



Posterior Maxillary Osteonecrosis of the Jaw(MRONJ) and Maxillary Sinusitis : A Retrospective Study ,Management and Outcome

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Background & Objectives

Medication-related osteonecrosis of the jaw(MRONJ), a side-effect of long-term bisphosphonates and anti-angiogenic drug administration, has been reported to be one of the predisposing factors for sinusitis due to its features of bone exposure and secondary infections, causing a disruption in the Schneiderian membrane as it advances.

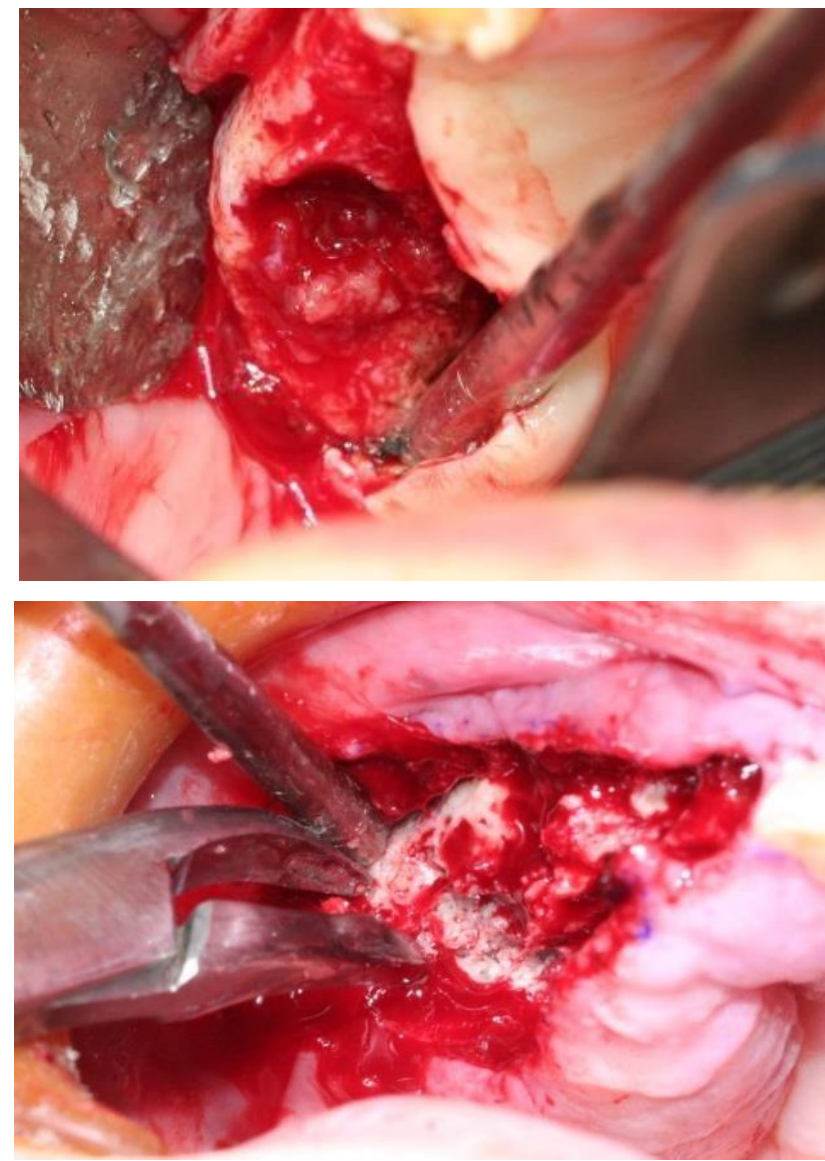


Fig.1. Clinical pictures of advanced MRONJ showing exposed, necrotic bone.

This retrospective study aims to describe the treatment outcomes of patients diagnosed with **MRONJ** with concomitant **maxillary sinusitis** treated by oral surgical approach in conjunction with Functional Endoscopic Sinus Surgery (FESS).

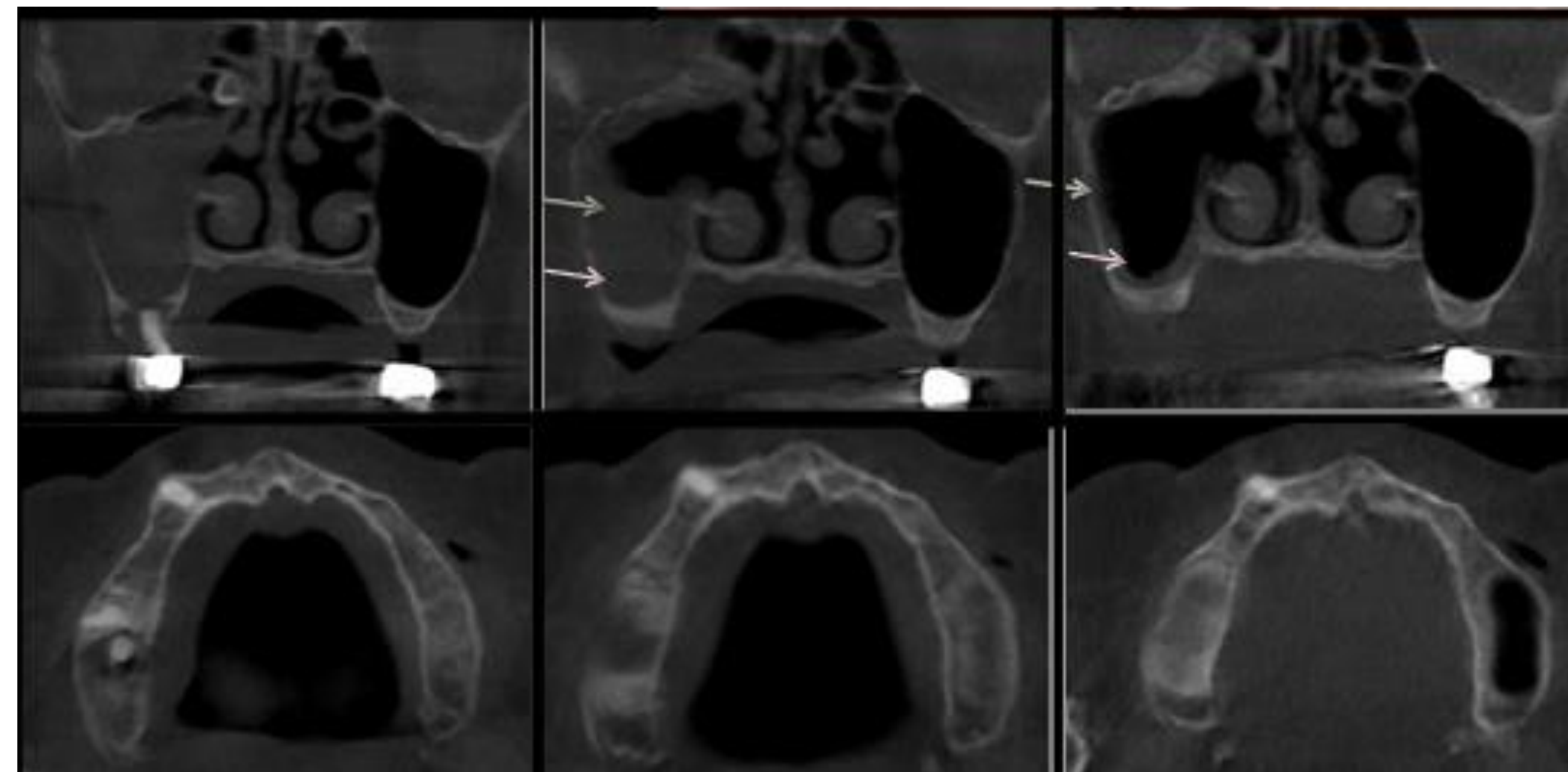
Patients & Methods

- Patients diagnosed with MRONJ in the maxillary area with or without Maxillary Sinusitis (**MS**) and oro-antral fistula(**OAF**)
- January 2006 ~ July 2022, Ewha Womans University Medical Center
- Complete records, CBCT and/or Panoramic Radiographs

Case 79/F Osteoporosis patient

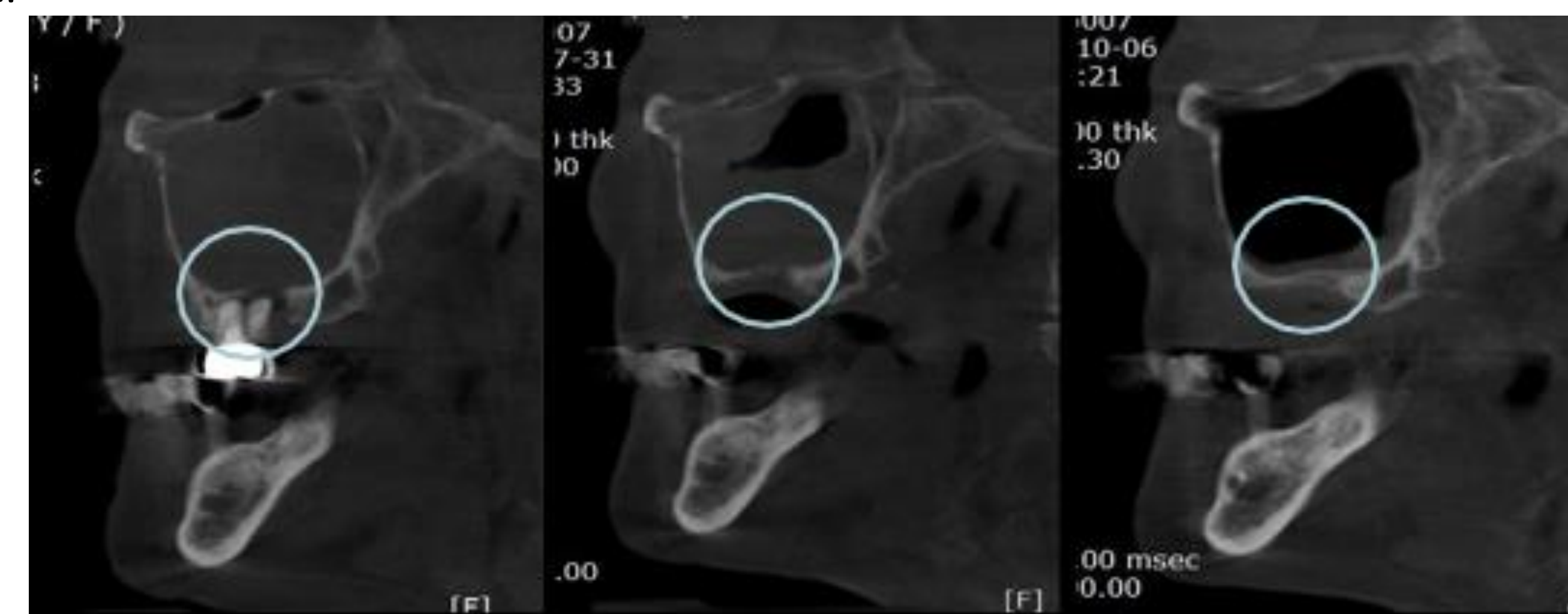


- (+) BP exposure: Ibandronate 5yrs
- Chronic periapical periodontitis on #17
- Pain on maxillary area



Pre-operative imaging :

- Sinus radiopacity indicative of inflamed sinus
- Periapical radiolucency, osteolysis
- Oro-antral communication



Pre-Op

Post op 2w

Post op 6w

Treatment :

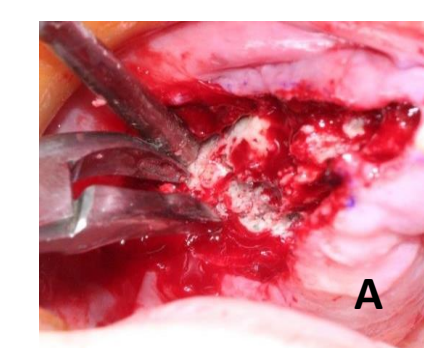
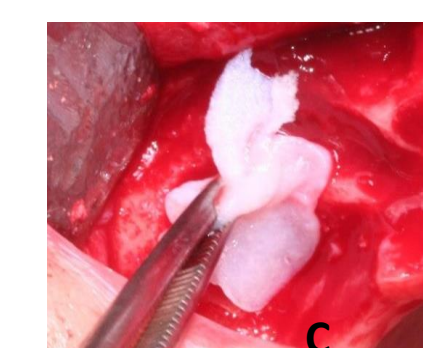
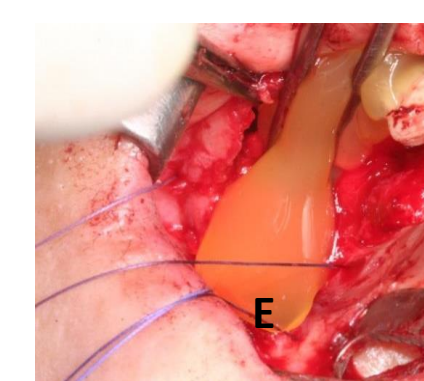
- Extraction and sequestrectomy
- Biopsy results confirmed a MRONJ diagnosis

Post-operative radiographs :

- MRONJ resolution and obliteration of oro-antral fistula(OAF)
- Clinical photos showing good tissue healing.

Management in 94% of the patients includes removal of necrotic bone and debridement (A)

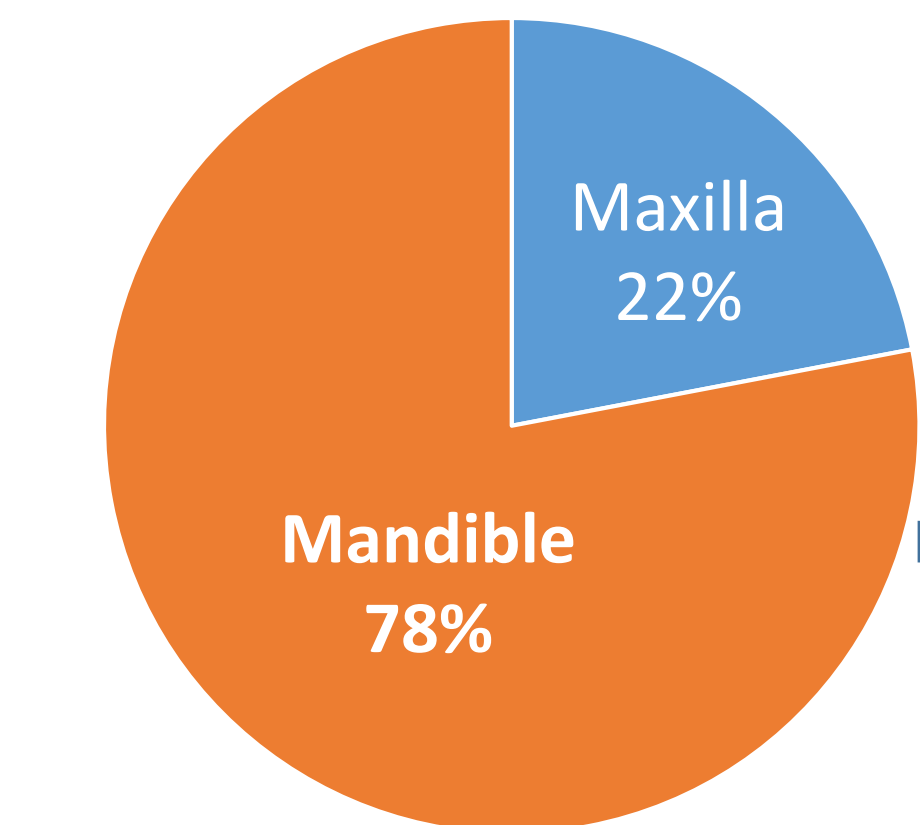
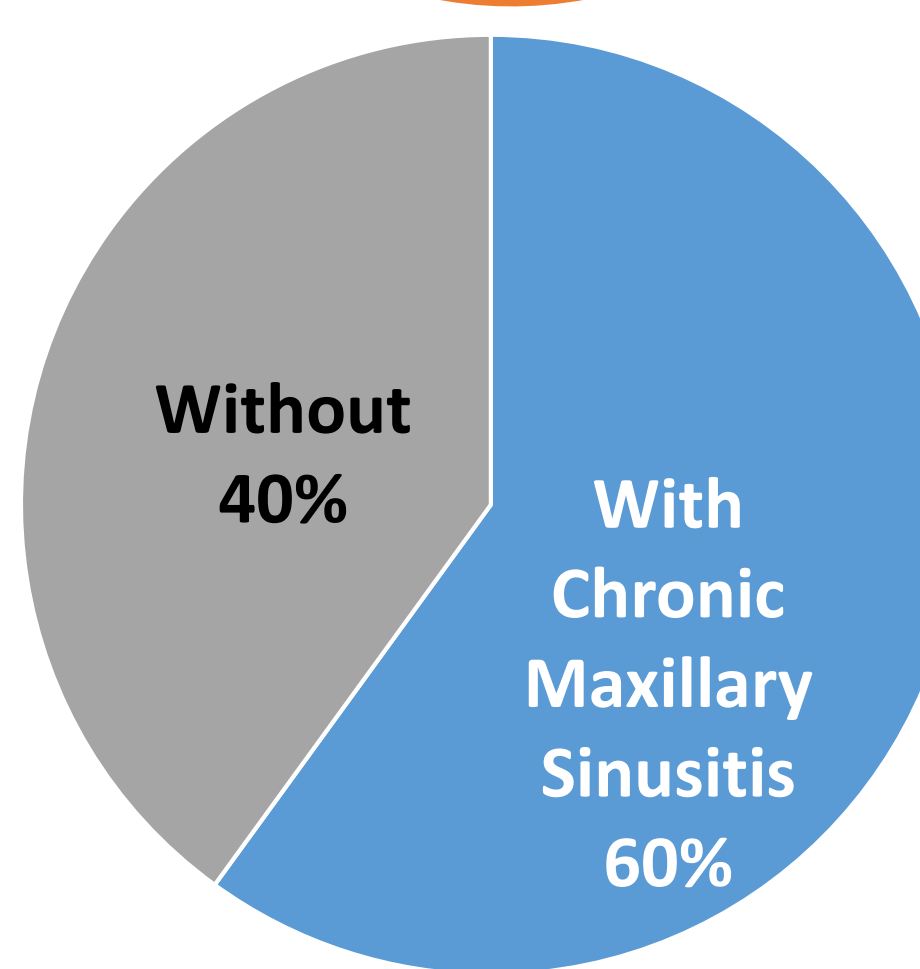
in conjunction with recombinant human bone morphogenic protein (rhBMP-2) using collagen sponges as carriers (B) placement on the bone(C) and leukocyte-rich and platelet-rich fibrin (L-PRF) insertion (D,E) and before flap closure



Results

- 210 patients with MRONJ from 2006-2022
- 47 patients with Maxillary MRONJ
- 28 (60%) of 47 with Concomitant chronic Maxillary Sinusitis(MS)
- 21 (45%) of 47 presented oro-antral fistula (OAF)

MRONJ Patients



Patient Characteristics (n=47)

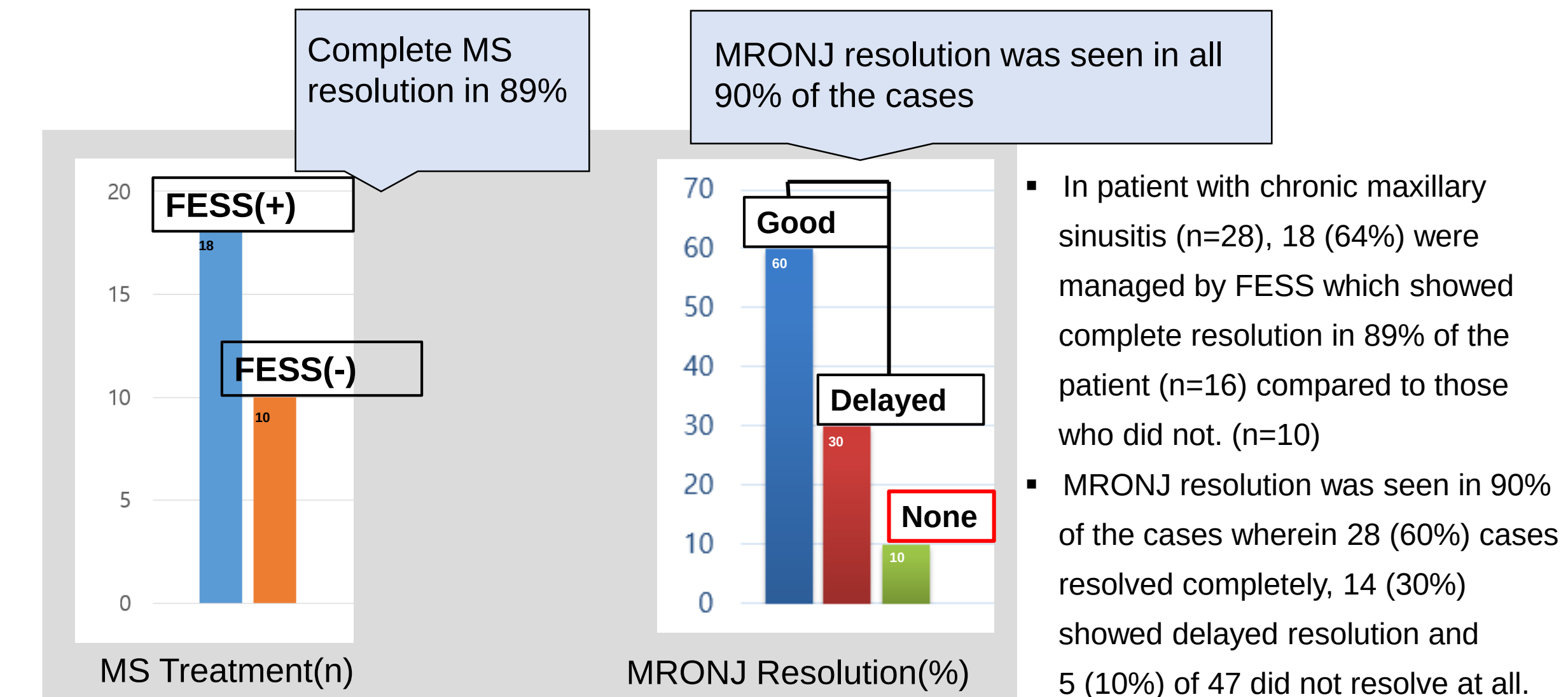
	NUMBER
Mean age (SD)	71 (8.9)
Reason for BP*	
Osteoporosis	35
Breast Ca	4
Multiple Myeloma	7
Cervical Ca	1
Route	
IV	24
PO	23
Type of drugs	
Alendronate	18
Risedronate	7
Pamidronate	5
Ibandronate	8
Zoledronate	8
Others**	1
Median of BP exposure (Range)	64 (4-240)
MRONJ Stage***	
0	0
1	0
2	19
3	28
(+) Chronic Maxillary Sinusitis	28
(+) Oro-antral Fistula	21

Table 1.

*Bisphosphonates

**Raloxifene

***MRONJ staging is based on the AAOMS 2014 Position Paper



Discussion

- MRONJ not only affects function and esthetics but also causes serious side-effects such as, pain, infection, sensory disturbances, pathological fractures and odontogenic maxillary sinusitis, which is highlighted in our study.
- Reports noted that maxillary sinusitis appeared concomitantly in 61% of maxillary MRONJ cases owing to the intimate anatomical relationship of the maxillary tooth bearing areas with the sinus.
- Following oral surgical procedure, MRONJ patients with chronic sinusitis were co-managed by the ENT Department and were subjected to further evaluation and eventually, **FESS**, if indicated.
- In conjunction with oral surgical treatment, it removes all the sources of possible focus of infection, hence, it provided promising treatment outcomes in our population.



FESS photos of 59/M patient showing inflamed sinus walls. Preoperatively and a patent ostium, post-operatively at 2-month recall

Conclusions

- Oral surgical treatment protocols in conjunction with FESS approach when chronic sinusitis is detected, presents promising treatment outcomes.
- It is of utmost importance to detect and understand their association to provide a holistic approach in treatment planning and management. Further investigation is needed to provide treatment protocols on advanced MRONJ cases with the involvement of the maxillary sinus.