

## Lymphographical Findings in Disseminated Tuberculosis without Radiological Lung Manifestations

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### Summary

Lymphographical findings are presented in three patients with verified tuberculosis. The diagnosis of tuberculosis was difficult in these patients because there were no actual changes in chest radiographs and the clinical findings were generally nonspecific. In each patient, lymphographic changes in lumbar lymph nodes were established. These changes corresponded to those described in the literature in connection with tuberculosis. Thus, the lymphographical findings can here be considered to be a further criterion for the diagnosis of tuberculosis. Lymphographical follow-up also proved beneficial in the follow-up of treatment results in one patient. Suspected tuberculosis, in which local findings cannot be made available by other means, can be regarded as one of the indications for a lymphography.

The literature contains some descriptions of lymphographical changes caused by tuberculosis (1, 3, 9, 10, 11). In general, tuberculosis of other than retroperitoneal lymph nodes, tuberculosis of the intestines, pulmonary tuberculosis or genitourinary tuberculosis were also found in the patients described. *Barta* (2) has described three cases with no findings of manifestations of tuberculosis other than pathological retroperitoneal lymph nodes verified in a lymphography. *Rauste's* (9) series also had three patients whose tuberculosis was localized in retroperitoneal lymph nodes. In this paper, lymphographical findings are presented in three patients all of whom had persisting general symptoms of tuberculosis without clear clinically evident local findings. Their chest X-rays did not reveal any signs of an active pathological process. After a lymphography, histological confirmation of the diagnosis of tuberculosis was obtained in all patients. Moreover, in two of these patients, bacteriological confirmation was obtained.

### Case Reports

*Case 1.* A previously healthy male of 66 years was admitted because of a dry cough and fever lasting three weeks. The liver was slightly enlarged. A chest radiogram revealed abundant bilateral pleural and pleuro-pericardial adhesions, but a radiogram taken 1.5 years before had shown the same lesions. The SR was 90, the blood picture showed a slight normochromic anaemia and a small "shift to the left" in the white cells. Tuberculin reaction with PPD 1 TU=, and with 10 TU 12 x 11 mm. A renography and urography were normal.

During his stay in the hospital, the patient was first treated for 13 days with various antibiotics without any effect on his persisting fever. Then antituberculous treatment with EMB and INH was started ex juvantibus and the patient's fever began to fall. A liver biopsy was made and the histological finding was tuberculous hepatitis. Later on, a positive result from the Löwenstein culture of sputum was received: *Mycobacterium tuberculosis* human strain was identified and the diagnosis of tuberculosis was thus finally confirmed.

*Case 2.* A 27 year old man. During his student years he lived in an apartment with a man who had pulmonary tuberculosis. For a year before his admission to the hospital the patient suffered from weight loss, fatigue, occasional fever and non-specific pains in the stomach. A physical examination revealed a slightly enlarged spleen. Hypochromic anaemia and a "shift to the left" in white blood cells were seen. SR 58, ASAT 60, ALAT 125, AFOS 656 IU/L. The chest radiograph was normal. Tb smears and sputum cultures were negative. Tuberculin reaction with

Table 1 Lymphographical findings. Localization, size and storage pattern of pathological lymph nodes.

Case No.	Localization	Size	Storage pattern	Granulation	Defects
1.	left lumbar	slightly enlarged	regular	slightly coarse	small
2.	left lumbar	slightly enlarged	regular	slightly coarse	non
3.	lumbar	markedly enlarged	irregular	coarse	extensive with blurred borders

PPD 0,1 TU=- and with 1 TU= "slightly positive" (No exact diameters were given). A splenoportography revealed a compression from outside near the liver hilus in the portal veins. An X-ray examination of the stomach and a biligraphy also showed signs of outside compression.

A thoracolaparotomy revealed a great many enlarged lymph nodes near the portal vein. One of these nodes compressed the neck of the gall bladder. A needle aspiration was performed on the biggest lymph node and an acid-fast rod was seen in the specimen. The histological finding of the lymph node was necrotic granulomatous inflammation.

Antituberculous treatment with SM, INH and PAS was started after the operation. The SR values normalized, as did the condition of the patient.

*Case 3.* A 40 year old man. For four months before admission, the patient suffered from weight loss, fatigue and fever. A physical examination revealed an enlarged spleen. Anaemia and marked leucopenia with a "shift to the left" in white blood cells were seen. The SR was 118. The chest radiograph was normal. After bone marrow aspiration and a lymphography, a lymphoma was suspected and a splenectomy performed. In the operation the whole small intestine was found to be infected. The histological finding of the spleen was necrotic granulomatous inflammation. Mycobacterium tuberculosis human strain was identified in the tb culture made from the spleen. After the operation, a right-sided pleuritis developed. SM, INH and RM were started, the fever began to fall, and the patient's general condition improved.

#### Lymphographical findings (Table 1)

The lymphographies were performed before the biopsies. In all subjects only the lumbar lymph nodes were affected. In two patients these nodes were only slightly enlarged, in one these had small defects (Fig. 1). In one patient (case 3) these nodes were greatly enlarged, with an irregular storage pattern. There were both extensive defects with blurred borders and, in places, also an obliteration of the marginal sinus (Fig. 2). Furthermore, extensive conglomerations of contrast medium droplets with blurred borders were seen in the middle of the lymph node.

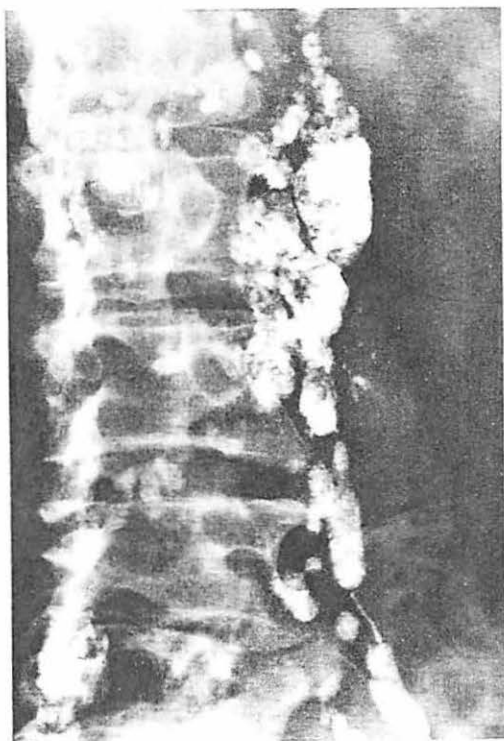


Fig. 1 Lymphographical finding in patient 1. Lumbar lymph nodes are slightly enlarged and have small defects.



Fig. 2 In one patient, markedly enlarged lumbar lymph nodes with an irregular storage pattern were found. The lymphographical finding in patient 3 shown here is considered primarily to indicate Hodgkin's disease. Surgery revealed an enlarged spleen: the histological finding corresponded to granulomatous infection. The clinical picture was similar to that of tuberculosis; antituberculous therapy gave a good response.



Fig. 3 Lymphographical finding in patient 3 (same patient as in Fig. 2) after 3 months of antituberculous therapy. Clear diminution of pathological lymph nodes is established.

A lymphographic control picture was taken of patient number three after antituberculous therapy, and a diminution of the lymph nodes was established (Fig. 3).

#### *Discussion*

A retroperitoneal lymphography is the only means by which the retroperitoneal group of lymph nodes can be studied without surgical intervention. The indications for a lymphography have been a search for metastases of the retroperitoneal lymph nodes and the establishment of the spread of lymphomas. Lymphographical changes have also been found in non-neoplastic diseases (9). However, in the diagnostics of these diseases, a lymphography cannot be considered to be of any great benefit. Because a lymphography is additionally associated with a certain risk of complications (5, 7), these diseases cannot generally be considered indications for this procedure. Nevertheless, in this paper, an exception is presented in which the use of a lymphography can be considered to be useful in the diagnosis of other than neoplastic diseases. Tuberculosis may

occur in a form in which a diagnosis is rendered difficult by the absence of local findings and the non-specificity of the clinical picture and laboratory findings. In these cases, lymphographical changes, described in connection with tuberculosis, may make an important contribution to diagnostic criteria.

A common feature of all these three cases was persistent unexplained fever and fatigue. In addition, the chest radiograph lacked any actual changes in all cases. Cases 2 and 3 suffered from disseminated tuberculosis, and the symptoms of case 1 were also typical of disseminated tuberculosis (8) although he lacked other demonstrable organ manifestations of the disease.

One of the patients presented in this paper (case 2) had only slightly enlarged lymph nodes, quite a non-specific finding and one found in many diseases other than tuberculosis. Case 1 had slightly enlarged lymph nodes with small defects, a condition which has been presented as the most common lymphographical change in tuberculosis (9, 10). Case 3 had markedly enlarged lymph nodes with an irregular storage pattern and extensive defects, which are characteristic of lymphomas, especially of Hodgkin's disease, but have been described in connection with tuberculosis, too (4, 6, 10).

An additional typical characteristic finding in all of these patients was the localisation of pathological lymph nodes; only the lumbar nodes were affected.

Because the retroperitoneal lymph nodes were the only clinically demonstrable localisation of a tuberculous process in the present patients, it is important to follow-up the effect of anti-tuberculous therapy on these nodes. In one of the patients of whom lymphographical control pictures were taken after therapy, a clear diminution of pathological nodes was, in fact, established.

#### References

- 1 *Albrecht, A., V. Taenzer, H. Nickling*: Lymphographische Befunde bei Sarkoidose und Lymphknotentuberkulose. *Fortschr. Röntgenstr.* 106 (1967) 178
- 2 *Barta, I.*: Differential diagnosis of acute generalized lymphadenopathy and chronic abdominal lymph-node disease. *Acta med. Acad. Sci. hung.* 24 (1967) 3
- 3 *Betoulières, P., J.L. Lamarque, J.F. Ginestie, C. Gombes*: Etude des aspects lymphographiques de la tuberculose ganglionnaire. *J. Radiol. Electrol.* 49 (1968) 1
- 4 *Bussat, L., J.-M. Bebox, J. Petite, P. Wettstein*: Lymphography in a patient with nonreactive tuberculosis. *Amer. J. Roentgenol.* 98 (1966) 436
- 5 *Fischer, H.W.*: Lymphography in cancer. Springer Verlag, Berlin 1969
- 6 *Johnson, J.C., J.D. Dunbar, A.L. Klainer*: The "pseudotumor" of retroperitoneal tuberculous lymphadenitis. *Amer. J. Roentgenol.* 11 (1971) 554
- 7 *Koehler, P.R.*: Complications of lymphography. *Lymphology* 1 (1968) 116
- 8 *Proudfoot, A.T., A.J. Akhtar, A.C. Douglas, N.W. Horne*: Miliary tuberculosis in adults. *Brit. med. J.* 2 (1969) 273
- 9 *Rauste, J.*: Lymphographic findings in granulomatous inflammations and connective tissue diseases; differential diagnosis between these diseases and lymphomas. *Acta radiol.* (1972) Suppl. No. 317
- 10 *Suramo, I.*: Lymphography in tuberculosis. *Acta radiol.* (1974) Suppl. No. 339
- 11 *Viamonte, M. Jr., D. Altman, R. Parks, E. Blum, M. Bevilacqua, L. Recher*: Radiographic-pathologic correlation in the interpretation of lymphoangiograms. 80 (1963) 903

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