



Conservative treatment for cutaneous fistula resulted from abscess formation in patients with tuberculous cervical lymphadenitis

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ABSTRACT

Objective: This study describes the clinical characteristics and course of conservative treatment using anti-Tb medication and dressing in patients with tuberculous cervical fistula resulting from abscess formation, and to investigate factors prognostic of dressing and treatment duration.

Methods: The medical records of patients with tuberculous cervical lymphadenitis were reviewed, and 38 of these patients who presented with cutaneous fistula that resulted from abscess formation were included in the study.

Results: The mean duration of dressing until fistula closure was 3.7 ± 2.0 months (range 0.2–8.5), and the mean duration of treatment with anti-Tb medication was 10.6 ± 2.6 months (range 6.0–16.0). Patients with concomitant Tb, beyond the cervical lymph nodes showed significantly prolonged duration of dressing (4.6 months vs. 3.2 months, $p = 0.025$) and anti-Tb medication (11.8 months vs. 9.8 months, $p = 0.015$).

Conclusion: Our results indicate that about 3.7 months of dressing was required for fistula closure. Tuberculous cervical lymphadenitis patients with fistula who had Tb beyond the cervical lymph nodes could be expected to require dressing for 4.6 months and prolonged and anti-Tb medication treatment.

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1. Introduction

Tuberculosis (Tb) is an infectious disease that is transmitted primarily through the respiratory tract, and most often involves the pulmonary tracts. Although the global prevalence of Tb appears to be declining slowly, Tb is a major public health

burdens in South Korea [1,2]. Among the manifestations of Tb, tuberculous cervical lymphadenitis is a common form of extrapulmonary Tb in Korea, resulting from reactivation of Tb in the lymphatic system, or from direct spread through the mucosa of the upper-respiratory tract [3,4].

Although tuberculous cervical lymphadenitis can be successfully treated with standard anti-Tb medication alone, and the risk of abscess formation is low (5–22%) [5], cutaneous fistulae can develop in patients with abscess formation. A progressively growing abscess during medication due to poor response to anti-Tb medication or a paradoxical reaction of the

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immune response to dying *Mycobacterium tuberculosis* organisms cause fistula development [6], a condition of concern for both patients and physicians.

Although some studies recommend surgical treatment in selected cases of abscess-forming tuberculous cervical lymphadenitis to reduce the necessary treatment period and enhance the effects of anti-Tb medication [7,8], The Infectious Disease Society of America (IDSA) guideline recommends surgical excision only in unusual circumstances, disease caused by drug-resistant organism, or paradoxical upgrading reactions, and its recommendation is usually accepted [9]. However, there was no study that describes well the clinical course of conservative management in patients with tuberculous fistula of the neck in our literature review, and such information is important for counseling about the treatment plan.

Therefore, the aim of this study was to describe the clinical characteristics and course of conservative treatment using dressing in patients with tuberculous cervical fistula that resulted from abscess formation to describe the duration required for outpatient clinic visits for closure of wound, and to investigate factors prognostic of treatment duration.

2. Materials and methods

We retrospectively reviewed the medical records of tuberculous cervical lymphadenitis patients treated at a tertiary referral hospital between January 2003 and July 2016. The study protocol was approved by the institutional review board of our institution. The primary diagnosis of Tb was achieved by fine needle aspiration (FNA), core needle biopsy (CNB) or open biopsy of involved lymph nodes. The diagnostic criteria were as follows: positive staining of acid-fast bacilli (AFB) in biopsy specimen, findings of caseation necrosis with granuloma, or positive *M. tuberculosis* polymerase chain reaction (MT-PCR) assay [10]. Drug-resistance test was simultaneously performed while conducting diagnosis of tuberculosis, and the result of this test was reported three to four weeks after implementation. If one or more of these tests demonstrated a positive finding, tuberculous cervical lymphadenitis was confirmed. Computed tomography (CT) or ultrasonography (US) were used for the evaluation of neck node status. Chest X-ray, AFB staining of sputum, and antigen to human-immunodeficiency virus were routinely checked, and AFB staining of sputum in patients with pulmonary tuberculosis was repeated until the result showed negative.

Additional criteria for study inclusion were tuberculous cervical lymphadenitis with fistula formation due to uncontrolled abscess, receiving anti-Tb medication for at least six months, and having at least six months of follow-up after the resolution of Tb. Patients lost to follow-up, those treated with surgical intervention, including neck dissection or wide excision; and those without abscess or fistula formation were excluded.

Anti-Tb medication was provided to patients according to Korean Guidelines for Tuberculosis [10]. Isoniazid (H, 300 mg qd), rifampin (R, 600 mg qd), ethambutol (E, 800 mg qd), and pyrazinamide (Z, 1500 mg qd) were provided to patients for the initial two months, followed by isoniazid, rifampin, and

ethambutol (HRE regimen) for four months [10]. If the Tb did not resolve within six months, a longer course (HRE regimen) was prescribed, until the Tb resolved. Complications caused by medication were carefully and routinely monitored. Chest PA was carried out when patients complained pulmonary symptoms, and further evaluations were performed on patients who complained newly developed symptoms or showed abnormal findings on routine monitoring of complications. In addition, drug-resistance test was repeated in patients with insignificant response to HERZ regimen at the time of three months after medication.

Empirical antibiotic was prescribed to patients with spontaneous fistulae until tuberculosis was diagnosed, and anti-Tb medication was usually provided within a week after biopsy with MT-PCR in these patients. For patients in whom the abscess grew and involved the overlying skin despite treatment with anti-Tb medication, simple incision and drainage were performed in out-patient clinics. After the simple incision, to promote wound healing, necrotic tissue in the wound bed and margin was cautiously removed using cup forceps until exposing fresh tissue. Although the main transmission route of tuberculosis is air-borne droplet from the airway not the tissue contact, efforts were made to minimize risk of transmission caused by bleeding or aerosol formation during dressing.

Dressing of the fistula was performed as frequently as possible, usually weekly. Once the wound was stabilized, patients were seen every two to three weeks. Patients with spontaneous fistulae were also managed according to this protocol.

According to the results of Shapiro–Wilk test, statistical analysis of clinical characteristics that were postulated as affecting the duration of dressing duration and anti-Tb medication was performed using independent t-test with SPSS software (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Null hypotheses of no difference were rejected if *p*-value less than .05.

3. Results

One hundred and thirty-nine tuberculous cervical lymphadenitis patients were identified; 48 patients with cutaneous fistula due to incisional drainage or spontaneous rupture of an abscess. Among the 48 patients, three patients underwent surgical treatment and seven patients did not return for exams. Therefore, 38 tuberculous cervical lymphadenitis patients with cutaneous fistulae were included in the final study population (Fig. 1).

This study sample included 13 male and 25 female patients; the mean age at time of diagnosis was 37.2 ± 14.1 years old (range 17.0–73.0). Of the 38 study subjects, 37 (97.4%) were diagnosed with *M. tuberculosis* with cervical lymphadenitis at our hospital using a FNA in 29 patients, CNB in six patients, and open biopsy in two patients. All of subjects were negative for antigen to human-immunodeficiency virus.

Although all patients were susceptible to the HERZ regimen at initial drug-resistance test, two subjects were retested for Tb drug resistance due to insignificant response three months after medication. According to the result four months after anti-Tb

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