

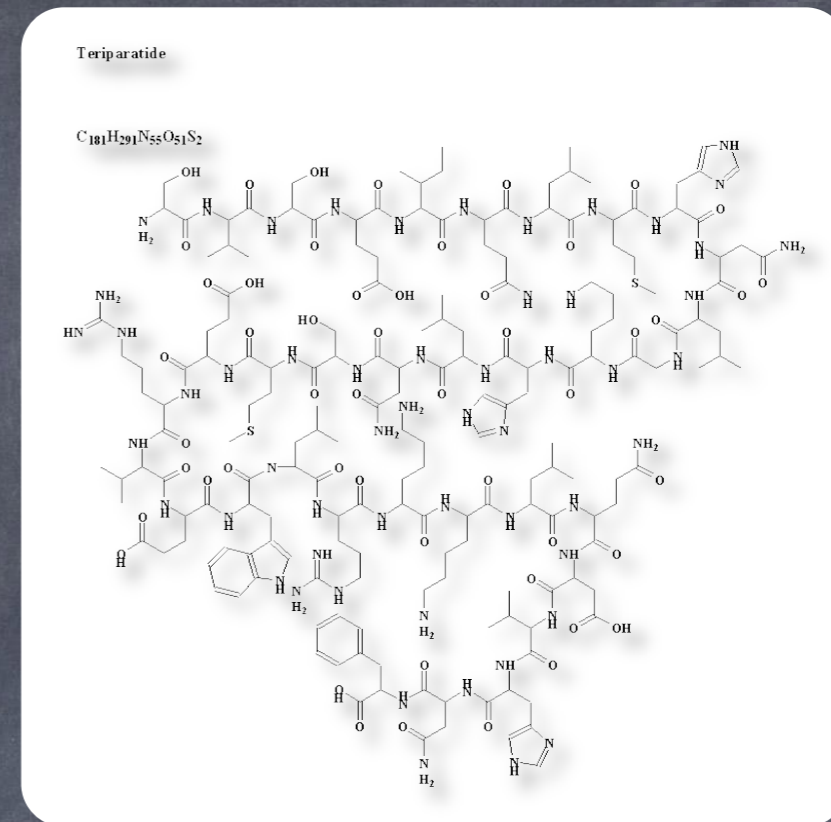


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# TERIPARATIDE THERAPY FOR BISPHOSPHONATE-RELATED OSTEONECROSIS OF THE JAW: OUR EXPERIENCE ON THREE CASES

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Teriparatide is a synthetic polipeptidic hormone, which contains the amino-acidic fragment of the 1-34 parathyroid recombinant hormone (rhPTH 1-34).



Pulsatile exposure to lower doses actually results in increased bone mineral density (BMD) and bone mass. The off-label use of Teriparatide in BRONJ patients affected from osteoporosis has recently been reported in literature.

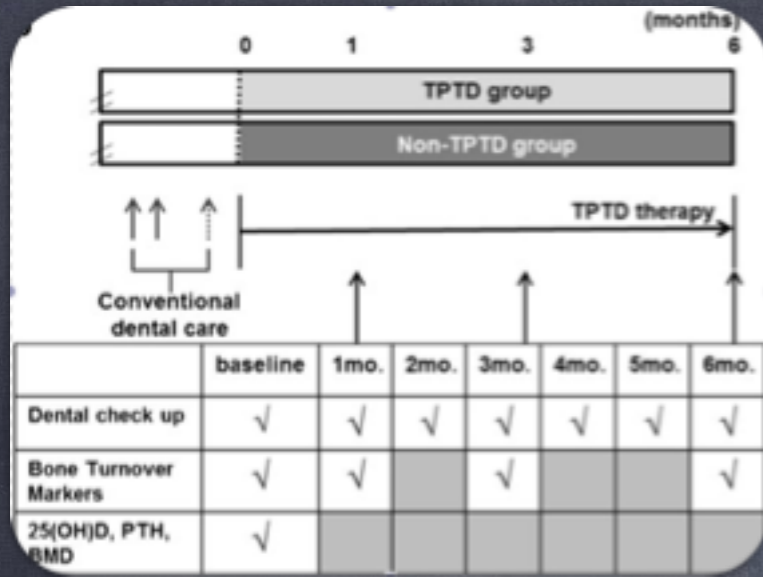


PUBBLICAZIONE	ETÀ/SEX	CONDIZIONE MEDICA E ALTRI FARMACI	BISFOSFONATO	SPONTANEA VS POSTESTRATTIVA	STADIO DELLA BRONJ	DURATA TERAPIA	DOCUMENTAZIONE RADIOGRAFICA
Harper e Fung (2007)	75/F	<u>Osteoporosi</u> simvastatina, rofecoxib, docusate sodium, zolpidem	Alendronato (70mg giornalieri) per 1 anno	Postestrattivo	Stadio II Mascellare	3 mesi	10 mesi OPT
Lau ed Adachi (2009)	56/F	<u>Fibromialgia, osteoporosi indotta da glucocorticoidi, osteoartrite</u> prednisone 18mesi	Etidronato, calcitonina, clodronato, pamidronato, zoledronato per 3 aa	Postestrattivo	Stadio III Mascellare	Non riferito (10 mesi OPT)	10 mesi OPT
Narongroeknawin et al. (2010)	63/M	<u>Osteoporosi</u> esomeprazolo, glucosamina, chondroitina, atorvastatina, cardioaspirina, mirtazapina	Alendronato per 5 aa	Postimpianto	Stadio I Mascellare	4 mesi	4 mesi periapicale
Lee et al (2010)	78/F	<u>Osteoporosi</u> cardioaspirina	Alendronato 70 mg/set per 5 aa	Postestrattivo	Stadio II Mandibolare	4 sett.	6 mesi OPT
Tsai et al (2010)	72/F	<u>Non dichiarata</u>	Alendronato settimanale per 4 aa	Postimpianto	Stadio III Mandibolare	4 mesi	5 mesi OPT
Cheung et al (2010)	88/F	<u>Osteoporosi</u> prednisone per 20 aa	Alendronato settimanale per 10 aa	Postestrattivo	Stadio II/III Mandibolare	8 sett.	CT scan a 8 settimane
Kwon et al (2011)	88/M	<u>Osteoporosi</u>	Risendronato per 5anni		Stadio II Mandibolare	1 mese	
Kwon et al (2011)	74/F	<u>Osteoporosi</u> methotrexate, prednisolone, mizoribine	Alendronato per 8anni		Stadio III Mandibolare	3 mesi	
Kwon et al (2011)	80/F	<u>Osteoporosi</u>	Alendronato per 3 anni		Stadio III Mandibolare	2 mesi	
Kwon et al (2011)	76/F	<u>Osteoporosi</u> glicazide	Alendronato e ibandronato per 3anni		Stadio II Mandibolare	1 mese	
Kwon et al (2011)	79/F	<u>Osteoporosi</u> amlodipina, metformina	Alendronato per 5 anni		Stadio II Mandibolare	2 mesi	
Kwon et al (2011)	68/M	<u>Osteoporosi</u>	Alendronato per 4 anni		Stadio II Mascellare	3 mesi	

# DISTINCTIVE ROLE OF 6-MONTH TERIPARATIDE TREATMENT ON INTRACTABLE BISPHOSPHONATE-RELATED OSTEONECROSIS OF THE JAW

K.M.Kim, W.Park, S.Y.Oh, H.-J.Kim, W.Nam, S.-K.Lim, Y.Rhee, I.H.Cha

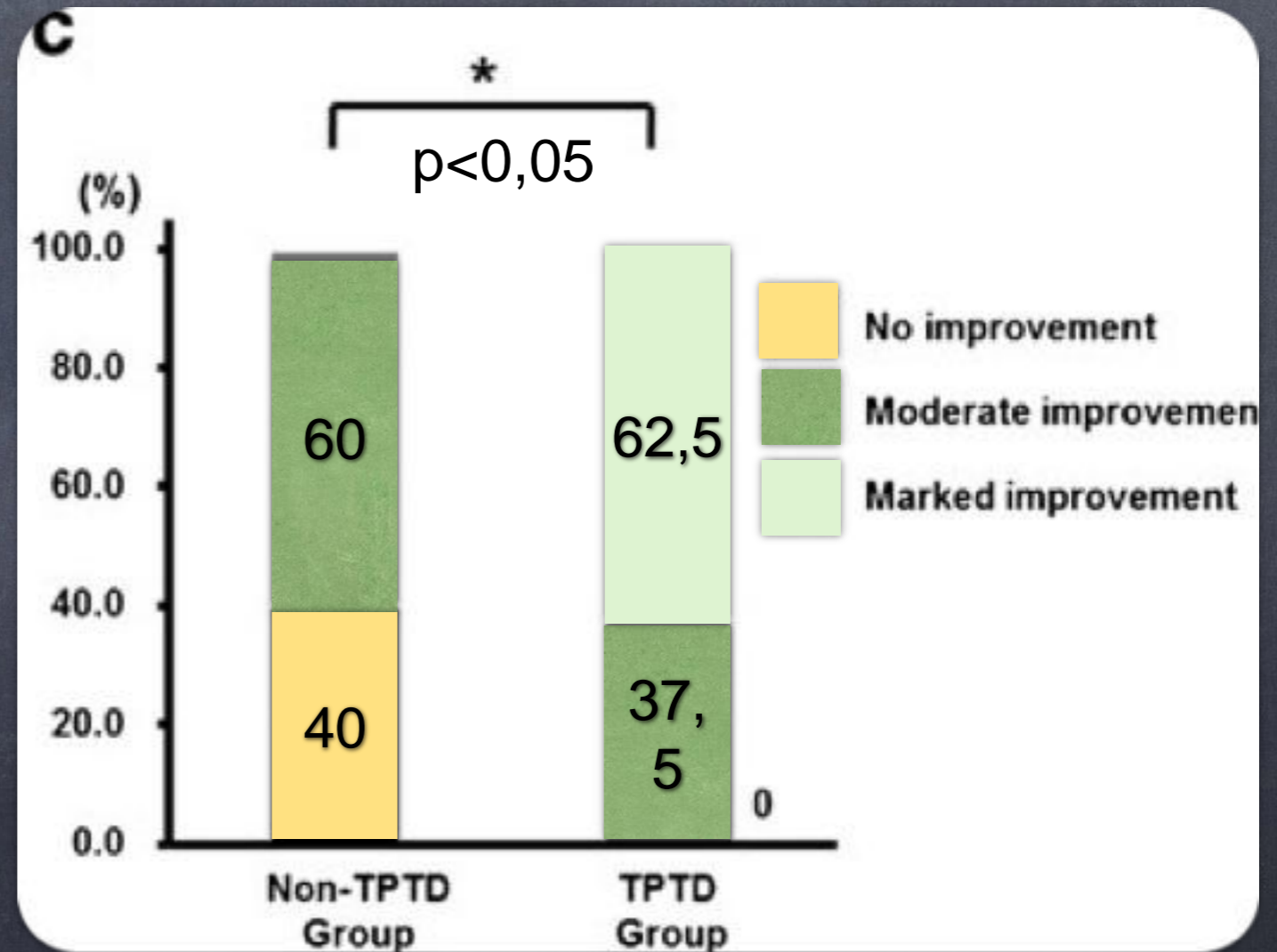
Osteoporos Int 2014



24 BRONJ

15  
TPTD +  
Ca-Vit D

9  
TPTD-  
Ca-Vit D



Patients with higher baseline serum 25(OH)D levels showed better clinical therapeutic outcomes with TPTD

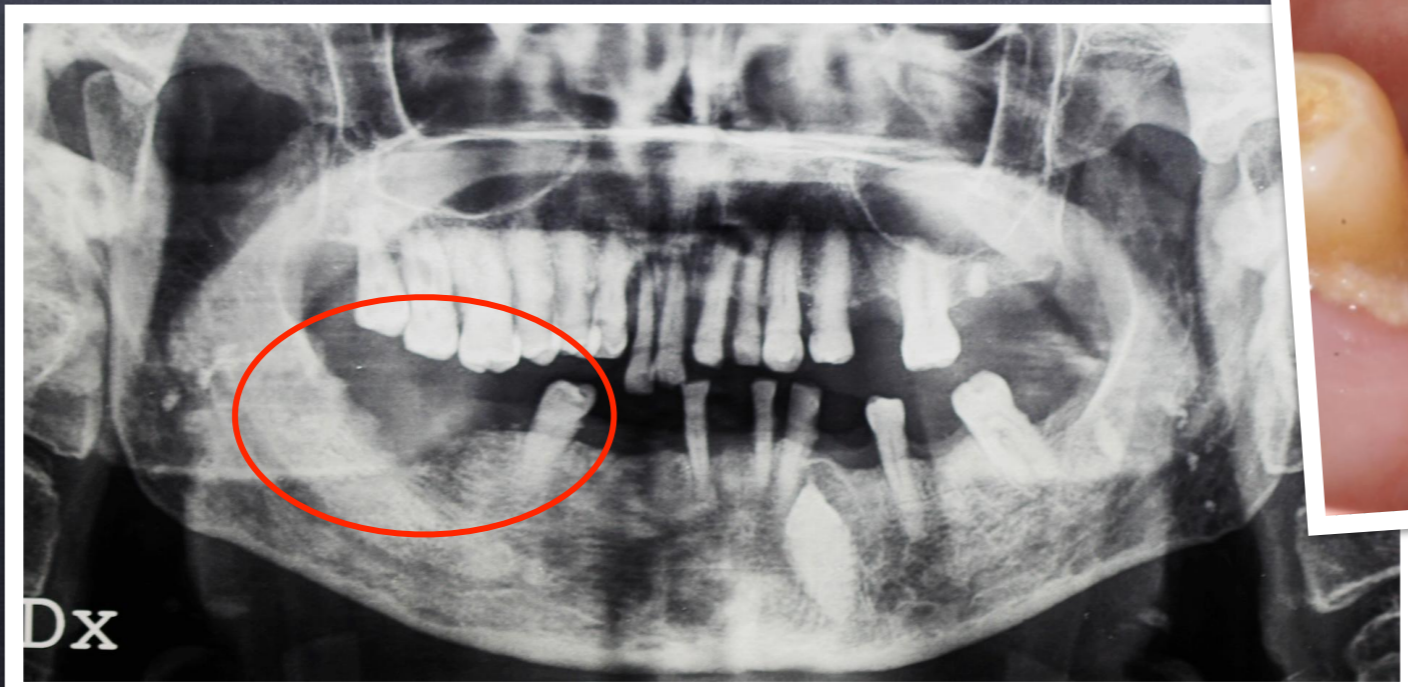
# METHODS

- Visit and anamnesis
- Clinical and radiological assessment of BRONJ
- Drug holiday
- Endocrinologist advice
  1. spine x-ray,
  2. complete blood count,
  3. serum protein electrophoresis,
  4. determinations of serum calcium,
  5. creatinine,
  6. phosphorus,
  7. alkaline phosphatase,
  8. uric acid ,
  9. TSH,
  10. PTH,
  11. 24-h urinary calcium
- Monthly follow-up

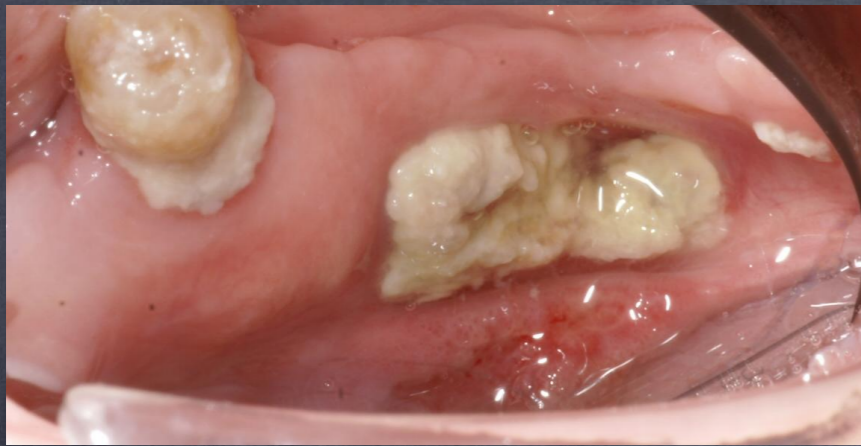
SEX/ AGE	SINTOMATOLOGY OSTEOPOROSIS	BF	DURATION DEL OF THE TREATMEN T WITH BF	CONCURRENT PATOLOGIES	CONCURREN T PHARMACOL OGICAL THERAPIES	TERIPARATID E
Pz. 1 F/69	2007 rigth wrist fracture.  NOT OSTEOPOROTIC PATIENT!!	Alendronate e Vit D3 (Fosavance)	11/2009 12/2010 1 YEAR	arterial hypertension, arthrosis, mild hyperglycemia, premature menopause	ASA, fosinopril, spironolactone and furosemide, allopurinol and pantoprazole	7 months



Extractions 46 - 47



II stadium (AAOMS)  
II stadium (SIPMO-SICMF)



Starts FORSTEO

Pain and swelling disappeared

Ends FORSTEO (7th month)

APRIL 2

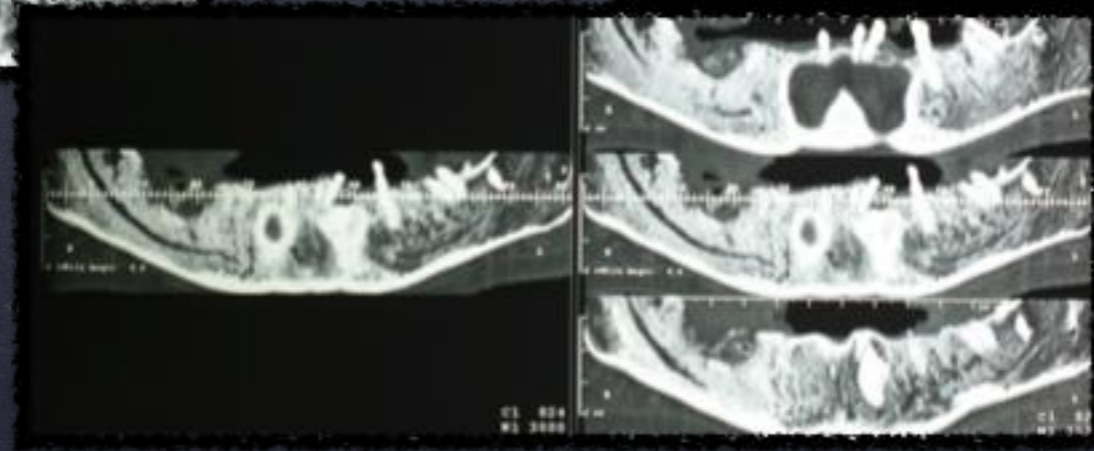
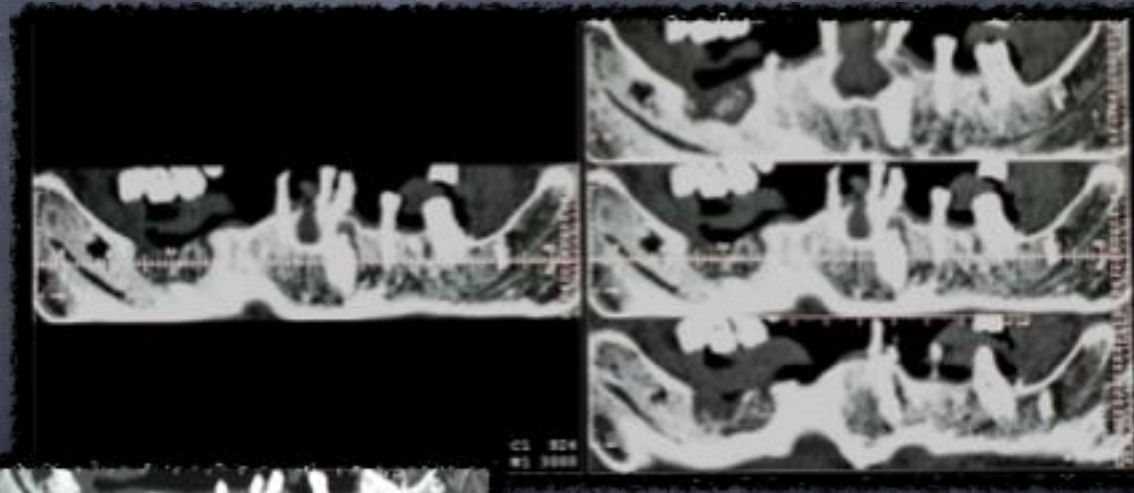
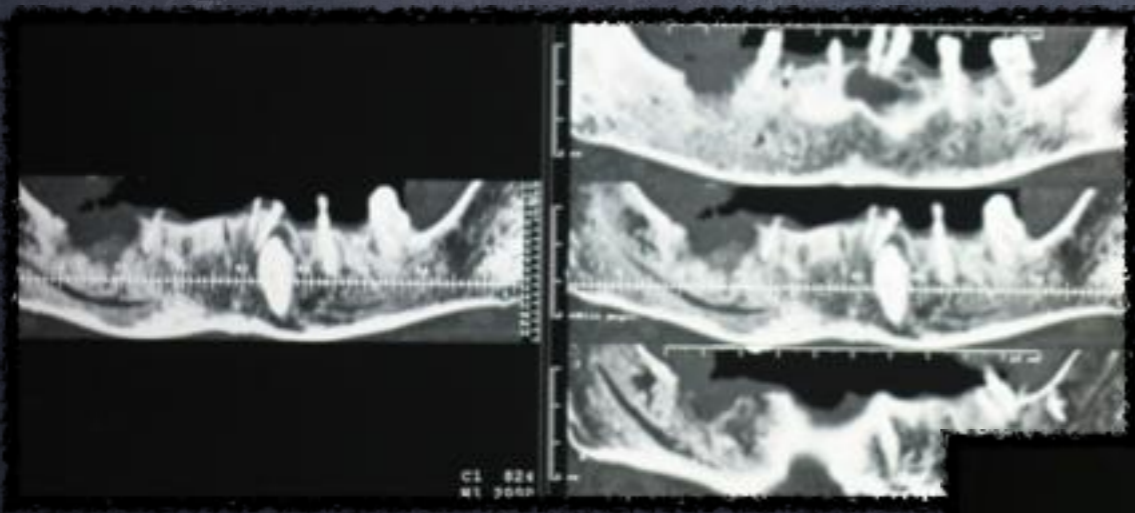
MAY

JULY

1

OCTOBER

Control (4th month)



Starts FORSTEO

Surgery

APRIL

2

0

1

1

NOVEMBER





Starts FORSTEO

Ends FORSTEO (7th month)

Surgery

Control

Control

2

APRIL

0

1

OCTOBER

1

NOVEMBER

APRIL

2

0

1

2

OCTOBER



First OPT (Dec 2010)

OPT 12 month after surgery (10/12)

SEX/ AGE	SINTOMATOLOGY OSTEOPOROSIS	BF	DURATION DEL OF THE TREATMEN T WITH BF	CONCURRENT PATOLOGIES	CONCURRENT PHARMACOLO GICAL THERAPIES	TERIPARATID E
Pz. 2 F/80	Several bone fractures (femur, humerus, ribs) Multiple vertebral collapses	Alendronate (Adronat)	2004 9/2011 7 ANNI	Epilepsy, psoriasis and osteoporosis	Fenobarbital, lorazepam and loratadine, <b>Prednisone</b>	9 months

JUNE

2

0

1

1

OCTOBER

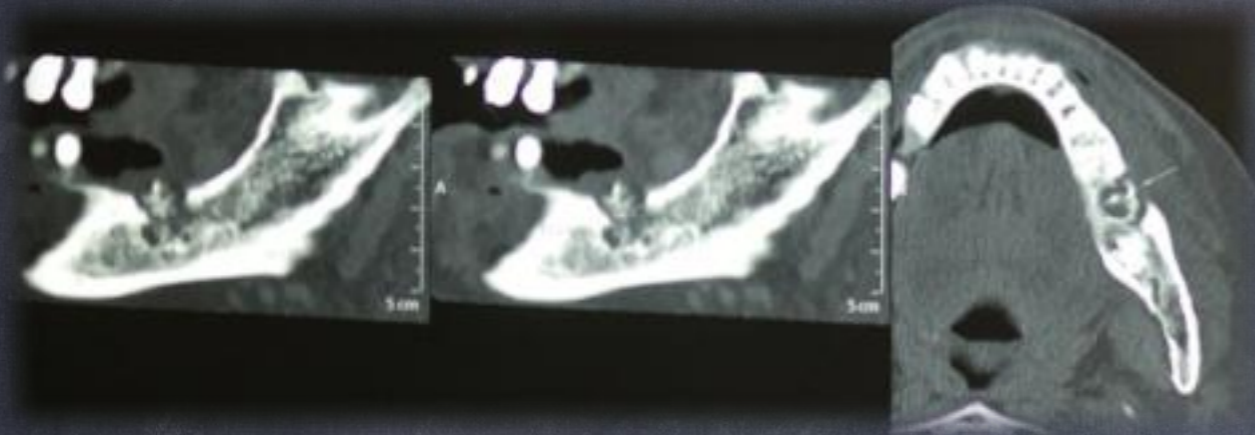
Extractions  
36-37



II stadium (AAOMS)  
II stadium (SIPMO-SICMF)

Starts FORSTEO

Pain and swelling disappeared



Control  
(4th month)



FEBRUARY

2

0

1

2



Starts FORSTEO

Pain and swelling  
disappear

Control  
(4th month)

Control  
(7th month)

Ends  
FORSTEO  
(9th month)

2

OCTOBER

1

NOVEMBER

DECEMBER

FEBRUARY

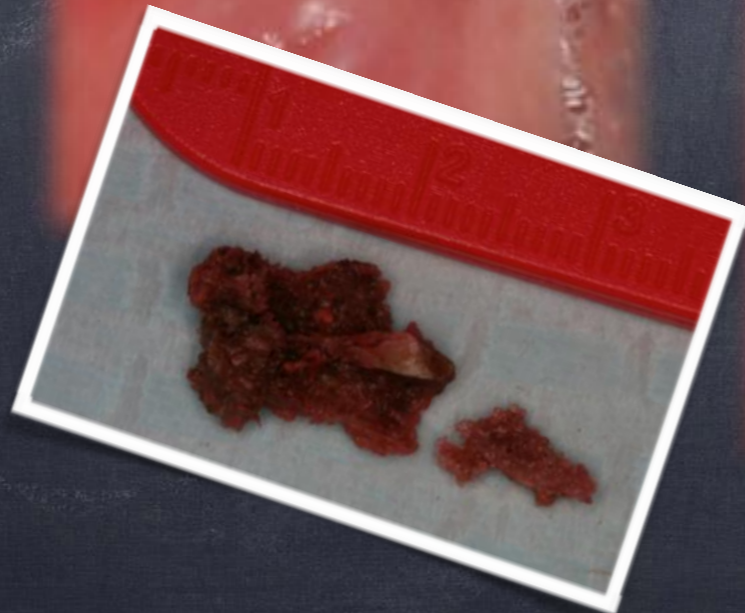
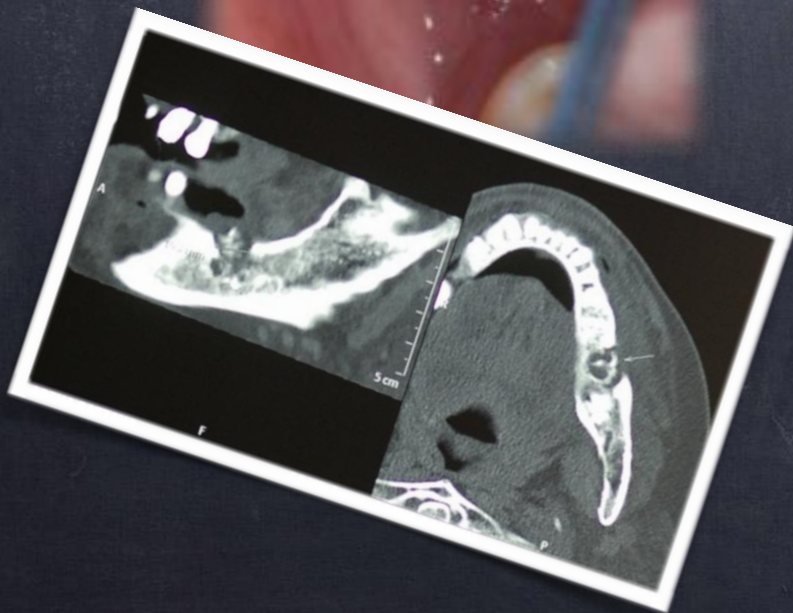
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1

2

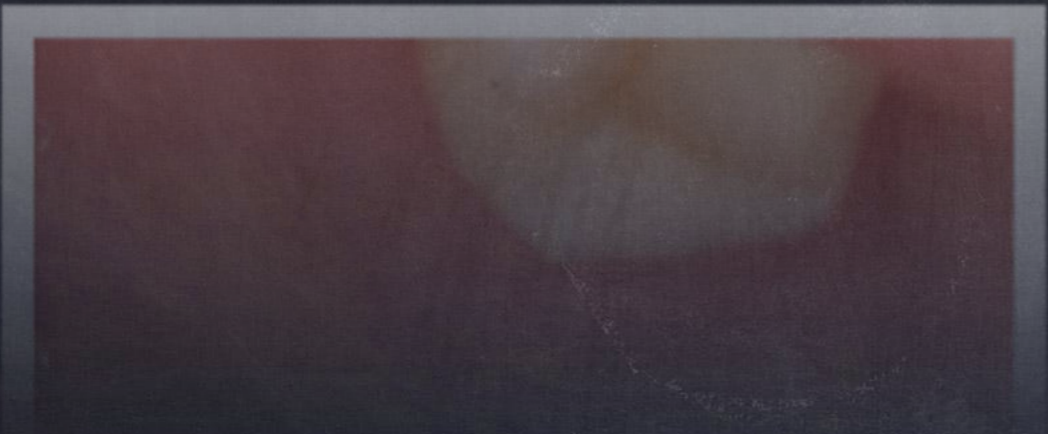
MAY

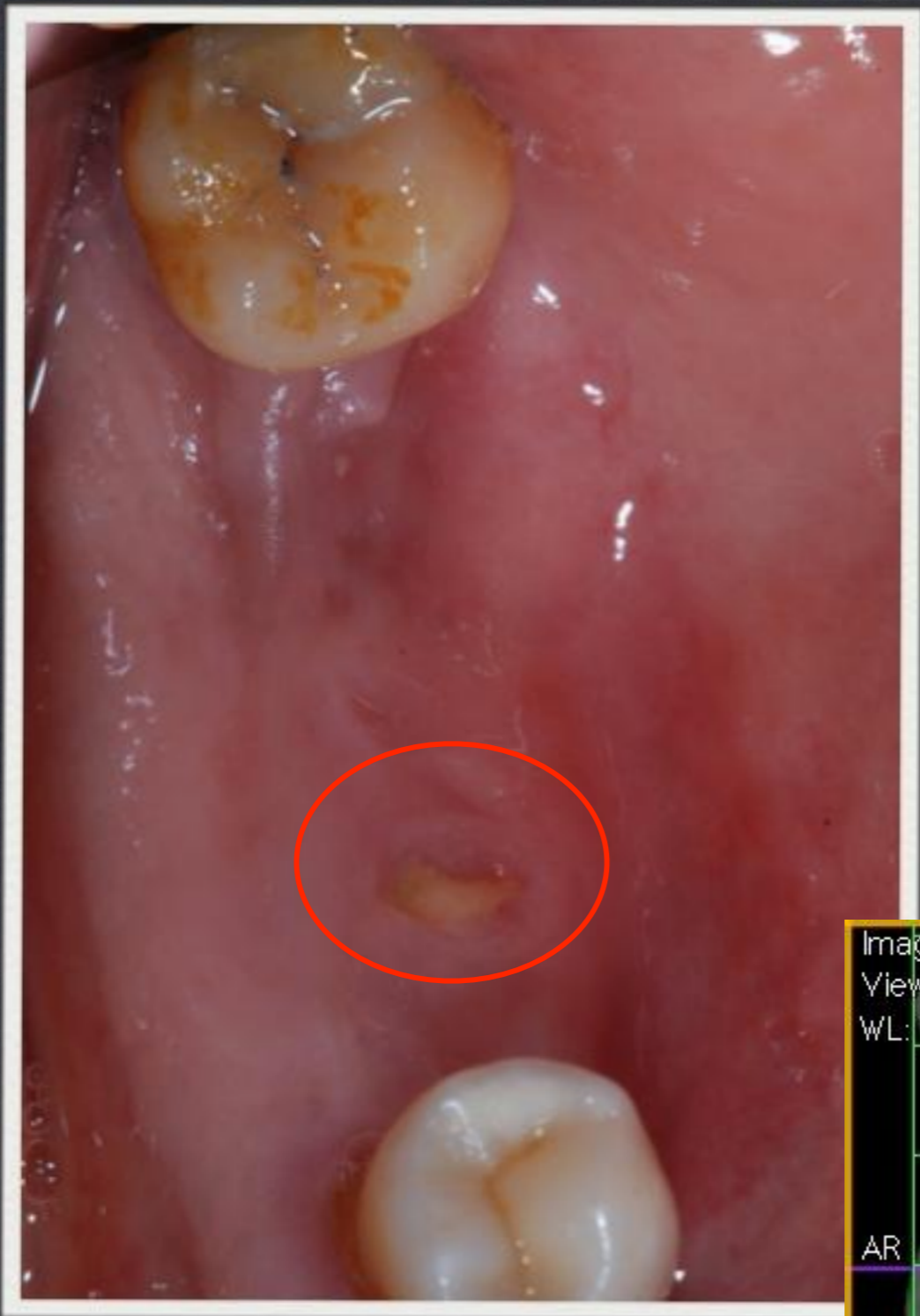
JULY





SEPTEMBER 2012





OCTOBER 2012

Amoxicillin 1 gr X 3 X 6



SEX/  
AGE

SINTOMATOLOGY  
OSTEOPOROSIS

BF

DURATION  
DEL OF THE  
TREATMENT  
WITH BF

CONCURRENT  
PATOLOGIES

CONCURRENT  
PHARMACOLO  
GICAL  
THERAPIES

TERIPARATID  
E

Pz. 3

F/90

multiple vertebral  
collapses

Ibadronato  
(Bonviva)

2005  
10/2012  
7 YEARS

Hypertensive  
cardiomyopathy,  
mitral fibrosis,  
dispnea,  
esophagitis and  
iron deficiency  
anemia

Oxybutin, eosina,  
homeoplasmine,  
haloperidol,  
promazine and  
quetiapine

3 months

SEPTEMBER

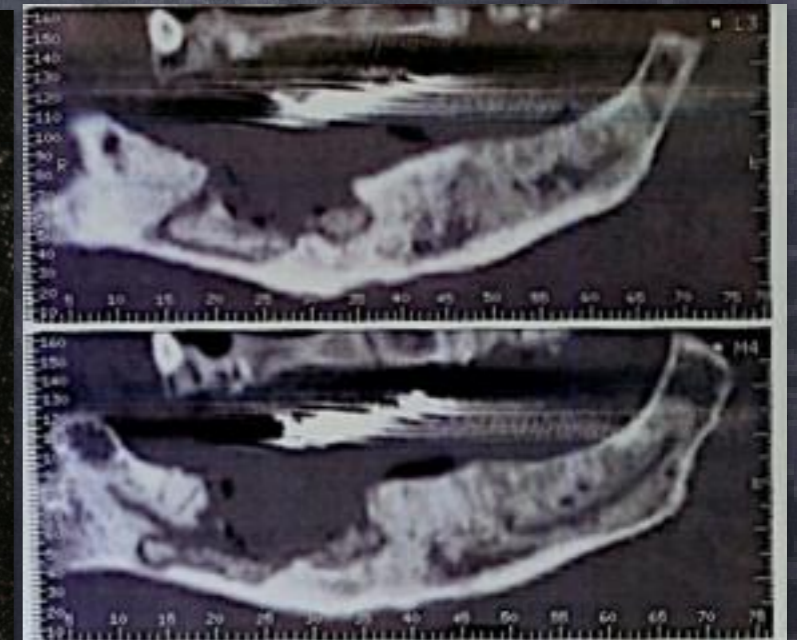
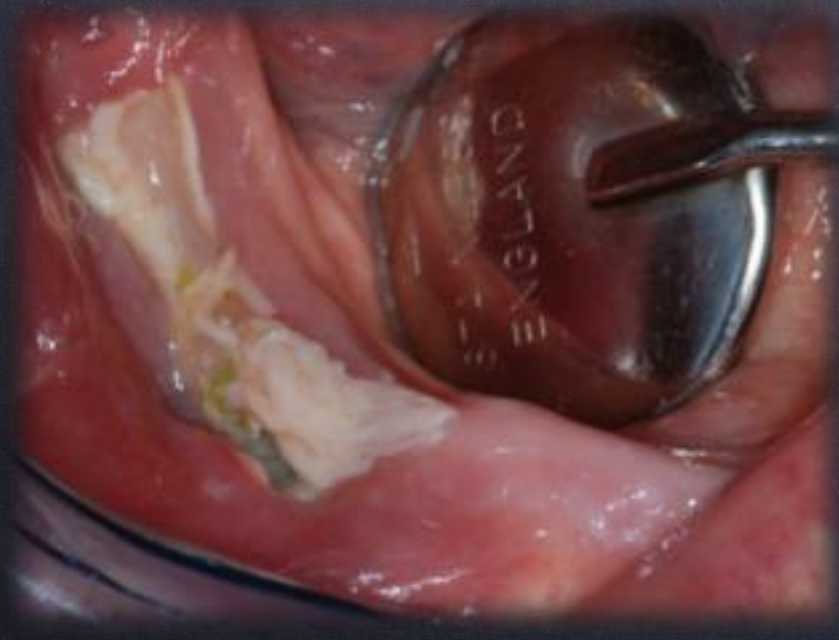
2

0

1

2

III stadium (AAOMS)  
III stadium (SIPMO-SICMF)





Start FORSTEO

Control  
(3rd month)

SEPTEMBER

OCTOBER

2

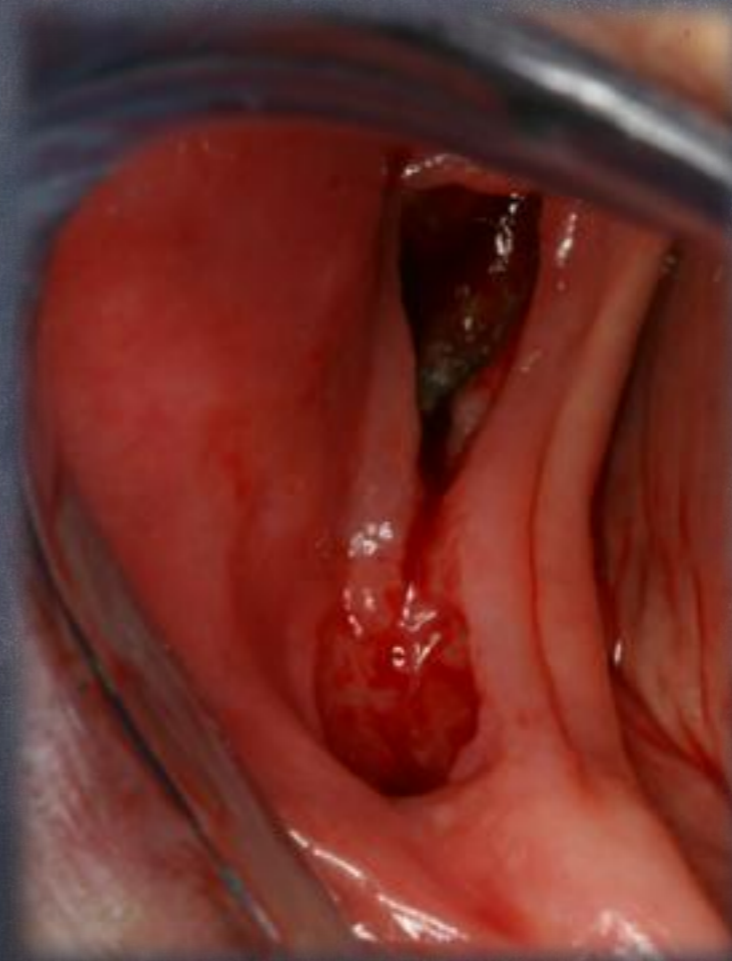
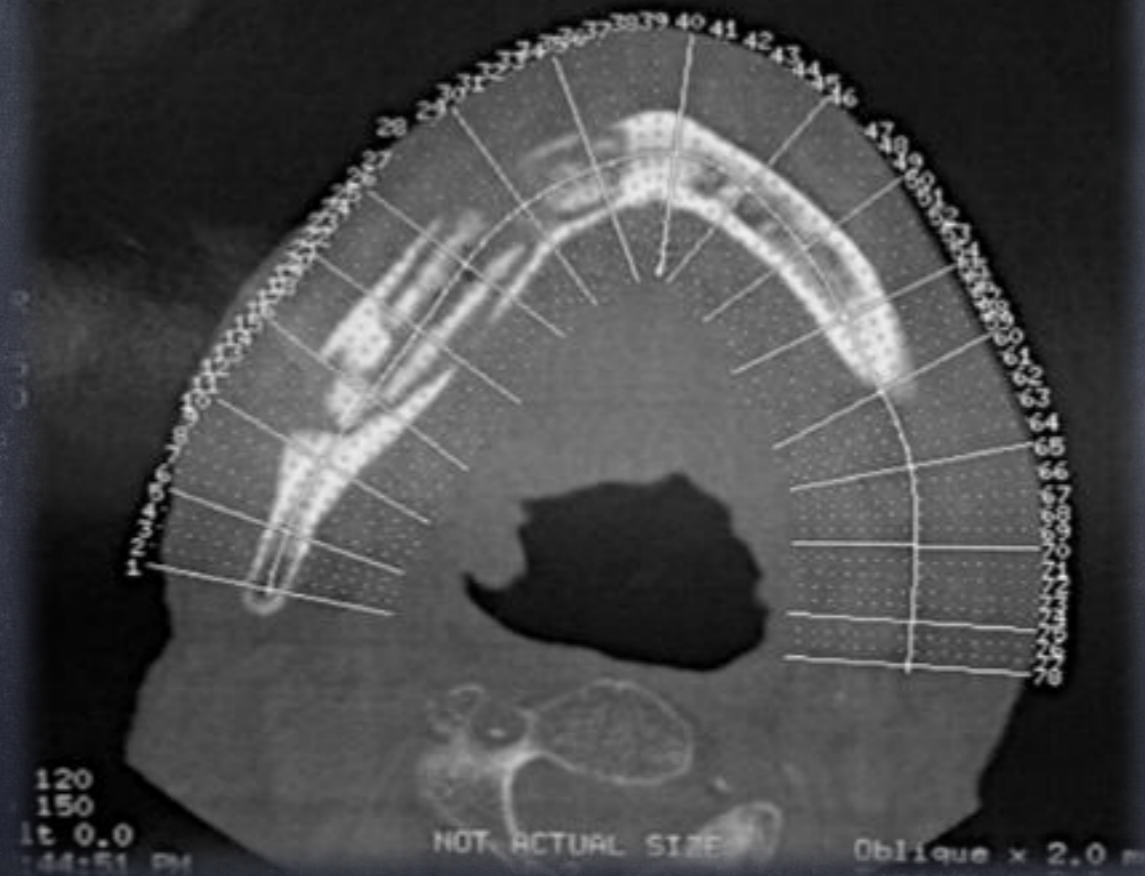
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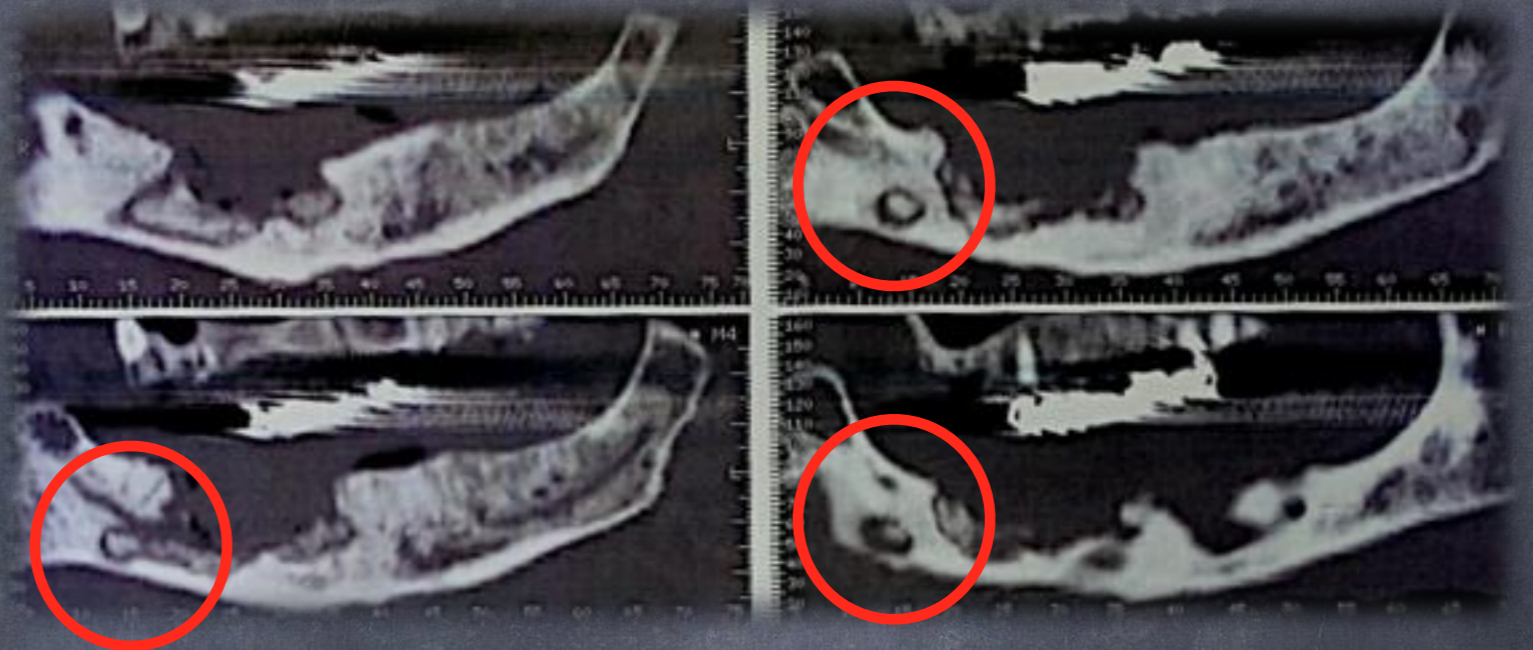
1

2

DECEMBER

: 51  
OV 15.3 cm  
IE





The cutaneous fistula did not resolved

## CONCLUSIONS

- Reduction of pain and swelling in the early two weeks from the beginning of the therapy
- Reprise of bone remodeling, evidenced by the release of bone sequestra and by a better definition of the cortical contours in TC and OPT
- Although the application of teriparatide as an adjunctive modality is an opinion-based approach rather than evidence-based one, we might validate this short-term teriparatide therapy for the BRONJ patients as an adjunctive modality.

**FOR THIS PURPOSE FURTHER INVESTIGATIONS AND CONTROLLED STUDIES SHOULD BE PERFORMED.**

Grazie per l'attenzione...



Bone homeostasis involves 3 key biological pathways:

- the estrogen-endocrine pathway that preserves BMD
- the canonical Wnt/ $\beta$ -catenin signaling pathway, a major signaling pathway that facilitates bone formation
- the receptor activator of NF- $\kappa$ B ligand/receptor activator of NF- $\kappa$ B/osteoprotegerin (RANKL/RANK/OPG) pathway that determines the balance between bone formation and resorption