

CASE REPORT

# Ultrasonographic Features of Tuberculous Cervical Lymphadenitis



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## KEY WORDS

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Making an accurate diagnosis of tuberculous cervical lymphadenitis (TCL) has been a problem to clinicians because it is a versatile masquerader and is often confused with lymphomas or cervical metastases. Ultrasound (US) has advantages over other examination modalities in that it is noninvasive, inexpensive, time-saving, and able to guide procedures such as fine-needle aspiration and core-needle biopsy. It is increasingly being recognized as a primary tool for the evaluation of cervical lymph nodes. In this article, we present six cases with microscopically and/or pathologically confirmed TCL and illustrate the US features. A literature review was also conducted. The key US features of TCL include hypoechogenicity, strong internal echoes, echogenic thin layers, nodal matting, soft tissue changes, and displaced hilar vascularity. US is a reliable and effective tool in assessing cervical lymphadenopathies. When TCL is suspected under US, US-guided procedures such as fine-needle aspiration or core-needle biopsy can be conducted concomitantly to obtain the microscopic or pathological proof.

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## Introduction

Cervical lymph nodes can be involved via various pathological processes, including inflammatory diseases, lymphomas, and even metastases. It is crucial to determine the etiology of an enlarged cervical node before proper treatment modalities can be chosen. When encountered with inflammatory cervical nodes, clinicians should be alert to the possibility of tuberculous cervical lymphadenitis (TCL),

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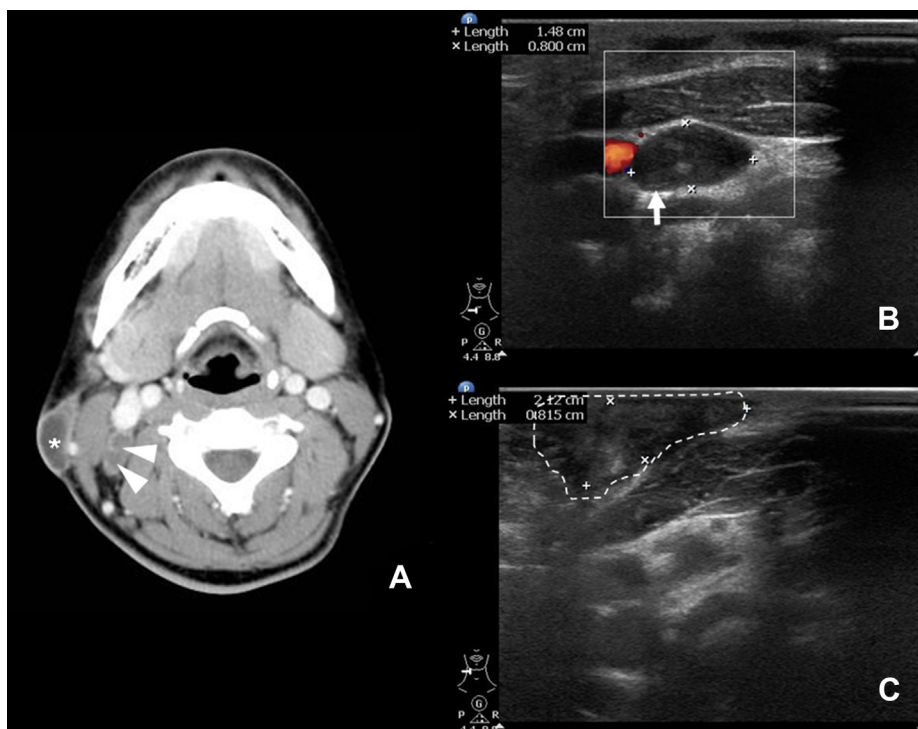
one of the most common extrapulmonary tuberculoses. Although tuberculosis has been considered an issue in un-developed countries or specific ethnic groups, the emerging number of human immunodeficiency virus (HIV)-infected population heralds the awakening of tuberculosis in West-ern countries in recent decades. Making a correct diagnosis of TCL has been a problem to clinicians because it is a versatile masquerader and is often confused with lym-phomas or cervical metastases. Ultrasound (US) has ad-vantages over other examination modalities in that it is noninvasive, inexpensive, time-saving, and able to guide procedures such as fine-needle aspiration (FNA) and core-needle biopsy (CNB). It is increasingly being recognized as a primary tool for the evaluation of cervical lymph nodes. Some authors have depicted different US characteristics of TCL, yet few could provide a worthwhile picture. Accord-ingly, we present six cases of patients with TCL and sum-marize the common US features in this study.

### Case Reports

All patients were identified in the National Taiwan Uni-versity Hospital Yunlin Branch, Yunlin County, Taiwan from October 2013 to April 2014. An ultrasound machine (HD15 Ultrasound System; Koninklijke Philips N.V., Eindhoven, The Netherlands) with a 5–12-MHz linear array transducer (L12-5) was used. FNA was performed with 22-gauge needles, whereas CNB was done with 18-gauge biopsy needles (Temno Evolution, TT186, CareFusion Corporation, San Diego, CA, United States).

### Case 1

A 34-year-old female without major diseases presented to our clinic with multiple tumors at the right side of her neck of 2 months' duration. The tumors grew slowly and eventually caused pressure pain. On examination, two 3-cm masses were noted at the right level II, with fluctuation sensation and erythematous change of the overlying skin. Because the patient also reported a low-grade fever and a weight loss of 4 kg in 1 month, lymphoma was considered first. However, her hemogram revealed a white count of 5500/ $\mu$ L (segmented form = 59.6%, lymphocyte = 33.5), whereas the lactate dehydrogenase level was 169 U/L. Computed tomography (CT) with contrast medium showed multiple small necrotic lymph nodes at the right level II and a rim-enhanced lesion superficial to the right sternocleidomastoid muscle (Fig. 1A). US revealed six hypoechoic lymph nodes scattering along the right upper jugular chain with a matting pattern. Most of them showed increased internal echo and thin echogenic layers at periphery (Fig. 1B). The borders of the involved lymph nodes became blurred because of adja-cent tissue reaction, and an anechoic pocket extended su-perficially to the subcutaneous region (Fig. 1C). TCL was highly suspected based on these US features and prompted US-guided FNA to the abscess and CNB to two involved nodes. The cytology smear revealed polymorphic neutrophils only. Nevertheless, the pathological report from CNB showed caseating granulomatous inflammation, rimmed by an aggregate of epithelioid cells, lymphocytes, and Langerhans giant cells. Acid-fast bacilli were not identified in the



**Fig. 1** In a 34-year-old woman with tuberculous cervical lymphadenitis (Case 1), CT demonstrates multiple necrotic nodes (A, arrowheads) and a rim-enhanced lesion in the subcutaneous area (asterisk). Ultrasound shows that the involved nodes are hypo-echoic with strong internal echoes and echogenic thin layers (B, arrow). An anechoic pocket is seen in the subcutaneous region as in the CT, and fine-needle aspiration yielded pus positive for acid-fast stain (C, circled region). CT = computed tomography.

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