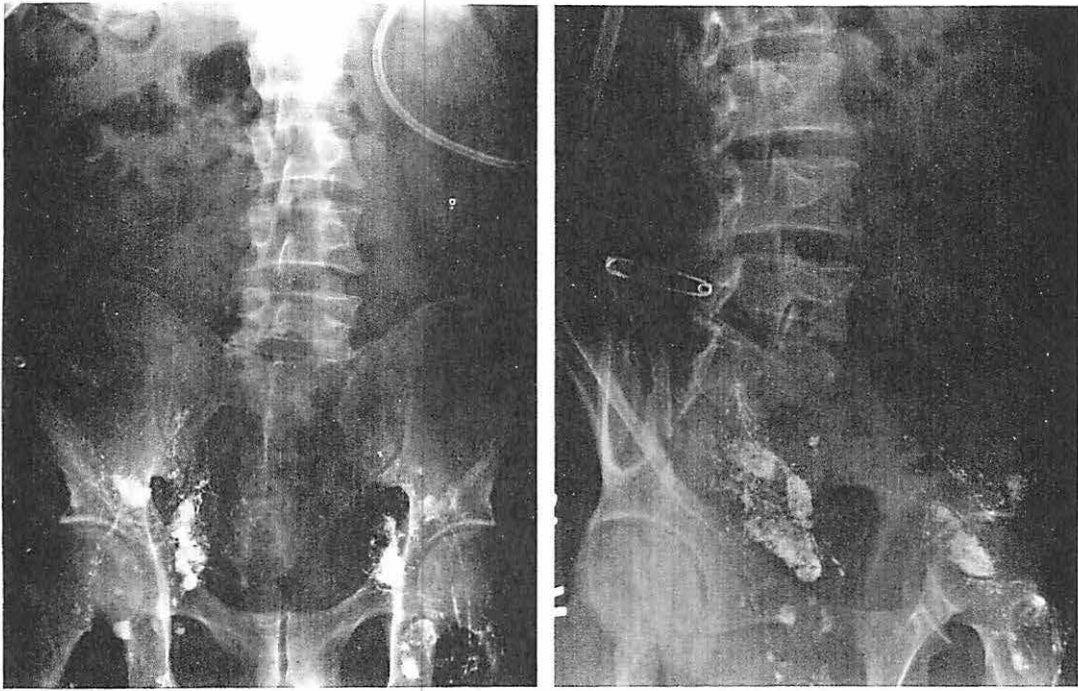


Fig. 2 56 year old male with unresectable carcinoma in the head of the pancreas. The lymphogram in (A) AP and (B) LPO projections reveals complete obstruction of the lymphatic channels at the level of the sacrum. Films taken as late as 168 hours showed no change in the lymphatic obstruction and persistent channels.

an abnormal lymphogram had evidence of hepatic metastases as determined by percutaneous liver biopsy. Two other patients with positive liver biopsies had normal lymphograms. No other pretreatment staging study indicated metastatic spread of tumor. Thus, with the exception of one patient with hepatic involvement, the lymphogram provided unique data in three patients.

Discussion

The increased sophistication in the diagnostic modalities used to examine the pancreas has, thus far, not resulted in a significant improvement in the survival of patients with carcinoma of the pancreas. This is presumably because patients do not become symptomatic until the tumor is quite large and, hence, are not subjected to diagnostic evaluation until late in their course (1). Similarly attempts at staging these patients have been disappointing. The peripancreatic region is difficult to assess

pre-operatively and the usual routes of lymphatic drainage do not avail themselves to adequate radiographic evaluation. An abnormal lymphogram with a radiographic pattern suggesting involvement by metastatic carcinoma provides evidence of local metastases which may be useful in treatment planning.

The lymphographic appearance of metastases have been illustrated previously by *Dodd* (3) and *de Roo* and *Ruttiman* (4). Although we do not have histologic confirmation in our cases the radiographic appearance is consistent with these earlier reports and with the appearance of lymph node metastases from other solid tumors.

As operative procedures for carcinoma of the pancreas are frequently attempted with curative intent, the demonstration of tumor within paraaortic lymph nodes would certainly alter the surgical procedure if not restrain the surgeon from attempting curative surgery (5). Similarly a precise definition of the

extent of tumor involvement is necessary if radiation therapy is to be employed in the treatment program. Although bipedal lymphography is usually unrewarding in these patients, the demonstration of tumor in approximately 14% does add additional information which is useful in planning radiation treatment ports. In either case and particularly where chemotherapy is a primary treatment modality, the opacified para-aortic lymph nodes may be helpful in the follow-up evaluation of these patients, to be used as indicators of tumor progression or regression as in the case of the malignant lymphomas. Thus, in patients with no known metastases in whom a curative resection is being considered or in whom radiotherapy is planned, lymphography may prove useful to the clinician.

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N. Reed Dunnick, M. D., Diagnostic Radiology Department, NIH, The Clinical Center, Bld 10, Rm 6S211, Bethesda, Maryland 20014