

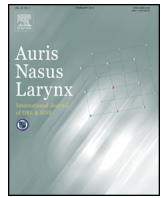


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## A clinical review of 38 cases of cervical tuberculous lymphadenitis in Japan – The role of neck dissection

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### ABSTRACT

**Objectives:** After tuberculous pleurisy, lymphadenitis arising from cervical lesion is the second most common form of extrapulmonary tuberculosis. It is generally treated with antituberculosis agents, but some patients resist chemotherapy. In such cases, surgical resection is often considered as an alternative treatment. This study aims to evaluate the therapeutic outcome of cervical tuberculous lymphadenitis and the future course of treatment of this disease.

**Methods:** We retrospectively reviewed the clinical charts of patients diagnosed at the Tokyo Metropolitan Tama Medical Center between 2009 and 2015 and identified 38 cases of cervical tuberculous lymphadenitis. Precisely 798 patients were registered for primary tuberculosis at our institution during the same period.

**Results:** Patient ages ranged from 21 to 85 years (average: 58.9 years), and the male-to-female ratio was 1:1.2. The range of tuberculosis progression was as follows: 30 (78.9%) in only the cervical lymph node, 3 in the other (axillary, mediastinal, and abdominal) lymph nodes, 1 in the lung and vertebrae lumbales, 2 in the lung, and 1 in the pleural membrane. All 38 patients were initially treated with antituberculous drugs at the Department of Pulmonary Medicine based on guidelines for tuberculosis cases in Japan. In seven cases, the antituberculous drugs were replaced due to side effects. Four cases involved a single drug-resistant strain, and one case involved a double drug-resistant strain. Thirty-three (86.8%) cases were cured by chemotherapy alone. The three patients resistant to chemotherapy were successfully treated through neck dissection. Thirty-six cases (94.7%) were cured by chemotherapy or chemotherapy and surgery.

**Conclusion:** Local therapy could prove effective in cervical tuberculous lymphadenitis patients who exhibit an inadequate response to drugs. The role of neck dissection in cervical tuberculous lymphadenitis remains an important consideration.

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## 1. Introduction

The number of registered primary tuberculosis cases in Japan still exceeds 20,000 a year, and the number of affected

individuals per 100,000 people is at a relatively high level of 16 compared with those of other developed countries, which fall below 10 [1]. Japan is one of the countries in which tuberculosis is still spreading at a moderate pace.

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Tuberculosis is a disease that affects the entire body, and it is not unusual for an otolaryngologist to discover extrapulmonary tuberculosis such as middle ear, rhinosinus, salivary, or thyroid. This is especially true for cervical lymphadenitis [2,3], which is the second most common form of extrapulmonary tuberculosis after pleurisy [4].

Cervical tuberculous lymphadenitis is mainly diagnosed by biopsy and is, at present, normally treated with multiple drug therapy [5]. However, in the 1970s, surgery was occasionally needed for cervical tuberculous lymphadenitis cases [6,7], because conventional chemotherapy at that time, which involved the use of streptomycin, isoniazid, and para-aminosalicylate (PAS) for a three-year period, did not consistently have a lasting effect on cervical tuberculosis lymphadenitis with abscess or sinus formation. Surgery, without the use of rifampicin and pyrazinamide, was one of the preferred treatments for peripheral lymph node tuberculosis until the early 1990s [8,9]. The World Health Organization (WHO) subsequently recommended a six-month regimen consisting of rifampicin and isoniazid, plus pyrazinamide for the first two months, given daily or twice weekly for the treatment of patients with category-III tuberculosis, which includes lymph node tuberculosis (World Health Organization, 1997). There were no reports concerning surgery for cervical tuberculous lymphadenitis after 1993. Moreover, there are no English reports concerning Japanese cervical tuberculosis lymphadenitis.

In this report, we examined and presented the clinical history of 38 cases of cervical tuberculous lymphadenitis patients in our institution in Japan. The three patients resistant to conventional chemotherapy were successfully treated through neck dissection.

## 2. Materials and methods

We retrospectively reviewed the clinical charts of cervical tuberculous lymphadenitis patients who had been treated between 2009 and 2015 at Tokyo Metropolitan Tama Medical Center, and identified 38 patients (17 men and 21 women; age range 21–85 years, median age: 58.9 years). Twenty patients were diagnosed at the Department of Otolaryngology-Head and Neck Surgery of our institution, and 18 patients were diagnosed at the other departments of our institution or at the department of otolaryngology of other institutions. Thirty-six patients were Japanese, and two patients were nationals of other Southeast Asian countries.

## 3. Results

Precisely 798 patients were registered for primary tuberculosis at our institution during the same period. From this cohort, 449 (56.3%) suffered from pulmonary tuberculosis (14 with implied miliary tuberculosis) and 246 (30.8%) suffered from latent tuberculosis (Table 1). Among the extrapulmonary tuberculosis cases, pleural tuberculosis was the most common (39 patients [4.9%]), and cervical tuberculous lymphadenitis was the second most common (38 patients [4.8%]). Ten patients (26.3%) had suffered from tuberculosis in the past. There were

**Table 1**

The region of primary tuberculosis.

Diagnosis	Patients (n)
Pulmonary tuberculosis (Miliary tuberculosis)	449 (56.3%) (14) (1.8%)
Latent tuberculosis	246 (30.8%)
Pleural tuberculosis	39 (4.9%)
Tuberculosis lymphadenitis (Cervical lymphadenitis)	43 (5.4%) (38) (4.8%)
Enteric tuberculosis	8 (1%)
Spinal tuberculosis	6 (0.8%)
Others	7 (0.9%)
Total	798

no patients with human immunodeficiency virus (HIV) infections among all of the cervical tuberculous lymphadenitis cases.

Table 2 shows the results of fine-needle aspiration (FNA) and excisional biopsy for a definitive diagnosis. FNA was performed on 22 (57.9%) patients from among all of the cases. Patients with a positive acid-fast bacilli (AFB) stain, polymerase chain reaction (PCR), or culture of *Mycobacterium tuberculosis* numbered 3 (13.6%), 8 (36.3%), and 9 (40.9%), respectively. There were 13 (59.1%) cases of granulomatous inflammation (GI) detected via FNA. On the other hand, excisional biopsy was performed on 31 (78.1%) patients among all of the cases for reasons undiagnosed by FNA. Patients with a positive AFB, PCR, or culture of *Mycobacterium tuberculosis* numbered 1 (3.2%), 17 (54.8%), and 19 (61.3%), respectively. There were 30 cases (96.8%) of GI detected via biopsy. All cervical tuberculous lymphadenitis patients were positive on the interferon alpha release assay QuantiFERON-Tb [10] or T-SPOT [11].

According to the progression of the disease, tuberculous lymphadenitis is divided into four types based on mass, abscess, fistula formation, and ulcer formation [3,9]. Patients in our cohort were categorized as follows: 27 mass, 7 abscess, 3 fistula formation, and 1 ulcer formation (Table 3).

**Table 2**

Primary diagnostic tests in tuberculous lymphadenitis.

	AFB (+)	PCR	Culture (+)	GI (+)
FNA	3/22 (13.6%)	8/22 (36.3%)	9/22 (40.9%)	13/22 (59.1%)
Excisional biopsy	1/31 (3.2%)	17/31 (54.8%)	19/31 (61.3%)	30/31 (96.8%)

FNA: fine-needle aspiration; AFB: acid-fast bacilli; PCR: polymerase chain reaction; GI: granulomatous inflammation

**Table 3**

Types of tuberculous lymphadenitis.

Type of lymph node	Patients (n)
Mass	27
Abscess	7
Fistula formation	3
Ulcer formation	1
Total	38

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