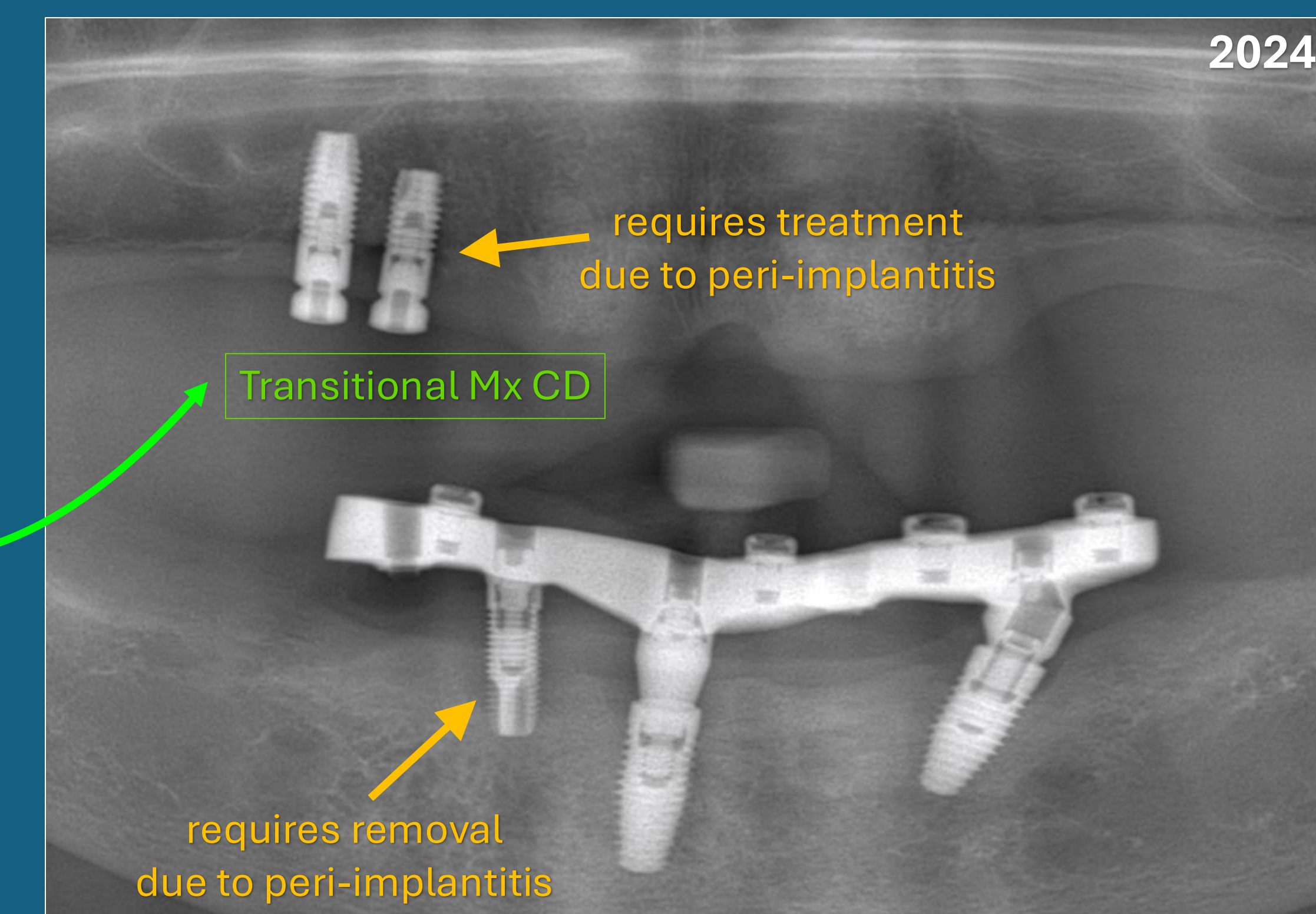
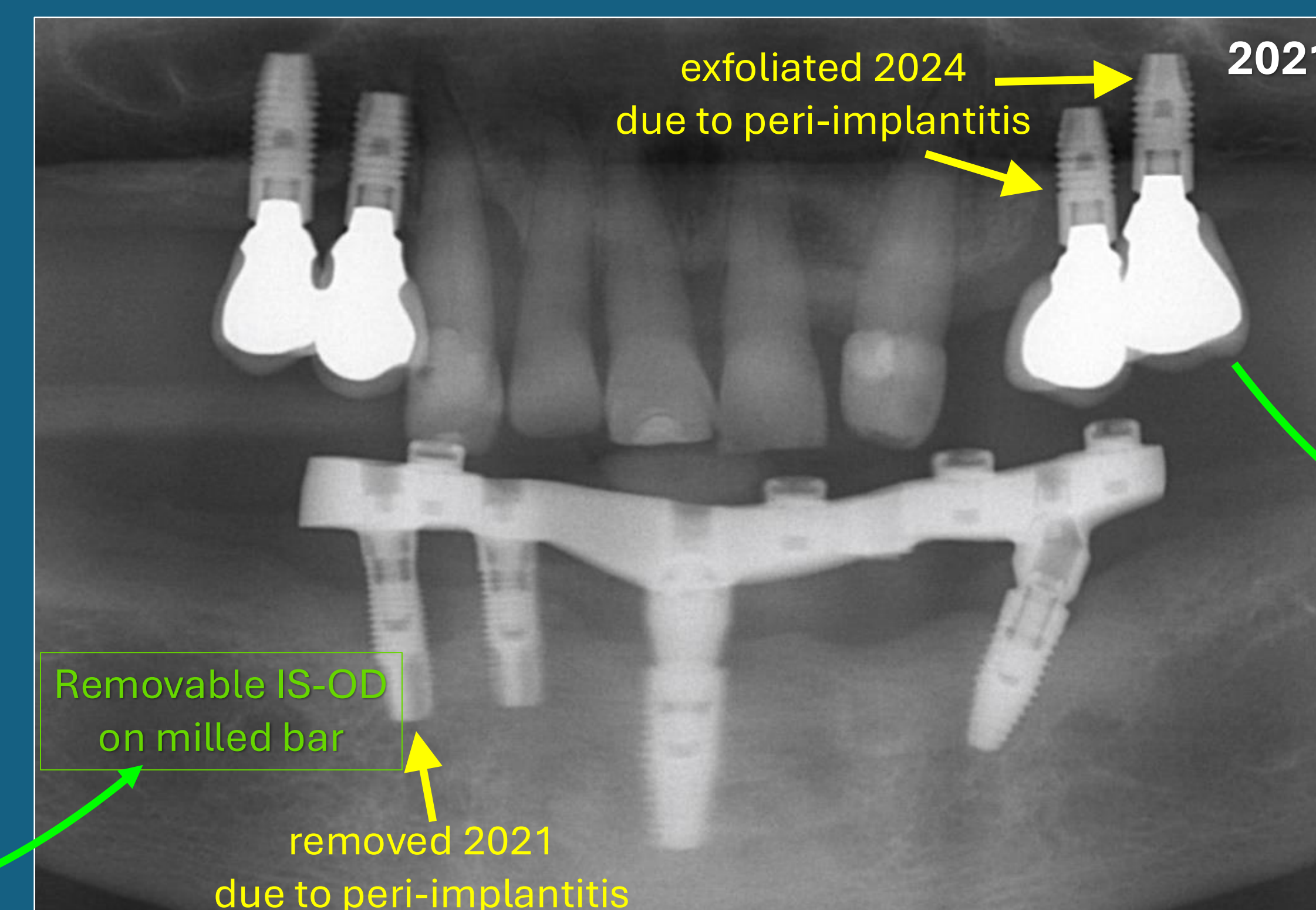
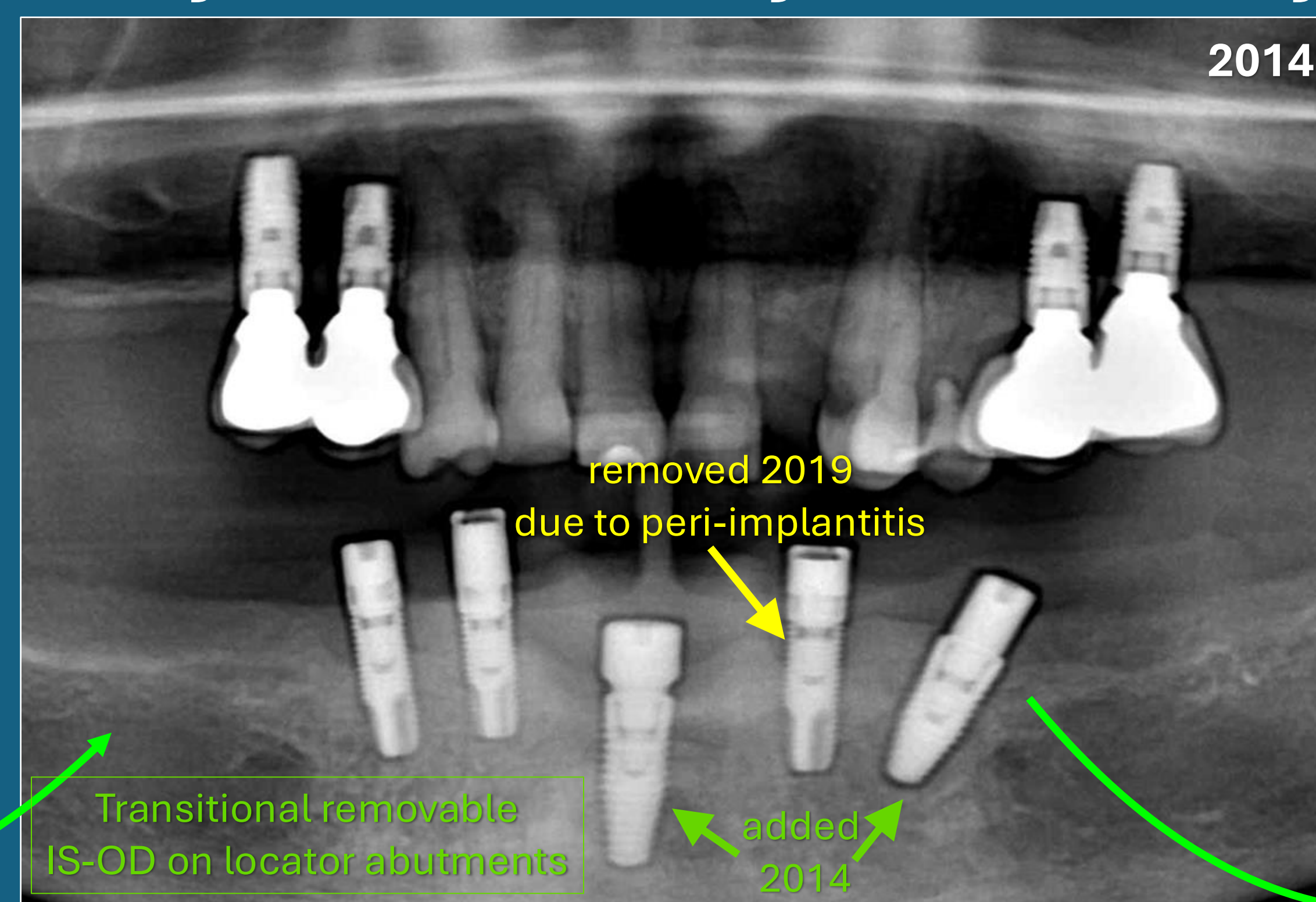
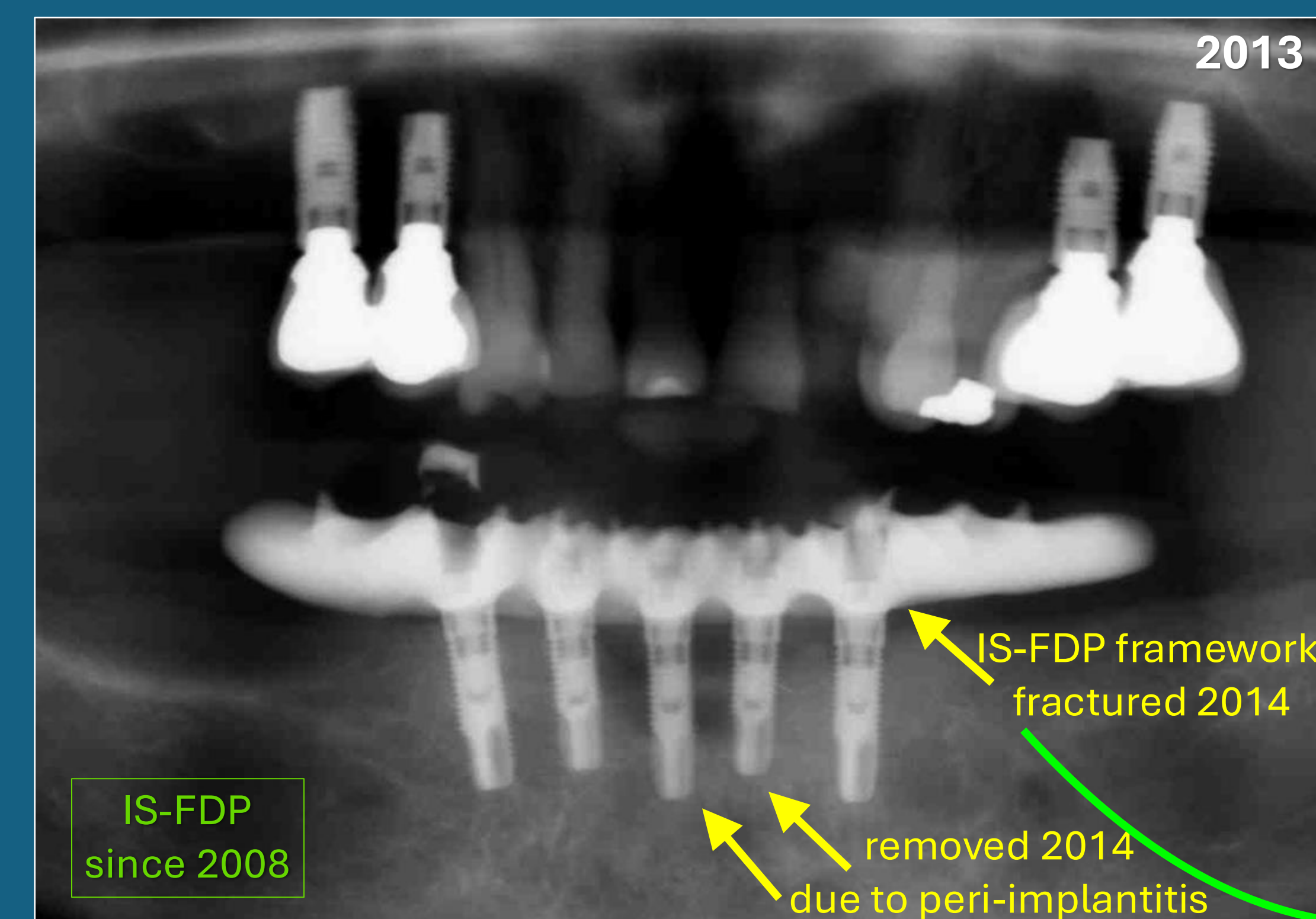




Multiple biologic implant complications over a 16-year period: A case report

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Introduction

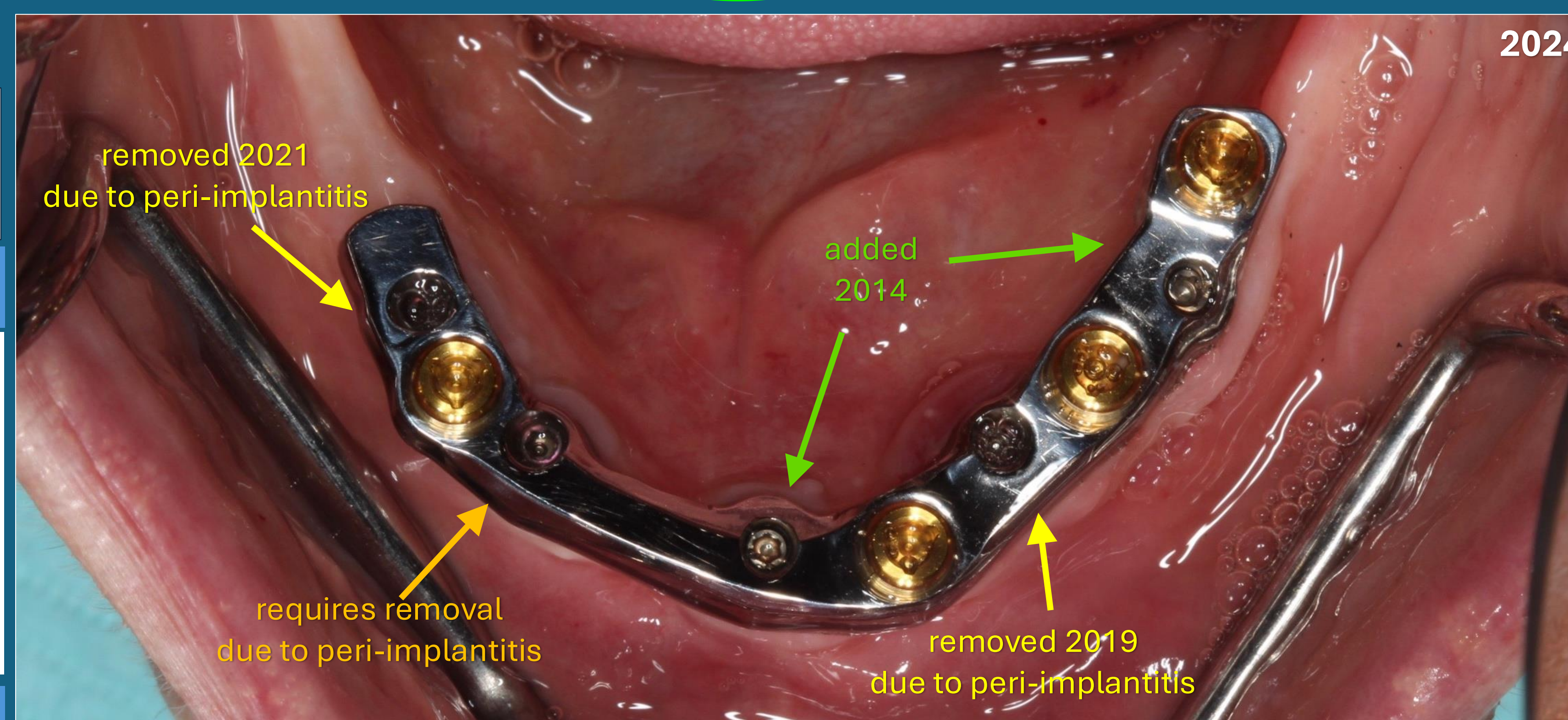
Biologic and technical complications may occur during implant treatment. Implant complications are not evenly distributed in the patient population and appear to cluster. This case focuses on the patient experience of multiple implant losses over 17 years.

Case Synopsis

The patient initially presented to the University of Toronto in 2007 with a severely compromised periodontally-involved dentition which underwent comprehensive fixed implant-supported prosthodontic treatment with preservation of maxillary anterior teeth. Over the years, the patient lost six of the original nine implants. Mandibular implant-supported full-arch bridge was transitioned to an implant-supported overdenture. Most recently, some maxillary implants were lost, and remaining periodontally compromised maxillary teeth were removed and replaced with a transitional complete removable prosthesis.

Treatment History

- 2008 metal-acrylic IS-FDP replacing Md dentition inserted on Implants 43, 42, 31, 32 & 33
- 2011 two IS-FDP's replacing Mx posterior teeth inserted on implants 15, 14, 25 & 26
- 2010 open flap debridement (31, 32) to address peri-implantitis → no lasting improvement
- 2013 Md IS-FDP framework fractures + 31 & 32 implants removed due to peri-implantitis
- 2014 new implants 31 and 35 placed → restored with Md bar-retained IS-OD
- 2016 open flap debridement (43) to address peri-implantitis → no lasting improvement
- 2017 surgery to address peri-implantitis (15, 14) → stable until recently
- 2019 implant 33 removed due to peri-implantitis → no impact on prosthesis
- 2021 implant 43 removed due to peri-implantitis → no impact on prosthesis
- 2023 implants 25 & 26 removed due to peri-implantitis + remaining Mx dentition removed → immediate CD inserted
- 2023 implant 42 develops peri-implantitis



Discussion

Possible causes of implant losses:

- history of periodontal disease
- proximity of adjacent implants
- inadequate periodontal maintenance
- prosthetic overload
- unknown factors

Value of an overdenture approach in cases of high implant failure risk:

- prosthesis can survive implant losses
- implants can be added to support an existing prosthesis
- limited impact of total loss of implants

References

1. Rocuzzo A et al. Implants in patients with a history of periodontitis. J Clin Periodontol. 2022;49(12)
3. Vagia P et al. Association between periodontitis and peri-implantitis. Clin Oral Implants Res. 2021;32(6)
4. Zhou W et al. Dental implant replacement in failed sites. Int J Oral Maxillofac Implants. 2016;31(3)

Discussion

Concepts of failure:

- Cluster failure: occurrence of multiple implant failures within a single patient, not necessarily limited to the same position or quadrant. It is hypothesized that patients experiencing a high failure rate possess distinct traits that contribute to the recurrence of failure.
- Site-specific failure: The mandibular anterior region typically demonstrates the highest implant success rate. However, in this case, implants were lost due to peri-implantitis even in the anterior mandible.

Management of failure:

- Patient management: Patient's reluctance to accept failure, particularly if asymptomatic.
- Timely implant removal: to prevent further bone loss – e.g., implant 43 was recommended for removal in 2016 but delayed until 2021.
- Discuss treatment options and chances of success: to obtain informed consent

Survival rate of implant replacement:

- second attempt – 89%
- third attempt – 75%

Conclusion

- This case underscores the unpredictability of long-term implant treatment outcomes in some patients.
- Although treatment complications and failure were encountered, the patient benefited from implant anchorage over a 17-year period (especially, in the mandible) and from adaptive potential of an overdenture approach in the context of implant loss.
- This case emphasizes the challenges of providing retreatment where the aetiology of treatment failure is incompletely understood. the reasons that caused the implant to fail at the first go are still present.