

Lymphadenopathy in a Family Practice: A Descriptive Study of 249 Cases

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The charts of 249 patients with enlarged lymph nodes were audited to provide a further primary care data base and to clarify recommendations for evaluation of lymphadenopathy. A firm diagnosis was made in only 36 percent of patients despite an average of 1.7 visits and two laboratory tests per patient tested. Serious or treatable causes of lymphadenopathy were rare and were always accompanied by clinical conditions that suggested further evaluation. Lymph nodes were biopsied in only 3 percent of patients. No patient was found to have a prolonged, disabling illness without a prompt diagnosis. The data suggest that, in patients without associated signs or symptoms, a period of observation is safe and likely to save unnecessary expense and biopsy.

Enlarged lymph nodes may herald troublesome or even life-threatening disease, but they may also represent a self-limited and inconsequential finding. Sometimes the cause of lymphadenopathy is evident at the initial evaluation, but more often it is not. When lymphadenopathy is present without an obvious cause, both physician and patient become concerned, and an extensive and costly evaluation often ensues. Knowledge about likely causes and outcomes should be of value to the physician who encounters a patient with enlarged lymph nodes.

Unfortunately, only a very small available primary care data base addresses this problem; most information regarding lymphadenopathy comes from tertiary care experience. Several reports that characterize lymph node biopsy results indicate that serious disease (malignant, granulomatous, or connective tissue disease) occurs in 35 to 50 percent of patients biopsied.¹⁻⁶ Although useful, these

data represent results from only those patients coming to biopsy and do not help with the management of patients who consult family physicians.

Recommendations for the primary evaluation of enlarged lymph nodes have been written,^{7,8} but these recommendations also are not based on data generated in a primary care setting. Only one study was found describing the evaluation of a group of patients cared for by family physicians.⁹ Allhiser et al⁹ described the demographic characteristics and evaluation of 80 patients, found no malignancy, and questioned the need for an early extensive evaluation.

This study was designed to provide a further primary care data base for lymphadenopathy and to clarify appropriate recommendations for evaluation.

Method

The study population was selected from patients seen at the Family Medical Care Center of the University of Missouri-Columbia, between July 1, 1978, and June 30, 1983. The Family Medical Care Center is located within a university medical center in a city of 65,000 persons and is staffed by resident and faculty family physicians and fam-

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ily nurse practitioners. The mean age of the practice population is 28 years, and 62 percent of the patients visiting the center are female. During the five-year study period, there were 75,000 patient visits.

Patients studied were all those seen during the five-year study period whose diagnoses were coded "enlarged lymph nodes, not infected" (ICHPPC 266) and "lymphadenitis, acute" (ICHPPC 209). Diagnoses are handwritten by the physician on an encounter form clipped to the patient chart and are then coded and entered into a computer encounter register. The charts that were audited also included entries by other specialists in the medical center; therefore, the likelihood of missing data from self-referred patients was minimized.

The chart of each patient was examined by the author, and the data recorded on a standardized form included age, sex, location of enlarged nodes, diagnoses made, laboratory evaluation, outcome, referrals, and information to evaluate adequacy of follow-up. Diagnoses were accepted if verified by history, physical examination, or laboratory tests. Outcomes were determined, when possible, from the medical record. Follow-up was considered adequate to determine an adverse outcome if one of four criteria were met: (1) a definite diagnosis was made, (2) the nodes were documented to be resolving, (3) there was at least one chart entry for any condition at least six months after the index visit for lymphadenopathy, or (4) the patient was reached by telephone and determined to have a favorable outcome.

Results

There were 249 patient charts that provided data for study. The mean age of the group was 24 years; 26 percent were aged under 15 years. Fifty-eight percent of the subjects were female.

The mean duration of follow-up (time from index visit to the last entry in the chart) was 15 months. The mean number of visits for lymphadenopathy was 1.7 per patient. Fifty-one percent, 23 percent, and 26 percent of patients were seen once, twice, and three or more times for enlarged lymph nodes, respectively.

Two hundred thirty-eight patients (96 percent)

Table 1. Anatomic Distribution of Enlarged Nodes

Site	Number (%)
Head and neck	143 (57)
Inguinal	29 (12)
Axillary	16 (6)
Epitroclear	1 (0.4)
Supraclavicular	3 (1)
Generalized	57 (23)

fit the criteria for adequate follow-up. Of the 11 patients not fitting the criteria, three had return visits showing no increase in size of the nodes. Six others had nodes less than 1 cm in size and were asked to return for reevaluation if the nodes did not resolve. The remaining two patients presented with cervical lymph nodes described as 1 cm in size, and follow-up examination was not recommended. None of the 11 patients could be reached by telephone, and none had clinical characteristics suggesting a serious condition as a cause of lymphadenopathy.

The anatomic distribution of lymph nodes is shown in Table 1. The majority were of the head and neck, inguinal, or axillary groups. However, about one quarter had generalized lymphadenopathy (two or more noncontiguous sites).

A wide variety of laboratory examinations was used in an attempt to establish a cause for the enlarged lymph nodes (Table 2). Complete blood counts, throat cultures, chest roentgenograms, and tuberculin skin tests made up the bulk of tests. Only eight patients, about 3 percent, underwent biopsy. These tests and procedures averaged about \$88 per patient tested, exclusive of physician visits. About one half the patients had no laboratory evaluation or biopsy.

Diagnostic groupings are listed in Table 3. In 64 percent of cases no cause was found. Eighteen percent had associated upper respiratory tract infection, 8 percent had infected or inflamed tissue near the node site (dermatitis, cuts, cellulitis, abscess, etc), and 5 percent had insect bites in the drainage distribution of the index node.

A small subgroup of patients deserves special mention because of the serious or treatable nature of the disease responsible for the enlarged lymph

Table 2. Laboratory Work on 249 Patients with Lymphadenopathy

Laboratory Test	Number (%)	Number Positive (%)
None	128 (51)	0
Complete blood count	81 (33)	3 (3.7)
Throat culture	40 (16)	6 (15)
Chest roentgenogram	29 (12)	3 (10)
Tuberculin	28 (12)	3 (10)
Monospot	25 (10)	1 (4)
Automated chemistry	9 (4)	0
Biopsy of node	8 (3)	3 (38)
Culture, gonorrhea	8 (3)	2 (25)
Serum test for syphilis	6 (2)	1 (16)
Sedimentation rate	5 (2)	0
Histoplasma titer	2 (1)	0
Toxoplasma titer	2 (1)	0
Febrile agglutinins	2 (1)	0

nodes. Two patients had malignancies confirmed by lymph node biopsy: a young man with Hodgkin's disease presented with night sweats and generalized lymphadenopathy, and a 53-year-old woman with adenocarcinoma had a neck node associated with shortness of breath and previously noted hilar adenopathy. Malignancy was suspected at the index visit in both cases. A Venezuelan student had generalized lymphadenopathy and a recent diagnosis of South American blastomycosis. A young man with generalized adenopathy and rash was found to have syphilis. A child with cervical adenitis due to *Mycobacterium intracellulare* had a positive tuberculin test and a painful node that demanded attention. None of these potentially serious diseases presented with lymphadenopathy alone; all had associated signs or symptoms that led to a diagnosis. All were diagnosed in a reasonably rapid fashion, and no patient initially followed by "observation" later developed serious illness.

Nineteen patients (8 percent) were referred to other specialists, usually otolaryngologists. Eight of these had a lymph node biopsy performed. The findings at a biopsy appear in Table 4.

Discussion

A number of factors might influence the interpretation and generalizability of these data. The

patients were mostly young, as is the practice population from which they were drawn. Older persons are more likely to have serious disease associated with enlarged nodes.² The patient sample depended on recording, coding, and data entry and did not include all patients with enlarged nodes. For example, a diagnosis of infectious mononucleosis made on the first visit would probably be coded as mononucleosis, not as lymphadenopathy. Hence, diagnoses made with certainty at the first visit would be underrepresented. This underrepresentation does not detract from the significance of the findings in a group of patients in whom a diagnosis was not initially evident because such patients are of greatest interest to a physician.

It is possible and likely that some patients saw a physician outside the medical center after their initial visit, which would affect the findings little because 96 percent of patients were considered to have adequate follow-up to detect a serious or prolonged illness.

It is also likely that some patients had a cause for lymphadenopathy that was diagnosable but not pursued. For example, tests for toxoplasmosis, histoplasmosis, and cytomegalovirus infections were not often performed. No patient, however, had a prolonged illness that went undiagnosed. Only a prospective study following a strict protocol such as that outlined by Greenfield and Jordon⁸ could provide information about the exact distribution of causes of enlarged lymph nodes.

Table 3. Diagnoses Associated with Lymphadenopathy

Diagnosis	Number (%)
None determined	159 (64)
Pharyngitis/respiratory infection	44 (18)
Cuts/dermatitis/cellulitis	20 (8)
Insect bites	12 (5)
Dilantin associated	2 (1)
Gonorrhea	2 (1)
Herpes genitalis	2 (1)
Mononucleosis	2 (0.1)
Thyroiditis	1 (0.4)
Tuberculous adenitis	1 (0.4)
Syphilis	1 (0.4)
South American blastomycosis	1 (0.4)
Hodgkin's disease	1 (0.4)
Adenocarcinoma	1 (0.4)

In this series of patients, a diagnosis was made in only about one third of cases despite an average of two diagnostic tests per patient tested and a cost of \$88 per patient. No patient experienced a long, disabling illness without a diagnosis, and diagnoses, when made, were usually made promptly and were usually suggested by symptoms or signs.

Greenfield and Jordan⁸ have suggested a primary care evaluation algorithm for the evaluation of lymphadenopathy. The data from this study suggest that their approach is too aggressive and does not make use of an adequate observation period. For example, their protocol recommends a one-week observation period before biopsy of an enlarged axillary node in a patient without obvious cause. This approach would have resulted in unnecessary biopsies in eight of nine patients in this study who had axillary nodes with no obvious cause or resolution after one week.

The findings of this study support the conclusions of Allhiser et al,⁹ who recommend a more prolonged waiting period before extensive evaluation is done in patients without suggestive signs or symptoms.

Summary

The data presented indicate that lymphade-

Table 4. Findings at Lymph Node Biopsy

Finding	Number
Hodgkin's disease	1
Adenocarcinoma	1
Mycobacterium intracellularis	1
Lipoma	1
Reactive node	2
Normal node	2
Total	8

nopathy in a primary care setting is only rarely due to serious disease, and the cause of lymphadenopathy unaccompanied by other signs or symptoms will only rarely be evident after laboratory screening.

Laboratory evaluation should be directed by signs and symptoms rather than by lists of "possible" diagnoses. If the cause of lymphadenopathy is not evident on initial evaluation, a waiting period of two to four weeks is likely to be safe and is likely to save unnecessary expense.

Lymph node biopsy series are inappropriate data sources upon which to base recommendations for primary care. Only 3 percent of persons with lymphadenopathy in this series had a biopsy. However, in selected cases, lymph node biopsy was very helpful in establishing a diagnosis.

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