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## Additional comments on foot reflexology treatment for sensorineural hearing loss in infant

Yi Zhang, Hang Pei, Bang-Jian He

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### Abstract

Currently, treatment options for infant sensorineural hearing loss (SNHL) are limited. This article describes a novel case of SNHL in an infant successfully treated with foot reflexology, along with observed brain activity changes before and after treatment, as indicated by functional magnetic resonance imaging. Hence, this commentary discusses the case and our viewpoints regarding foot reflexology for treating SNHL.

**Key Words:** Foot reflexology treatment; Sensorineural hearing loss; Infant; Comment

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**Core Tip:** Currently, treatment options for infant sensorineural hearing loss (SNHL) are limited. In this study, Dong *et al.* used foot reflexology to restore hearing in a child with SNHL while observing brain structure changes before and after treatment. We discuss the viewpoints presented in the article and summarize the mechanisms of action.

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## TO THE EDITOR

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### Background

Dong *et al*[1] used functional magnetic resonance imaging (fMRI) in this exposition to discern that foot reflexology stimulates central brain language networks (such as the superior frontal gyrus, inferior frontal gyrus, and right temporal cortex), thereby achieving therapeutic efficacy for infantile sensorineural hearing loss (SNHL). This manuscript has clinical significance and provides a new, side-effect-free approach for treating pediatric SNHL. We have outlined the potential mechanisms by which foot reflexology can treat SNHL and discussed the limitations of this study.

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## FOOT REFLEXOLOGY FOR NEUROLOGICAL HEARING LOSS

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The efficacy of foot reflexology as a complementary therapy for alleviating depression, anxiety, and attention-deficit/hyperactivity disorder symptoms has been documented. However, its effectiveness in treating SNHL remains unclear. Previous reports have indicated instances where children demonstrated a notable reduction in hearing thresholds after foot reflexology treatment[2]. In this study, the authors used functional magnetic resonance imaging (fMRI) to explore its effects on language and auditory centers, but the precise mechanism remains unknown. Current research perspectives predominantly focus on three key aspects. First, the fascia theory indicates that stimulating different foot muscle groups may affect specific nerve pathways *via* fascial pathways[3,4]. Second, previous studies have revealed that foot stimulation activates the parasympathetic nervous system in the corresponding area, thereby eliciting the release of endogenous chemicals, including hormones[5]. Lastly, the feet are considered convergence points of meridians throughout the body in traditional Chinese medicine, and stimulating the feet may improve qi and blood circulation, facilitate meridian flow, and regulate organ functions[6]. However, further research is required to confirm these assertions.

Simultaneously, this study demonstrates certain limitations. SNHL typically encompasses three types: Genetic, congenital cytomegalovirus, and idiopathic[7]. Treatment approaches differ based on the affected organs (cochlea, auditory nerve, and cerebral cortex). However, the authors did not specify the patient's diagnostic assessments (genetic testing and cytomegalovirus testing)[8], making it difficult to identify the suitable SNHL subtype for foot reflexology. Additionally, the authors failed to address the potential influence of alterations in blood flow velocity on ReHo pre- and post-treatment in the fMRI data processing section[9], nor did they thoroughly elucidate the timing of data acquisition for the experimental group. We hypothesized that these omissions may have exhibited a notable effect on the outcomes. Finally, some studies have revealed the clinical importance of foot reflexology beyond the motor-sensory cortical areas [10,11], but the choice of stimulation site (thumb) in this study lacked sufficient literature support. Larger randomized controlled trials are warranted for confirmation.

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## CONCLUSION

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In summary, this case report provides clinical evidence and a theoretical basis for foot reflexology in the treatment of SNHL. However, noteworthy, we recommend its use as a complementary treatment method only in patients with mild diseases due to the lack of high-level randomized controlled trial research support.

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## FOOTNOTES

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**Author contributions:** Zhang Y and Pei H wrote the article; He BJ provided guidance and revision.

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