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Lymphography in Mediastinal Lymph Node Hyperplasia
– Report of Two Cases –

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Summary

In two cases of mediastinal lymph node hyperplasia lymphography was performed in an attempt to evaluate the retroperitoneal lymphatic system. Since the lymphograms show the non-specific pattern of lymphoid hyperplasia, they do not allow a differential diagnosis, but suggest that the disease is more general than hitherto suspected.

Mediastinal lymph node hyperplasia has been regarded as a benign tumor-like mass of unknown etiology, which histologically and radiologically resembles thymoma. Since *Castleman* (1, 2) first described this rare and specific entity in 1954, only about 50 cases have been reported in the literature, eight of them in our country (3, 4, 5).

Clinically the mass was discovered as an incidental finding on routine chest roentenograms of healthy persons, resulting in a problem of differential diagnosis. Furthermore, preoperative diagnostic procedures failed to distinguish among the different possibilities. Because of its gradual enlargement and the potential of it being a malignant tumor, thoracotomy is usually performed and the lesion removed. The histopathologic diagnosis can only then be made. No postoperative recurrences or disseminations of the disease have been reported. Follow-up examinations of as long as eight years have been published (3, 6).

Etiology and pathogenesis of this disease have not been established, but *Castleman* and his co-workers considered this to be a chronic non-specific inflammatory process (2). In contrast, *Lattes and Pachter* (11) felt that the lesion represented developmental or growth disturbance of lymphoid tissue (hamartoma).

Lymphographic findings in this disease have not as yet been described. This prompted us to report these two cases.

Report of Cases

Case 1. A 15-year-old girl was admitted because a routine roentgenogram of her chest revealed a mediastinal mass (Fig. 1). The physical and laboratory findings were within normal limits.

Roentgenologic examinations revealed that the mass was localized at the right paratracheal region, measuring about 5 cm in diameter. It appeared definitely dissociated from both pulmonary and systemic vessels and showed no invasive features. The scintiphotogram showed no functioning thyroid tissue in the mediastinum. A clinical diagnosis of benign mediastinal tumor was made.

At thoracotomy, the tumor was well circumscribed and superiorly bordered on the right subclavian vein and inferiorly on the right pulmonary artery, with loose adhesion to the pleura, superior vena cava, trachea and esophagus. No other masses or enlarged lymph nodes were found. The tumor was removed and was confirmed to be mediastinal lymph node hyperplasia.

Lymphography was performed one month postoperatively. This revealed mild dilatations and tortuosities of all lymphatics, but no signs of obstruction (Fig. 2). The lymph nodes were moderately increased in number and size and showed a coarse, partially lacunar pattern of filling and the margins were rather well defined (Fig. 3). The findings were similar to those seen in lymphoid hyperplasia, inflammatory changes or lymphomas in the early stages.

The patient was discharged in good condition. Follow-up examinations of the patient for two years have shown no evidence of recurrence of the tumor.

Case II. A 30-year-old housewife was admitted for further evaluation of an abnormal hilar shadow on her chest X-ray (Fig. 4). Physical and laboratory test were noncontributory. Roentgenologic examinations revealed that the mass was localized at the left hilum and appeared definitely dissociated from the great vessels and bronchi showing no invasive appearance in regard to the neighboring structures. After ^{67}Ga-citrate injection no accumulation of radioactivity corresponding to the lesion was seen.

Lymphography one month prior to operation revealed dilatation and tortuosity of the common iliac vessels (Fig. 5). The thoracic duct was impressed by the lesion showing a narrowing of caliber with smooth margin. No accumulation of the contrast agent within the lesion could be seen even 48 hours after the examination. On the lymphadenogram there were mild enlargements, especially of the paraaortic areas. A coarse, partially lacy pattern of filling was found and the margins were well defined resembling the picture of lymphoid hyperplasia, inflammatory changes or lymphomas (Fig. 6).

At thoracotomy, the tumor measured 5 cm in diameter. It was located between the aortic arch and the left pulmonary artery and was well circumscribed, with no remarkable adhesion. Histologically, it was confirmed to be mediastinal lymph node hyperplasia.

The patient was discharged in good condition. No recurrences of the tumor have been observed by follow-up examinations for two years.

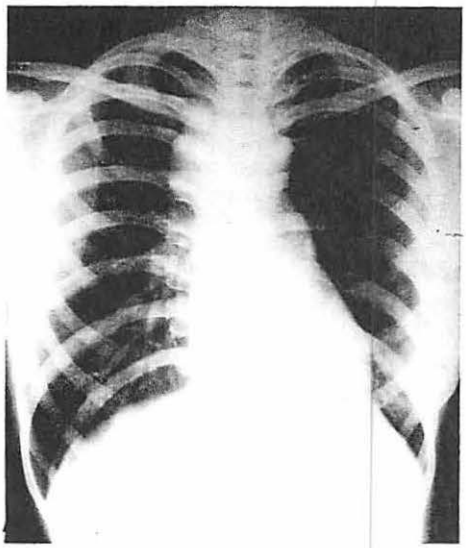

Fig. 1. Plain chest roentgenogram (Case I). There is a rounded, sharply-defined area of increased density in the right paratracheal region.

Fig. 2. Close-up view of the lymphogram at the level of L_3-L_5 (Case I). Throughout the lymph channels there are slight dilatations and tortuosities, more in the paraaortic region, but no obstructive finding.

Fig. 3. Close-up view of the lymphogram at the level of L_3-L_5 Case I). Lymph nodes are moderately enlarged with a coarse, partially a lacunar pattern of filling. The margins are rather well defined.

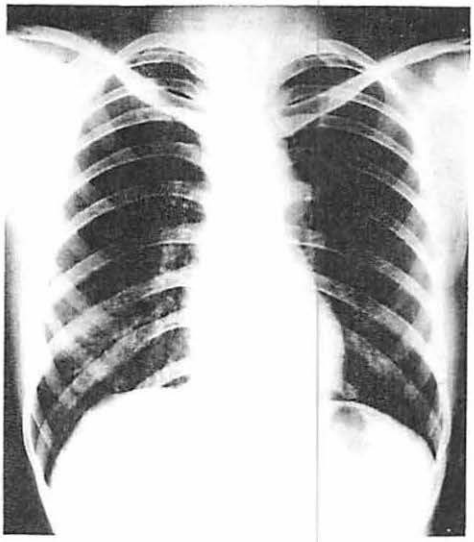

Fig. 4. Plain chest roentgenogram (Case II). There is a rounded, sharply-defined area of increased density just above the left hilum overlapping the aortic arch.

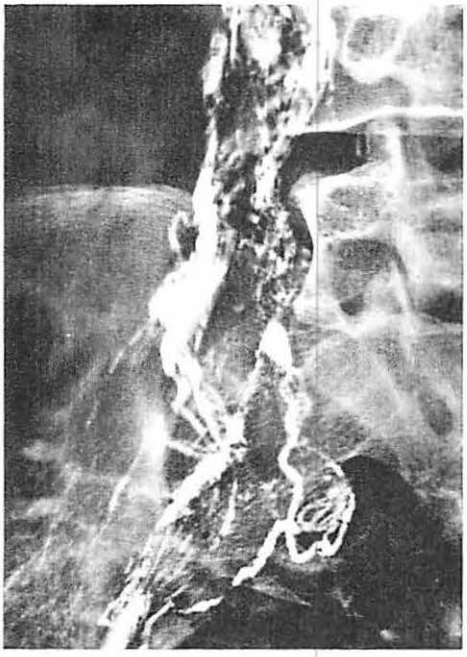

Fig. 5. Close-up view of the lymphogram at the level of L_4-L_5 (Case II). Lymph channels show mild dilatations and tortuosities, but no obstructive findings.

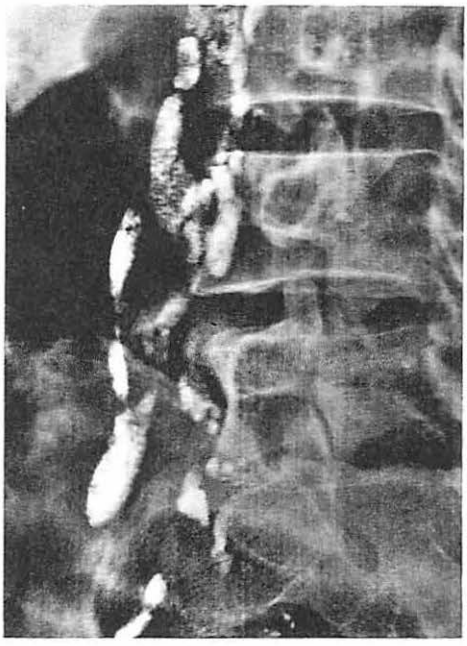

Fig. 6. Close-up view of the lymphogram at the level of L_4-L_5 (Case II). Lymph nodes are varied in size with a coarse, partially a lacy pattern of filling.

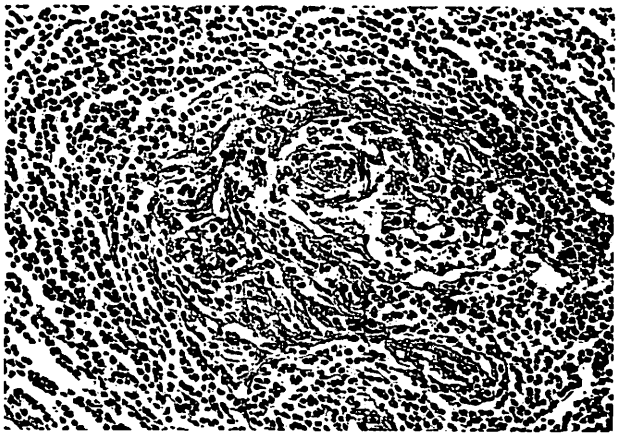

Fig. 7. Microphotogram of the specimen.
Lymphoid follicle is shown, surrounding by a peripheral whorl-like arrangement of small lymphocytes, with proliferated endothelial appearing in the intrafollicular capillaries.

The operation specimen had a thin fibrous capsule over its surface, was composed of lymphoid tissue with marked hyperplasia of lymphoid follicles, distributed evenly. Some of the follicular structure had a germinal center surrounded by a peripheral whorl-like arrangement of small lymphocytes. Around the follicles there was infiltration of lymphocytes, with a few plasma cells and eosinophils; but no reticulum cells were found.

The mass gave no recognizable evidence in differentiating the cortex from the medulla. In the interfollicular areas, there was capillary proliferation, with endothelial hyperplasia and thick hyalinized walls, representing sclerotic changes of the capillaries. These changes were also observed in the capillaries penetrating into the follicles, where the capillaries showed almost the same findings in the center.

These intrafollicular capillaries with proliferated endothelial cells showed a concentric onion-like arrangement resembling Hassal's corpuscle. On special staining the hyalinized materials were not keratin.

The lymphocytes, distributed throughout the entire specimen, were composed of the mature small cell types. There was no proliferation of atypical reticuloendothelial cells, nor bizzare multinuclear giant cells, which could have suggested malignant lymphoma (Fig. 7).

Discussion

Roentenographically the lesion is described as a sharply defined, homogeneous, round or ovoid shadow. It varies from 3 to 15 cm in its greatest dimension and ordinarily is located in the mid-antero-superior mediastinum to one side of the mid-line, often close to the bronchus. The following locations have been reported: hilar region in 29 instances; paratracheal in 10 and posterior mediastinum in 4, including a lesion with costal erosion due to long-standing presence of the mass (8). Only in three reported cases there were calcific deposits within the lesion, rather centrally localized (3, 4, 7).

Although there is no preoperative procedure to make the diagnosis of mediastinal lymphoid hyperplasia (9), lymphographic evaluation of the disease has not as yet been carried out. In our patients, lymphography was performed with an injection of Lipiodol Ultrafluid, 7 ml to each extremity to assess the retroperitoneal lymphatic system prior to operation in Case II and one month postoperatively in Case I.

The lymphograms showed an overall appearance of lymphoid hyperplasia, manifested by a mild enlargement of the lymph nodes with a coarse, partially lacunar or lacy pattern of filling. But the lymphogram may not be specific enough to make the diagnosis of mediastinal lymph node hyperplasia, since similar findings occur also in other diseases, particularly in the early stages of lymphomas. Lymphography, therefore, does not solve the problem of the differential diagnosis.

Unfortunately, no retroperitoneal lymph node was examined histologically. However, the histologic evidence of lymphoid hyperplasia was obtained in the removed mediastinal lymph nodes.

To our knowledge, a relationship between the mediastinal lesion and the retroperitoneal lymphatic system has not yet been established. Lesions in extrathoracic sites, however, such as the cervical, retroperitoneal and brachial region, have been reported to show similar pathologic changes (9, 10).

From this point of view, it is reasonable to assume that there is a close correlation between the mediastinal lesion and the retroperitoneal lymphatic system. Consequently the lymphographic findings are thought to be caused by the overall lymphoid hyperplasia.

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