A Case With Deteriorating Palmoplantar Pustulosis and Hyperthyroidism After Simultaneous Bimaxillary Orthognathic Surgery

Aya Oda,* Keita Yoshida,† Tamayo Uno,* Taiga Yoshinaka,* Akari Mukai,* and Masahiro Irifune*

*Department of Dental Anesthesiology, Program of Dental Sciences, Integrated Health Sciences, Graduate School of Biomedical & Health Sciences, Hiroshima University, Hiroshima, Japan, and †Department of Oral & Maxillofacial Surgery and Oral Medicine (Dental Anesthesiology), Hiroshima University Hospital, Hiroshima, Japan

A case of palmoplantar pustulosis and hyperthyroidism following orthognathic surgery is presented. Both diseases may have been related to allergic phenomena.

Key Words: Hyperthyroidism; Palmoplantar pustulosis; Allergic disease.

Hyperthyroidism is a preexisting disorder that is occasionally encountered by anesthesiologists during preanesthetic evaluations. Hyperthyroidism is usually accompanied by allergies, and there is a suggested relationship between the development of hyperthyroidism and the exacerbation of allergic disease.¹ Here, we report a case with palmoplantar pustulosis and hyperthyroidism diagnosed after simultaneous bimaxillary orthognathic surgery.

The patient was a 39-year-old woman (height, 153.2 cm; weight, 48.4 kg) who suffered from palmoplantar pustulosis, metal and pyrine allergy, and allergic rhinitis. Simultaneous bimaxillary orthognathic surgery was performed 3 months prior to presentation, during which general anesthesia with propofol, remifentanyl, and rocuronium was used. The patient's blood pressure and heart rate were within the normal ranges during surgery (average blood pressure, 100/50 mm Hg; heart rate, 90 beats/min), and there were no postoperative problems. Two days following surgery, the patient experienced an exacerbation of her palmoplantar pustulosis. This was treated by oral medication,

including clarithromycin and valaciclovir hydrochloride, and by applying ointment, including clobetasol propionate, hydrocortisone, and tacalcitol prescribed by a dermatologist, but the symptoms were not ameliorated. Because the cause of the exacerbation was thought to be the titanium metal plate in her body, the patient was scheduled to undergo plate replacement. During preanesthetic evaluation, hypertension (145/85 mm Hg) and tachycardia (116 beats/min) were observed. In laboratory studies performed before the simultaneous bimaxillary orthognathic surgery, increases in blood pressure (155/88 mm Hg), heart rate (118 beats/min), and alkaline phosphatase level (526 U/L) were observed. The data for the preoperative laboratory studies were almost identical to those for the previous operation. However, weight loss and excessive sweating were observed during the latter evaluation. From these evaluations, we suspected that the patient had hyperthyroidism, and we ordered thyroid hormone-related tests. Thyroid tests revealed abnormal FT-3 (22.6 pg/mL), FT-4 (5.2 ng/dL), and TSH (0.006 μ U/mL) values. Therefore, we referred the patient to the department of endocrinology at our hospital, where she was diagnosed with Graves' disease. Treatment for hyperthyroidism was started by the administration of thiamazole (30 mg/d) immediately after diagnosis, and the surgery was postponed until the patient's thyroid function was normalized. Roughly 6 months later, the patient's FT-4 (0.7 ng/dL) and TSH (4.710 μ U/mL) values and her body weight recovered to normal, and excessive

Received June 12, 2015; accepted for publication August 6, 2015.

Address correspondence to Dr Aya Oda, Department of Dental Anesthesiology, Program of Dental Sciences, Integrated Health Sciences, Graduate School of Biomedical & Health Sciences, Hiroshima University, Kasumi, 1-2-3, Minami-ku, Hiroshima 734-8551, Japan.

Anesth Prog 64:173–174 2017 | DOI 10.2344/anpr-64-03-03
© 2017 by the American Dental Society of Anesthesiology

sweating was not observed; thus, the surgery was performed without issue.

Palmoplantar pustulosis is a chronic and intractable illness, accompanied by pustules. The disorder is thought to be associated with a metal allergy.² A correlation between hyperthyroidism and allergic disease has also been suggested¹ whereby allergic disease may induce T helper 2 cells to become dominant and overproduce immunoglobulin E antibody. Graves' disease is thought to be T helper 2 cell dominant; therefore, the present patient's allergy to titanium might have induced a T helper 2–dominant state, causing her Basedow disease. In this case, we suggest that the

palmoplantar pustulosis and hyperthyroidism may be causally associated with an allergy.

This research was originally published in the *Journal of the Japanese Dental Society of Anesthesiology*. 2015;43(5):667–669.

REFERENCES

1. Amino N, Kubota S. Exacerbation factor of autoimmune thyropathy. *Diagn Treat*. 2005;93:1128–1133.
2. Ikeda I, Takeuchi K, Mizuno T, Hattori M. Epidemiological survey of a patient with suspected allergy to metal used for dentistry. *J Environ Dermatol Cutan Allergol*. 2014;8:1–11.