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Editorial

Expanding Indications: Balloon Dilation of the Eustachian Tube for Patients Undergoing Surgery for Chronic Otitis Media

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Balloon dilation of the Eustachian tube (BDET) has been widely used as a curative treatment for obstructive Eustachian tube dysfunction (OETD) [1-3]. The technical goals of BDET are pressure equalization, ventilation, and mucociliary clearance of the middle ear by widening the Eustachian tube orifice [4]. OETD can be involved in various pathologic conditions of the middle ear, such as middle ear effusion, acute or chronic otitis media (COM), and cholesteatoma [4]. Thus, BDET can be applied to these various middle ear diseases. A meta-analysis estimated a 67.8% success rate with the Valsalva maneuver after BDET over a long-term follow-up [1]. In pediatric patients, BDET demonstrated favorable outcomes, with a 48.1% decrease in the type B tympanogram and a 15.2 dB decrease in the air-bone gap [5].

Chronic obstructive ETD (COETD) is defined as OETD that lasts for ≥3 months [4]. There was no effective treatment option for COETD before BDET. A prospective multicenter study suggested the improvement of COETD after BDET [6]. Patients with COETD intractable to pharmacological therapy demonstrated improved 7-item Eustachian Tube Dysfunction Questionnaire (ETDQ-7) scores and tympanometry findings following BDET [6]. Because ETD is an important etiology of COM, BDET can be a treatment option for COM with COETD. In 2019, the American Academy of Otolaryngology-Head and Surgery reported an insufficient consensus on the benefit of BDET in patients undergoing tympanoplasty or other middle ear surgery [2]. However, increasing evidence has been accumulated for BDET in patients undergoing middle ear surgery for chronic conditions.

Recently, Choi et al. [7] described successful treatment outcomes of BDET in patients with COETD that persisted following tympanomastoidectomy, among whom 62% (13/20) demonstrated improved Eustachian tube function following BDET, as estimated using the Valsalva maneuver [7]. Moreover, these patients showed improved hearing thresholds, while the unsuccessful Valsalva group had a worsened air-bone gap [7]. The rate of successful outcomes in this study was similar to those reported by previous studies of OETD [1]. A case-control study reported that patients who concurrently underwent BDET with tympanoplasty showed greater improvement in the air-bone gap than patients who underwent tympanoplasty without BDET (10.93±7.70 dB vs. 7.11±8.08 dB, P=0.033) [8]. Another prospective study reported favorable treatment outcomes of ETBD combined with cartilage tympanoplasty in patients with adhesive otitis media [9]. Therefore, ETBD can be an adjuvant surgical technique for patients who undergo middle ear surgery to treat chronic disorders.

The appropriate selection of patients for BDET may be a crucial factor for improving treatment outcomes. The outcome indicators for BDET include self-reported subjective measures of the ETDQ7 and a number of objective measures, such as tympanometry, audiometry, otoscopy, and the Valsalva maneuver [2]. Tubomanometry has been introduced to quantitatively evaluate Eustachian tube function, although the sensitivity was not satisfactory to detect ETD as surveyed using ETDQ-7 [10]. Temporal bone computed tomography (CT) combined with the Valsalva maneuver has been implemented to visualize the Eustachian tube [11]. However, the proportion of obstructed Eustachian tubes on CT during the Valsalva maneuver was not correlated

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with abnormalities in the Eustachian tube score [12]. Future research may be warranted to delineate the gold-standard measurement and establish correlations among the indicators of ETD, which will pave the way to establishing precise indications and achieving favorable treatment outcomes of BDET.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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