Bisphosphonate-Related Osteonecrosis Of The Jaw Triggered By Dental Implants
-The Current Situation In Japan And Correspondence With Osteoporosis Patients When Getting Dental Implants-

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Japan is a super-aged society with the highest life expectancy in the world. The prevalence of osteoporosis drastically increases with age following menopause. It is said that 12.8 million patients in Japan suffer from osteoporosis. Osteoporosis and patients administered bisphosphonate, which is considered the top cause due to osteoporosis according to the guideline, has a high probability of undergoing implant treatment. Bisphosphonate (BP) is specifically incorporated into osteoclasts, thereby inducing necrosis and suppressing bone resorption, and is therefore widely used for osteoporosis and cancer metastasis of the bone. However, cases of BP-related osteonecrosis of the jaw (BRONJ) are proportionally increasing in a complicated manner. While dental extraction often triggers the onset thereof, dental implant treatment may also act as a trigger for those already no treatment established for BRONJ. We herein report on our experience regarding cases in which good results were achieved by carrying out surgical treatment on patients in which BRONJ was triggered by dental implants. Moreover, we report on the current state and correspondence of implant treatment with respect to osteoporosis patients with some bibliographical considerations.

Patients:

Case 1 of BRONJ

The case pertains to a 76-year-old woman taking Alendronate for treating bone metastasis from breast cancer. Implants were placed in 26 days approximately 5 years after a total dental implant. However, the implant was removed due to a fracture (Fig. 3). The patient visited our hospital through referral due to subsequent extra pain at the same site as well as hypertrophy of the lower lip (K). Marginal resection of the mandible was carried out under general anesthesia (Fig. 4), but pain disappeared, and the prognosis was good (O); however, the patient died due to the primary disease.

Discussion

1. BRONJ With Dental Implants

Fig. 1 BRONJ in Japan
Route of administration of BP

Fig. 2 Triggering factors

- Poorly fitting prosthesis
- Bone exposure
- Antibiotic prophylaxis
- Prophylactic treatment
- Excessive use of corticosteroids or angiogenesis inhibitors
- Diabetes mellitus
- Concurrent chemotherapy

<Good prognosis case>

The case pertains to a 76-year-old woman who has been taking Risedronate for approximately 1 year and 5 months for treating osteoporosis. She visited our hospital due to aggravating pain and hypoesthesia of the lower lip (Fig. 5). Marginal resection of the mandible was carried out under general anesthesia (Fig. 6), and the patient visited our hospital through referral due to subsequent extra pain at the same site as well as hypertrophy of the lower lip (K). Marginal resection of the mandible was carried out under general anesthesia (Fig. 4), but pain disappeared, and the prognosis was good (O); however, the patient died due to the primary disease.

Conclusions

Implant treatment should be avoided in cancer patients being administered BP; however, implant treatment should be given caution when there is a strong demand from osteoporosis patients being administered BP. Dentists should explain to patients the onset risk of osteonecrosis of the jaw, obtain their consent, and consider the advisability while taking into consideration the administration period of BP and the risks factors of such patients.