

Dental Implant Placement in Patients Using Anti-resorptive Medication –Case Report & Risk Evaluation

Discussion

Differentiation of ONJ & Periodontitis

		Osteoporosis	Periodontitis
Clinical finding		Deep probing depth, Mobility, Abscess (+/-)	
Deep probing Location		Between gingiva & alveolar bone	Between alveolar bone & root surface
X-ray finding	Alveolar bone resorption	(+/-), radiographic bone loss not correlate with deep pocket location	(+)
	Lamina dura	Thickening / Sclerotic change (only for BPs)	Discontinuity at crestal



Radiographic bone loss doesn't match the deep probing pocket depth r/o ONJ if history of using anti-resorptive agent.

Surgery Precautions

- Site considerations: Anterior maxilla >> Posterior mandible
- Antibiotic prophylaxis
 - Pre-op: Amoxicillin 500mg, 30~60 min before surgery
 - Post-op: Amoxicillin Q8H, for 7 days
- Aseptic & Atraumatic
- Avoid foreign body (e.g. Gelfoam, surgical, bone graft)
- **Wound primary closure**, avoid secondary healing
- Suggest 2-stage implant surgery

Drug Holiday Decision Making

Type	Dentoalveolar surgery	Implantation
Denosumab for osteoporosis	<ul style="list-style-type: none">• 3m since last dose• 1m after OP	<ul style="list-style-type: none">• 3m since last dose• At least 3m after OP Suggest delay
IV BP for osteoporosis Ex. Aclasta® IV, Q1Y	<ul style="list-style-type: none">• 3m since last dose• 1m after OP	<ul style="list-style-type: none">• 3m since last dose• At least 3m after OP
Oral BP for osteoporosis Ex. Fosamax® PO, Q1W <ul style="list-style-type: none">• <4y & no other risk factors• <4y with corticosteroids /anti-angiogenic meds• >4y ->Consider systemic conditions	Drug holiday for 2~4 months prior to surgery (3 months if possible) Time to resume the medication General dentoalveolar surgery: 1m after OP Dental Implant surgery: 3 months after OP	

Lab data before dental Implant surgery
Bone-specific Alkaline phosphate test –

- High, >10 ug/L ; better prognosis

CTX test –
C terminal cross-linking telopeptide of type I collagen

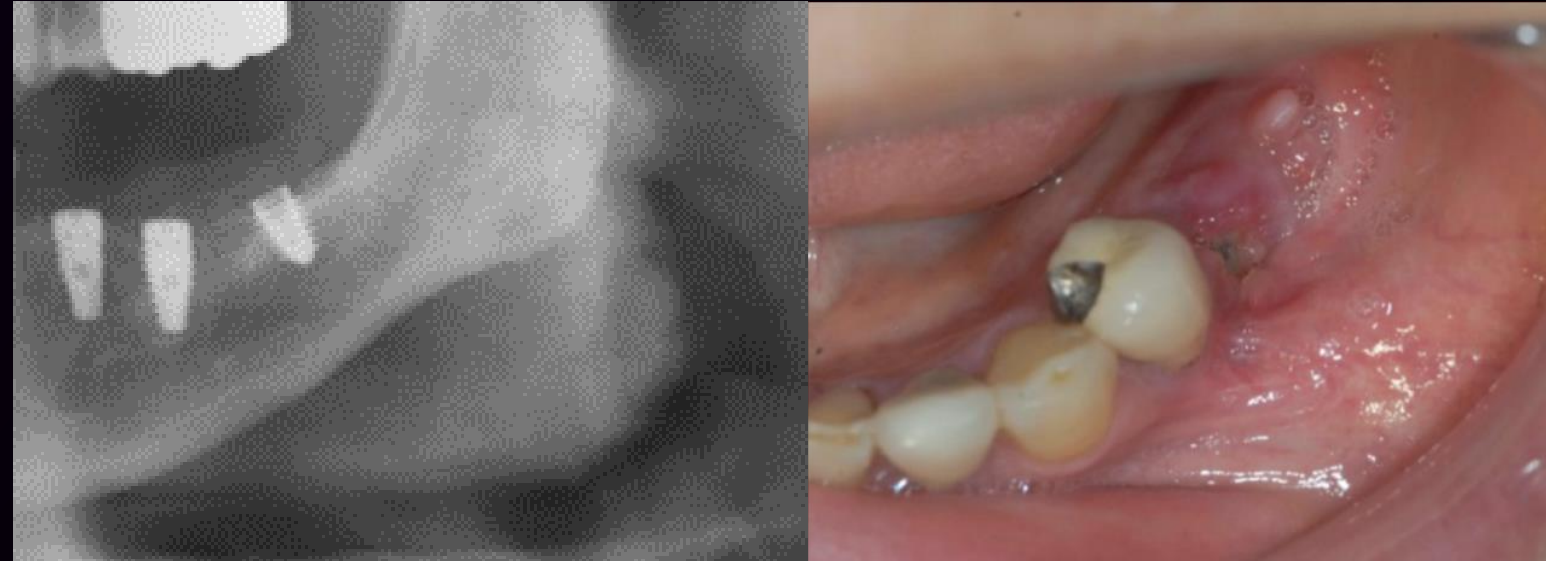
- Indicator of bone breakdown
- CTX test ↔ Risk assessment (?)
- Prediction of ONJ (*R L. Wynn et al 2007*)
 - High risk : less than 100 pg/mL
 - Moderate risk : 100 to 150 pg/mL
 - **Minimal or no risk : greater than 150 pg/mL or 200 pg/ml**
 - Normal : >200 pg/ml

Implants prognosis related to anti-resorptive meds

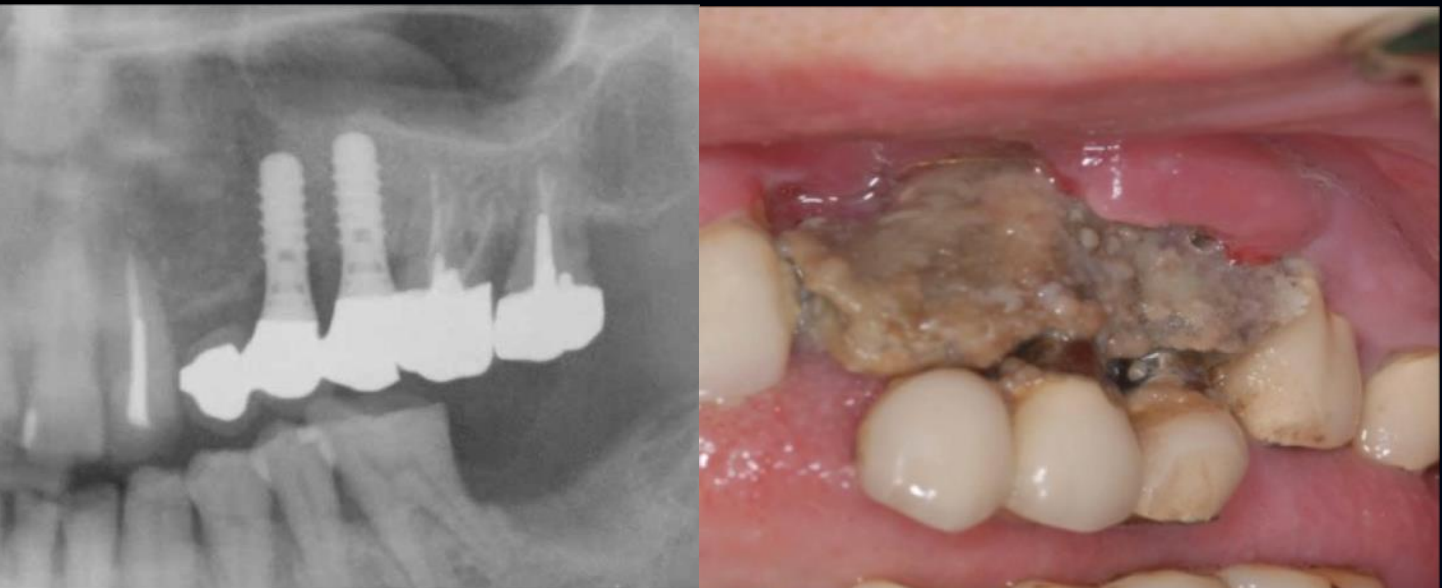
- Oral BP therapy did not appear to significantly affect implant survival & success in case of accurate treatment time selection
- Individual risk assessment is essential (primary disease / wound heal compromising disease...etc)
- Women with hx use of anti-resorptive agent had higher odds of implant failure
- Early-stage ONJ could manifested variously, hard to differentiate between periodontitis & peri-implantitis, posing higher risk for invasive surgeries.

Complications of Dental Implants with MRONJ

- Within 2 months
Surgery related - Early development of MRONJ



- After osseointegration & Peri-implantitis
Infection related - Late development of MRONJ



Conclusion

With proper surgical protocols, adequate drug holiday, and pre-implant placement evaluation, we can reach predictable implant success, and lower risk of MRONJ. The design of prosthesis and soft tissue quality were also significant in maintaining peri-implant environment, as to decrease local risk factors.

Reference

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