



The Effect of Cosmetic Surgery on Eustachian Tube Function

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ABSTRACT

Intended for the 268 cases which did an orthognathic surgery for lower jaw with diacrisis of jaw anamorphosis symptom object. Executed auditory tube function test in pre- and post-operation, and searched auditory tube dysfunction of postoperative.

Recognized auditory tube dysfunction in a high rate after lower jaw orthognathic surgery. The case that was conscious of a symptom by auditory tube functional disorder after art was 49 examples (18.3%), and recognized auditory tube dysfunction in auditory tube examination was 162 cases (60.4%). The auditory tube dysfunction of postoperative related to as a result of preoperative Tubo-tympano-aerodynamic graphy(TTAG), but there was not the correlation as a result of sonotubometry. TTAG was the significant examination which can predict aggravation of auditory tube mechanism. It became clear that auditory tube dysfunction brought about recovered by follow-up naturally by 3.48 days.

CONTACT

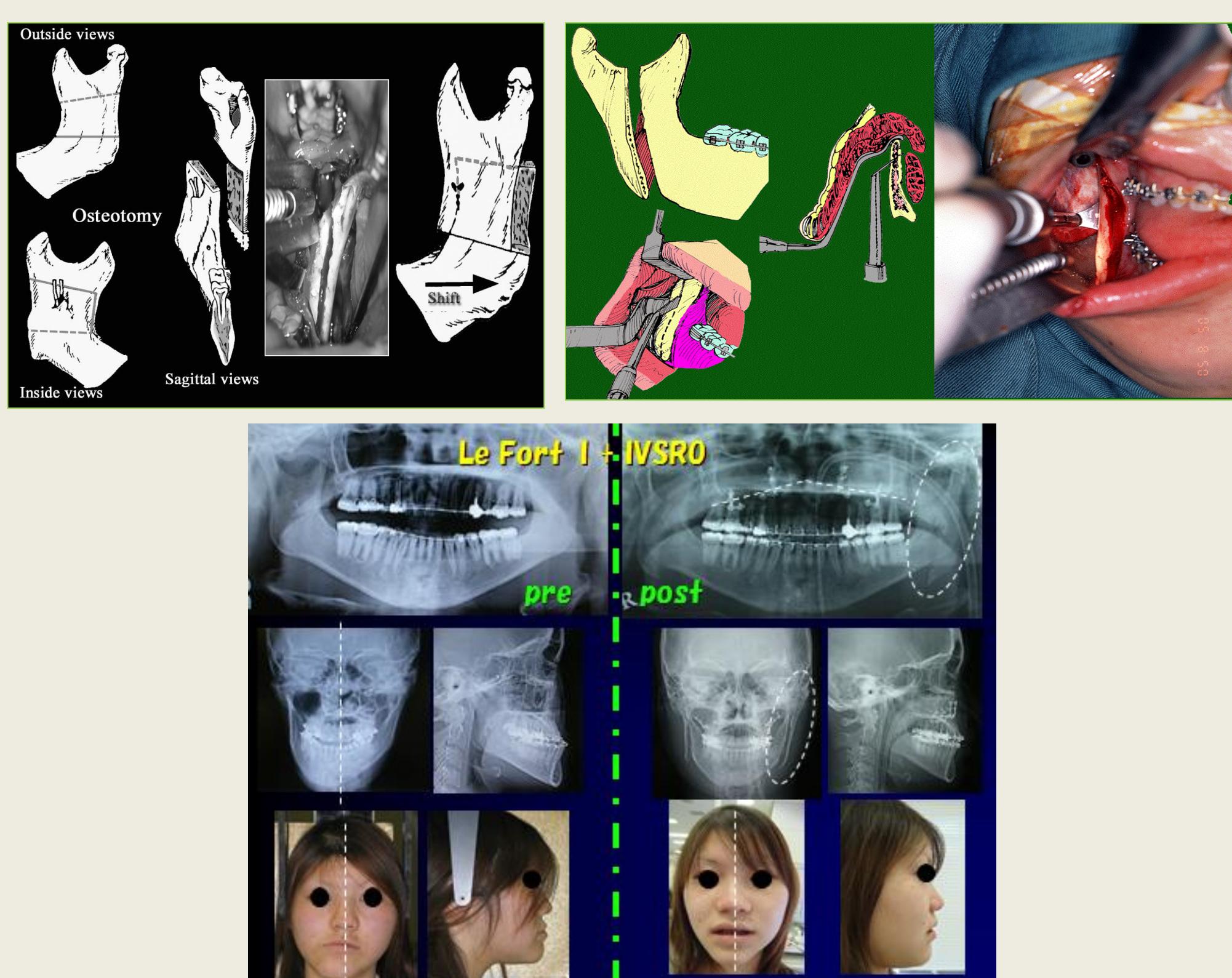
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Introduction

Some patients with jaw anamorphosis symptom who underwent orthognathic surgery for lower jaw complain of earache, feeling of discomfort, feeling of obstruction, autophony, and hearing disorders. Ear symptoms of these complaints are the same as those by patients with auditory tube dysfunction. The tympanic depression due to negative pressure in the auris media alveus was observed in these patients. By conducting auditory tube function tests before and after orthognathic surgery for the lower jaw, studied were the pathophysiology, incidence, causes and treatment of auditory tube dysfunction occurring following orthognathic surgery for lower jaw.

Subjects

Enrolled were 268 patients (60 males and 208 females; mean age, 24.3 years old) who were diagnosed with jaw anamorphosis symptom and underwent orthognathic surgery of the lower jaw, and who were tested for auditory tube function before and after the surgery at our hospitals the period between Dec. 2000 and Feb. 2025



Methods

1. As regards auditory tube function tests, the impedance test, or tympanometry, (hereinafter refer to as TM), was Sonotubometry (SON) and tubo-tympano-aerodynamic graphy (TTAG) were conducted using Auditory Tube Function Test Apparatus ET-500 (manufactured by Nagashima Co.). The tests were conducted as a rule the day before and after operation. Patients whose auditory tube dysfunction was found to be aggravated were observed with daily TM testing until the function recovered to the pre-operative level.

2. The 268 patients were divided into 4 groups and compared for the rate of aggravation of auditory tube function and duration for the function to recover. Group A (134 patients) received no pre-operative explanation, instruction or precautions on the occurrence of auditory tube dysfunction, and was given parenteral nutrition post-operatively.

Group B (82 patients) received pre-operative explanation on the occurrence of auditory tube dysfunction, was and instructed about the necessity of early training of deglutition, and given parenteral nutrition post-operatively.

Group C (30 patients) received pre-operative explanation about the occurrence of auditory tube dysfunction, was instructed about the necessity of early training of deglutition, and was given oral nutrition post-operatively. Group D (22 patients) received no pre-operative explanation, instruction or precautions on the occurrence of auditory tube dysfunction, and was given oral nutrition post-operatively.



Results

1) The incidence of post-operative auditory tube dysfunction Post-operative auditory tube Dysfunction was noted subjectively in 49 patients (18.3%) and determined by TM in 162(60.4%). Lowered auditory tube function was found by TM at a high rate following orthognathic surgery for lower jaw. Approximately 30% of patients with TM aggravation complained ear symptoms. Among subjective ear symptoms, the most prevalent was feeling of ear obstruction, followed, in the order, by dysacusis. The number of patients who complained of ear symptoms was 32 (23.9%) in group A, 14 (17.1%) in group B, 2 (6.7%) in group C and 2 (9.1%) in group D. Aggravation of auditory tube function (was determined by TM in 84 patients (62.7%) in group A, 44 (53.7%) in group B, 14 (46.7%) in group C and 12 (54.5%) in group D. In group A, improvement of auditory tube function was determined by TM in 4 patients (3.1%).

2) Relationship between pre-operative SON and TTAG and post-operative TM aggravation I thought opening time and acoustic pressure of the auditory tube increased, the incidence of post-operative TM aggravation became lower. However, there was no correlation between the two factors. Thus, the SON value was not the index of the post-operative TM aggravation. With 5% significance level in χ^2 test, the TTAG (-) group had a tendency of post-operative TM aggravation, whereas the TTAG (+) group had rarely post-operative TM aggravation. Thus, it was suggested that TTAG could be a useful test for prediction of post-operative TM aggravation.

Discussions & Conclusions

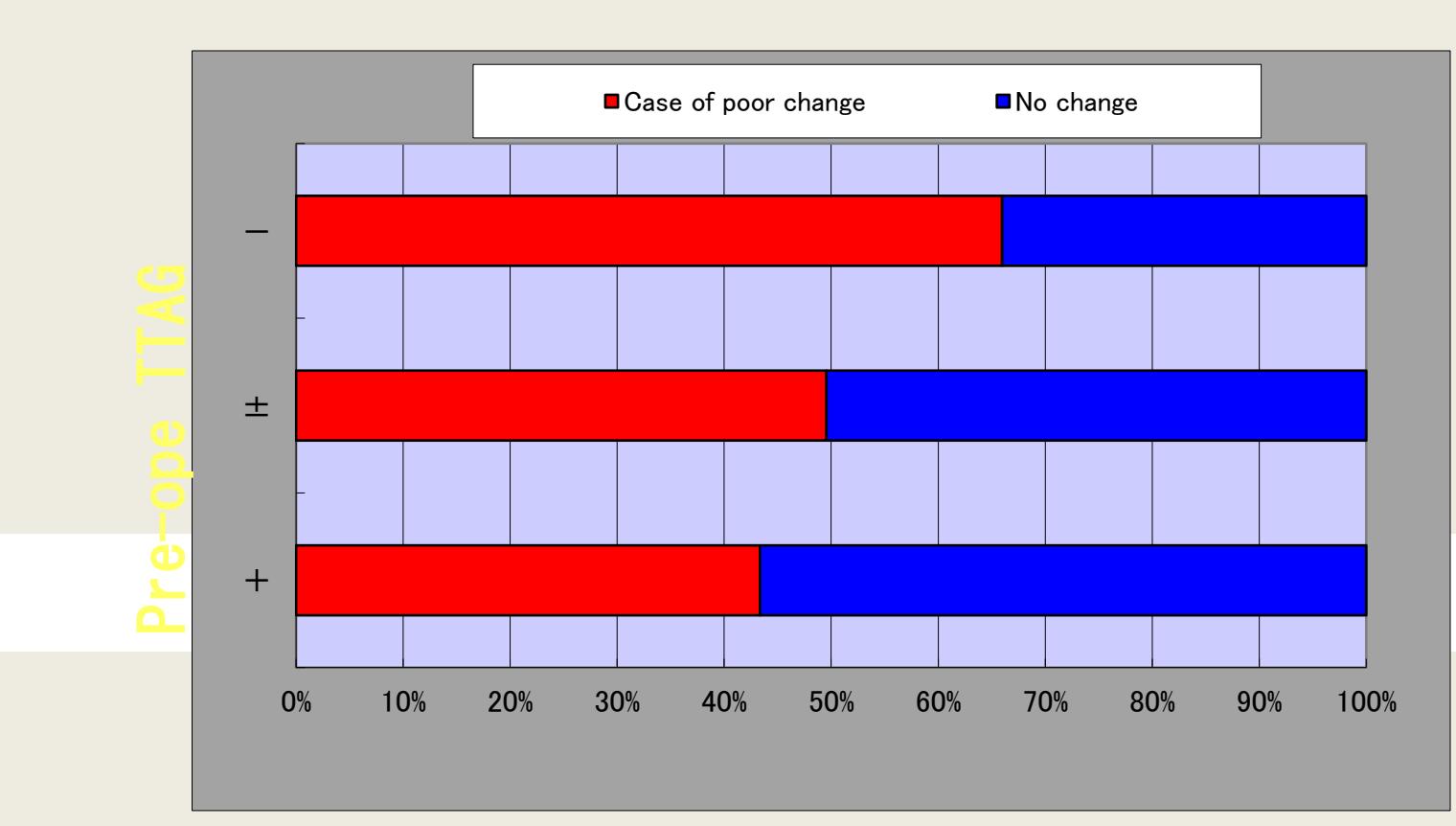
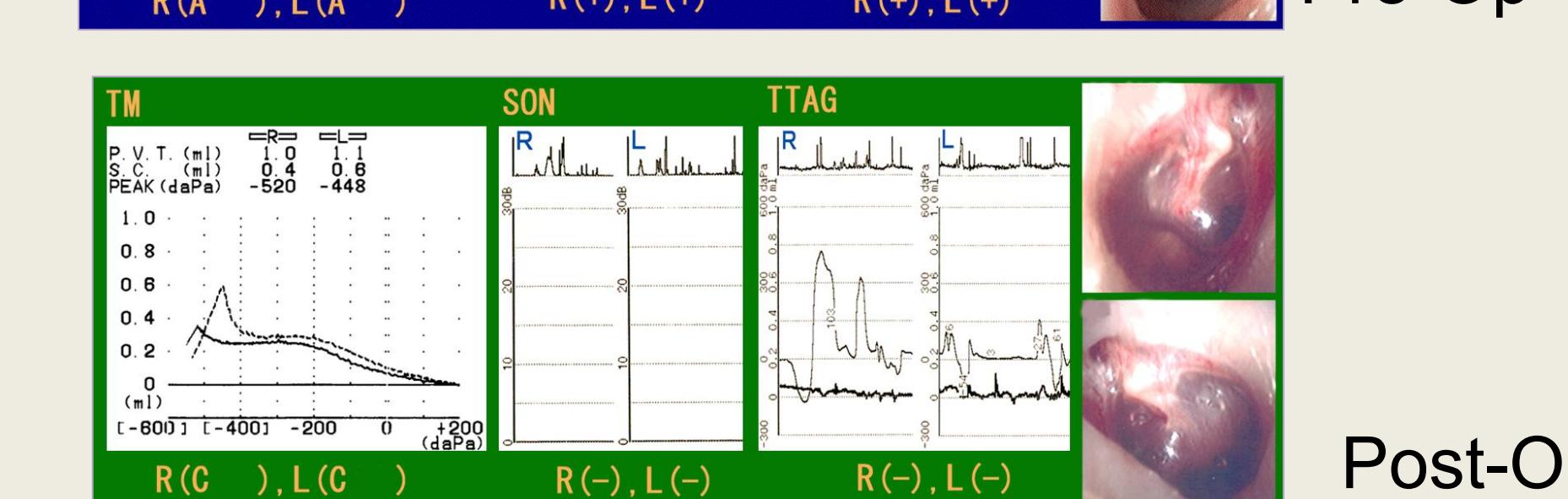
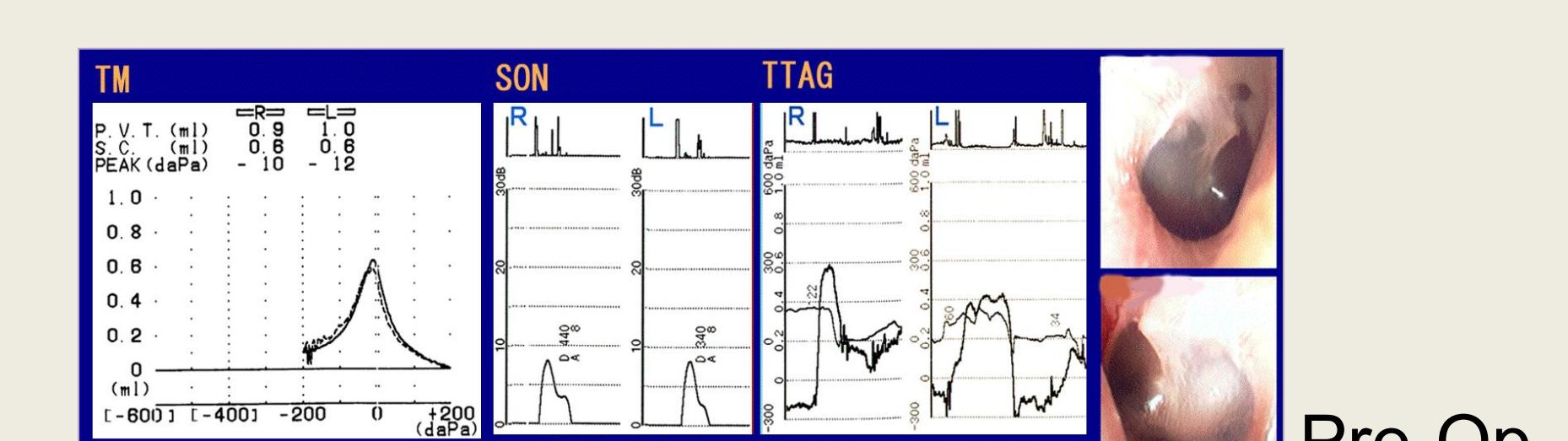
Pre-and post-operative auditory tube functions were investigated using TM, SON and TTAG in patients (n=268) who underwent orthognathic surgery for lower jaw.

1) The number of patients who had subjective Complaint of auditory tube dysfunction was 49 (18.3%), and those who were found to have auditory tube dysfunction in tests was 162 (60.4%), indicating that the incidence of post-operative auditory tube dysfunction is high following orthognathic surgery for lower jaw. The measures to decrease the incidence of post-operative auditory tube dysfunction will be to carry out the post-operative management with oral nutrition and give pre-operative precautions on the occurrence of auditory tube dysfunction.

2) Post-operative auditory tube dysfunction correlated with pre-operative TTAG values, indicating that TTAG was a useful test for the prediction of TM aggravation. There was no correlation between post-operative auditory tube dysfunction and SON values.

3) The incidence of post-operative auditory tube dysfunction was significantly higher in patients with complications of rhinopharyngeal diseases than patients without. The amount of bone shift did not affect said incidence. The side in which post-operative auditory tube dysfunction occurred was unrelated to the side in which nasotracheal intubation was performed.

4) Post-operative auditory tube dysfunction recovered spontaneously an average of 3.48 days without providing ventilation treatment while patients were placed under observation. Patients with post-operative auditory tube dysfunction that lasted longer than 4 days or with complaints of subjective symptoms were given ventilation treatment. All cases were cured within 14 days.



Relationship of between auditory tube functions and TTAG

Auditory tube functions change for the worse

Relationship of between auditory tube functions and SON
There was no correlation between them.

