A Node Over Right Hard Palate

指導醫師：陳玉昆醫師, 王文岑醫師, 林立民教授

報告日期：98/03/12

報告者：Intern L組 蔡鈺晨. 陳品卉. 楊冠恆. 黃靖凌


First visit data
Differential diagnosis
Treatment course
Discussion
Conclusion

First visit data

Personal Data

- Name: 謝x木
- Gender: Male
- Age: 51 y
- Marital status: Married
- Blood type: O
- First visit: 96.08.04

Chief Complaint

- Chief complaint:

  An uncomfortable swelling mass over right hard palate for 2 weeks

Present Illness

- The 51 y/o patient felt uncomfortable and found a swelling mass on his right hard palate for two weeks. He was also on the course of immuno-rheumatic therapy, so he told his doctors about above episode. The doctor examined and suggested him to come to our dental department for examination and evaluation.

Past Medical History

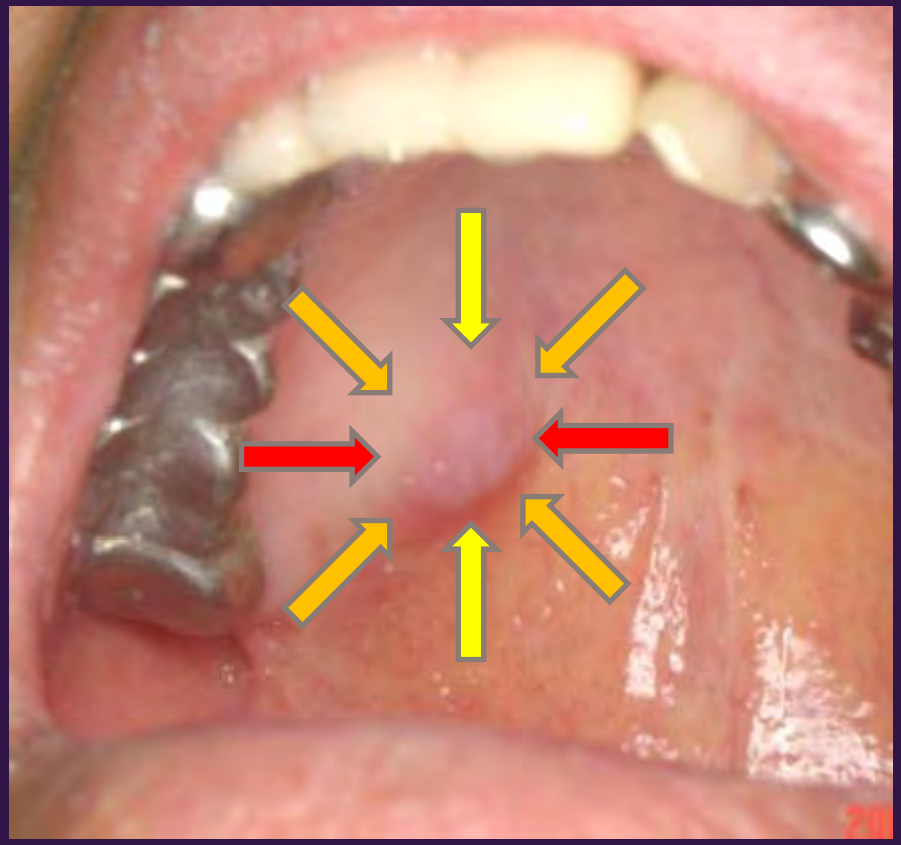
- Past medical history
  1. HBV(+), HCV(+)
  2. Coronary artery disease
  3. Rheumatoid arthritis
  4. Duodenal ulcer
  5. Diabetes Mellitus Type 2
  6. Arteritis
  7. Mixed cryoglobulinemia

Past Dental History

1. Periodontal control
2. Endodontic treatment
3. Extraction
4. Prosthesis fabrication
5. Left parotid gland tumor 20+ years ago, diagnosed and resected in other hospital.

- Drug allergy: penicillin
- Medication:
  - Prednisolone
  - Plaquenil (Hydroxychloroqu)
  - Defense (Climetidine)
  - Forflow (Pentoxifylline)
  - Colchicine
- Oral habits related to malignancy:
  - Alcohol drinking (-)
  - Cigarette smoking (-)
  - Betel-quid chewing (-)

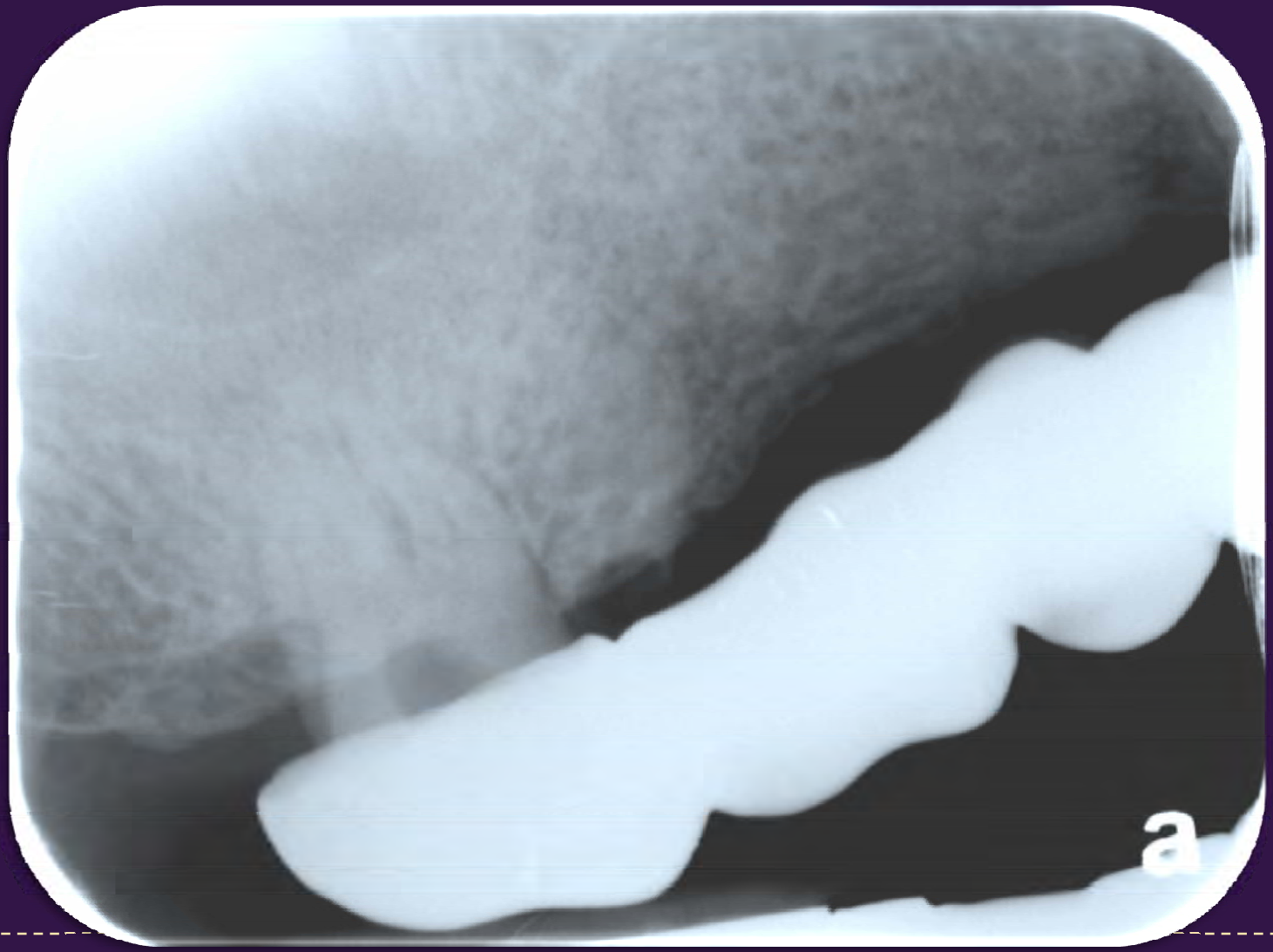
Intra-Oral Findings



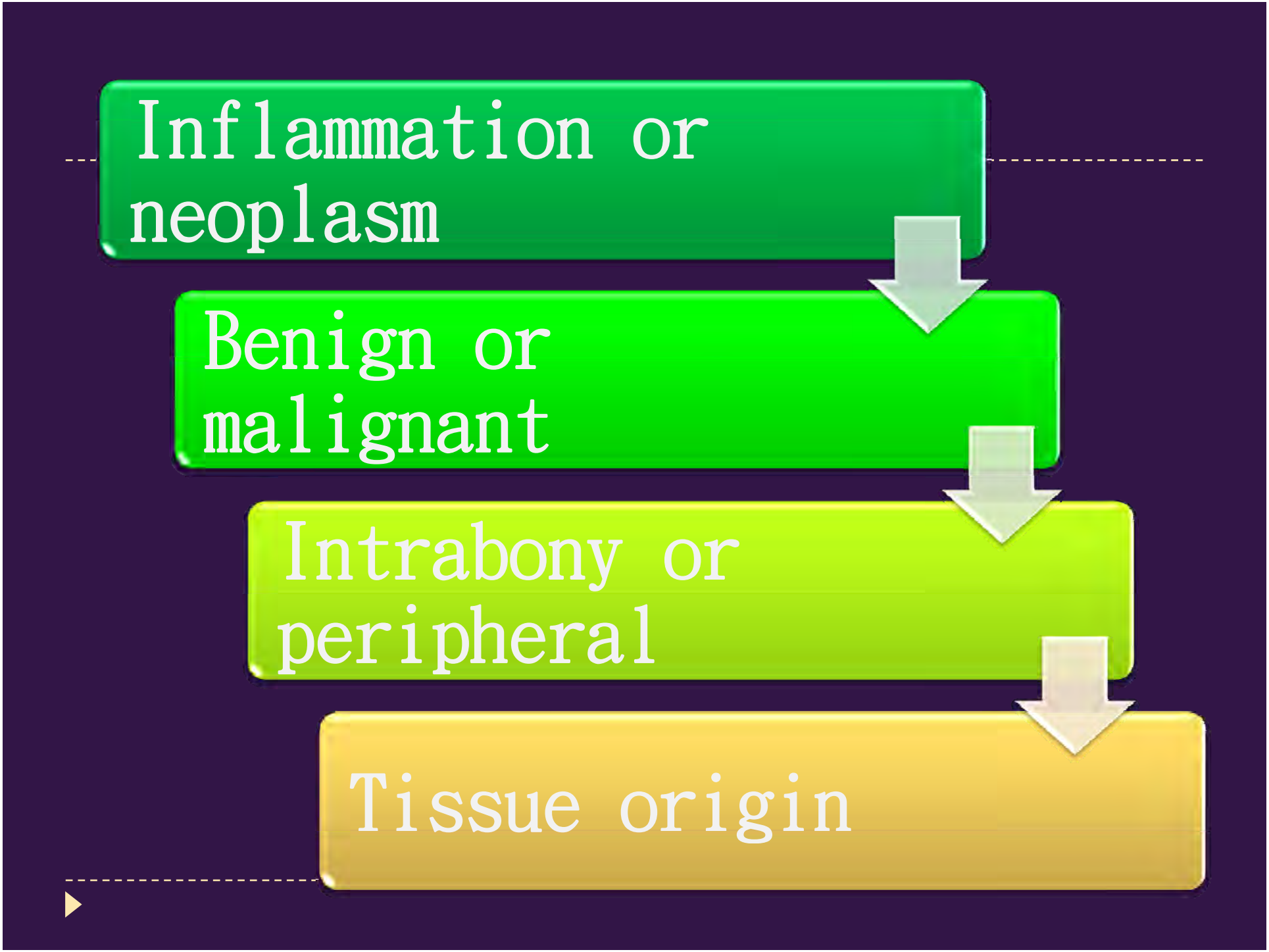
Site:	Right posterior hard palate near molar region
Size:	0.6x0.6 cm
Color	Bluish
Surface:	Smooth
Base:	Sessile
Shaped	Dome
Consistency	Soft
Mobility	Fixed

Pain (-), Fluctuation (+/-), Induration (-)

Periapical X-ray



Differential Diagnosis


Inflammation or neoplasm
Benign or malignant
Intrabony or peripheral
Tissue origin

Our Patient

Smooth surface	Bluish (+)
Soft	Pus discharge(-)
Swelling (+)	Fixed (+)
Redness(-)	Fluctuation (+/-)
Fever (-)	Induration (-)
Pain (-)	LAP (-)
Tenderness (-)	Found the lesion for 2 weeks

Inflammation or Neoplasm

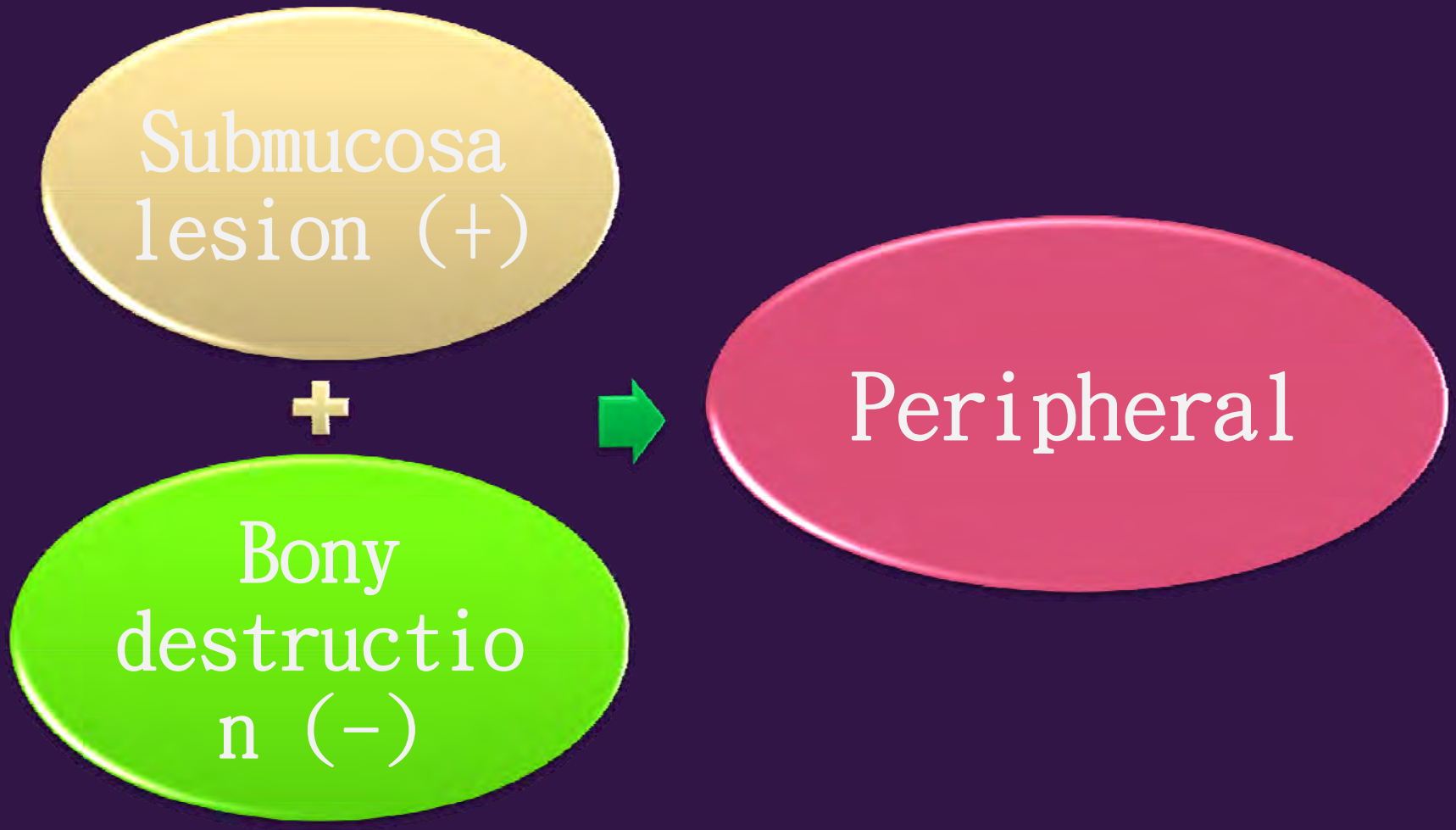
Redness(-)
Swelling (+)
Fever (-)
Pain (-)
Fluctuation (+/-)
Pus discharge (-)
Found the lesion for 2 weeks

Benign or Malignant

Smooth surface
Soft
Pain (-)
Tenderness (-)
Induration (-)
Fixed (+)
LAP (-)

Benign or low-grade malignant

Intrabony or Peripheral



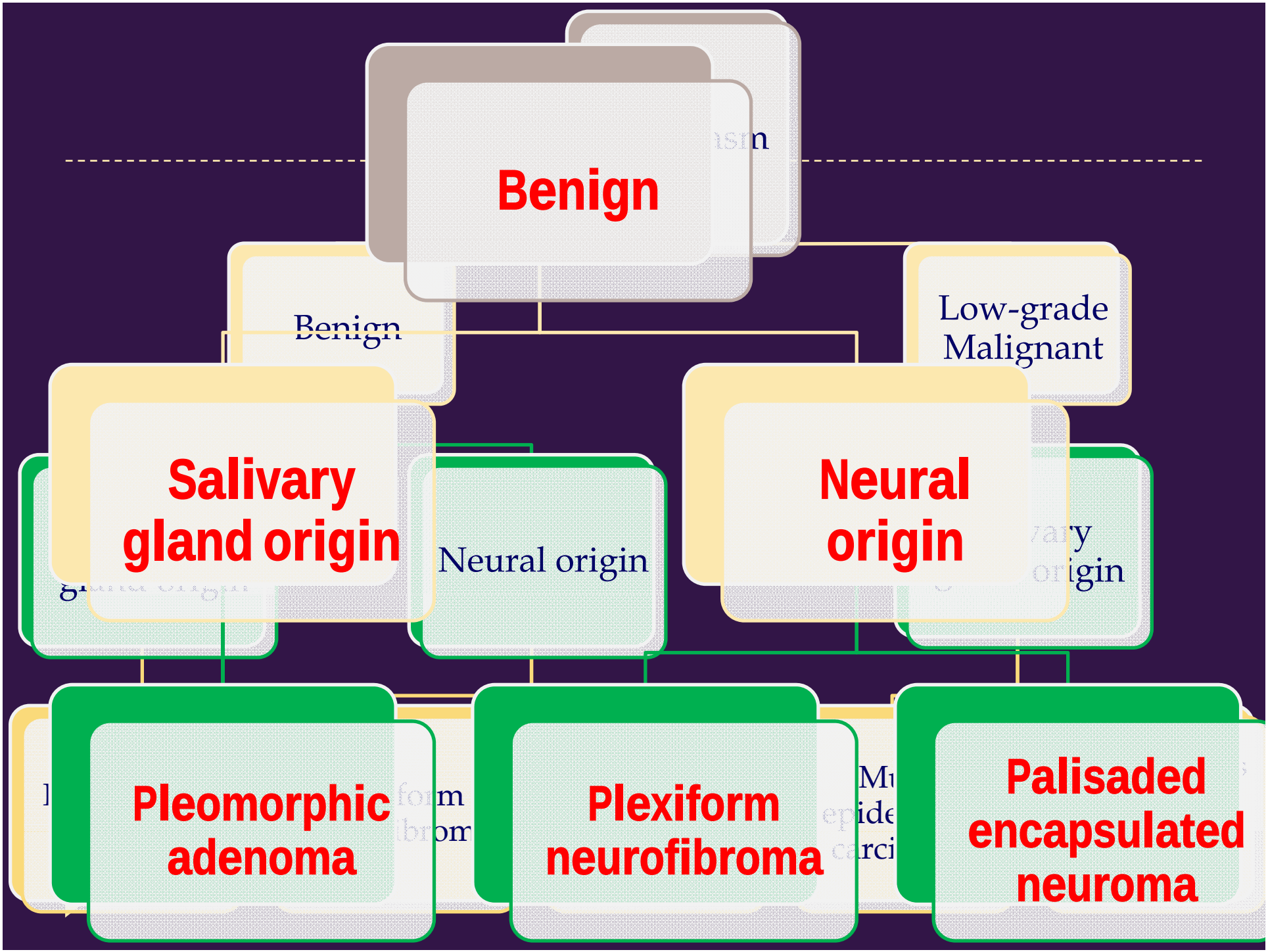
Tissue Origin

Bluish
Smooth surface
Soft
Pain (-)
Fluctuation (+/-)

Minor salivary gland origin

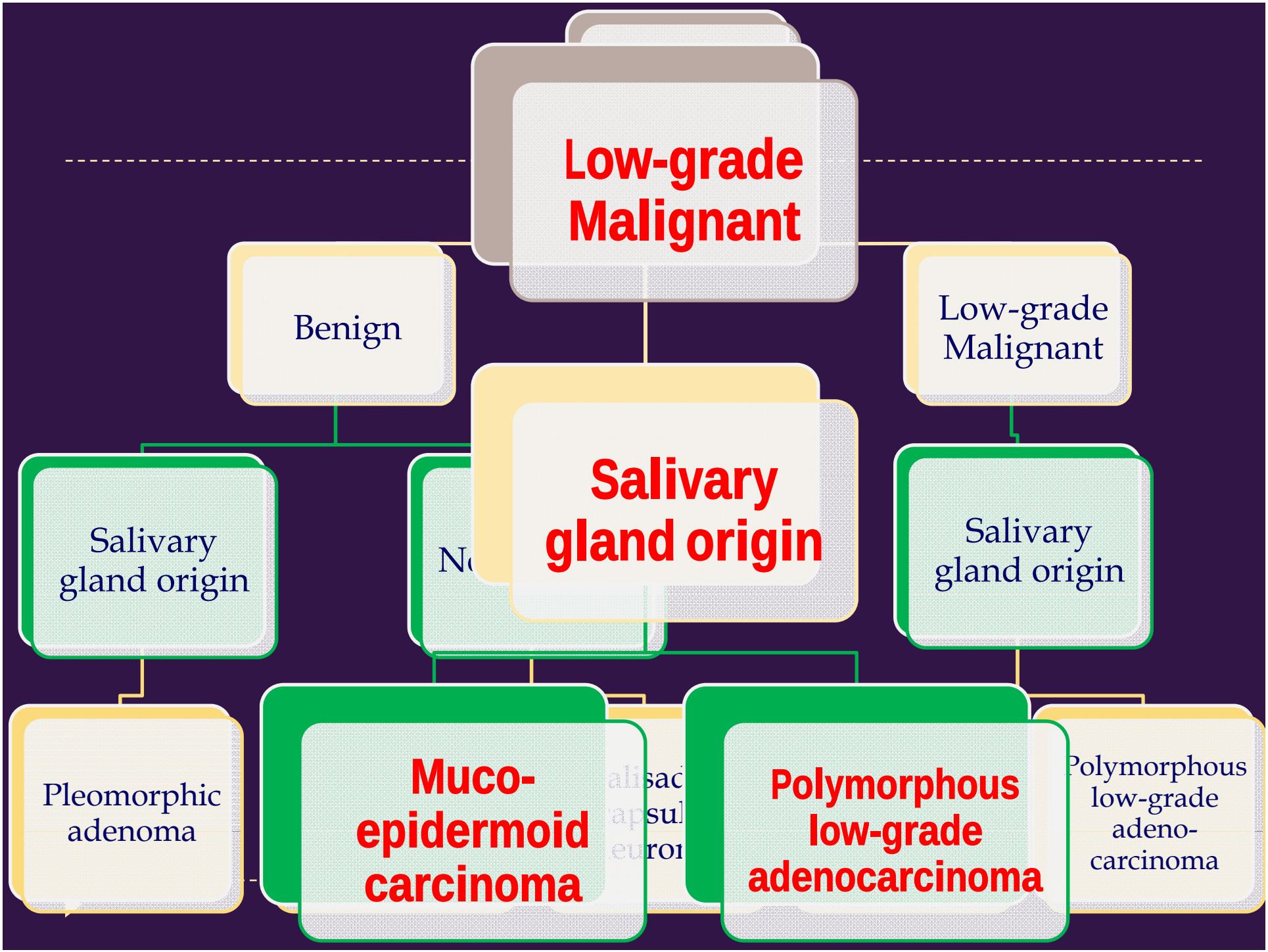
Neural origin

Neoplasm


Benign
Benign
Low-grade Malignant
Salivary gland origin
Neural origin
Neural origin
Pleomorphic adenoma
Plexiform neurofibroma
Palisaded encapsulated neuroma

	Pleomorphic adenoma	Plexiform neurofibroma	Palisaded encapsulated neuroma	Our case
Gender	Female (slight predilection)		Equal	Male
Age	Any age (30~50)	Young adult	50~70	51 y/o
Size	Variable	Variable	< 1 cm	0.6*0.6 cm
Site	Posterior lateral aspect of palate	Tongue and buccal mucosa	Hard palate	R’ t hard palate
Shape	Dome-shaped	Nodule	Dome-shape	Dome-shaped
Margin	Well-defined	Well-defined	Well-defined	Well-defined
Consistency	Firm	Soft		Soft

	Pleomorphic adenoma	Plexiform neurofibroma	Palisaded encapsulated neuroma	Our case
color	Normal	Blue		Blue
Pain	(-)	(-)	(-)	(-)
Induration	(-)			(-)
Tenderness	(-)			(-)
Surface	Smooth		Smooth	Smooth
Duration	Months~ years, slowly growing		Many months or years	Found lesion 2 weeks ago


Low-grade Malignant
Benign
Low-grade Malignant
Salivary gland origin
Salivary gland origin
Salivary gland origin
Pleomorphic adenoma
Muco-epidermoid carcinoma
Polymorphous low-grade adenocarcinoma
Polymorphous low-grade adeno-carcinoma

	Polymorphous low-grade adeno-carcinoma	Mucoepider-moid carcinoma (Low grade)	Our case
Gender	Female(2/3)	Slight female predilection	Male
Age	60~80	20~70	51 y/o
Size	1~4.3 cm	variable	0.6*0.6 cm
Site	Hard or soft palate	1: Parotid gland, 2: Minor salivary gland (hard palate)	R’ t hard palate
Shape	Round or polygonal	Dome	Dome
Margin		Well-defined	Well-defined

	Polymorphous low-grade adeno-carcinoma	Mucoepider-moid carcinoma (Low-grade)	Our case
Consistency		Soft to firm	Soft
color		Blue or red	Blue
Pain	(-)	(-)	(-)
Induration		(-)	(-)
Tenderness		(-)	(-)
Surface		Smooth	Smooth
Fluctuation		Sometimes	
Duration	6 months to 20 years	Aware for the lesion for 1	Found lesion 2

Clinical Impression

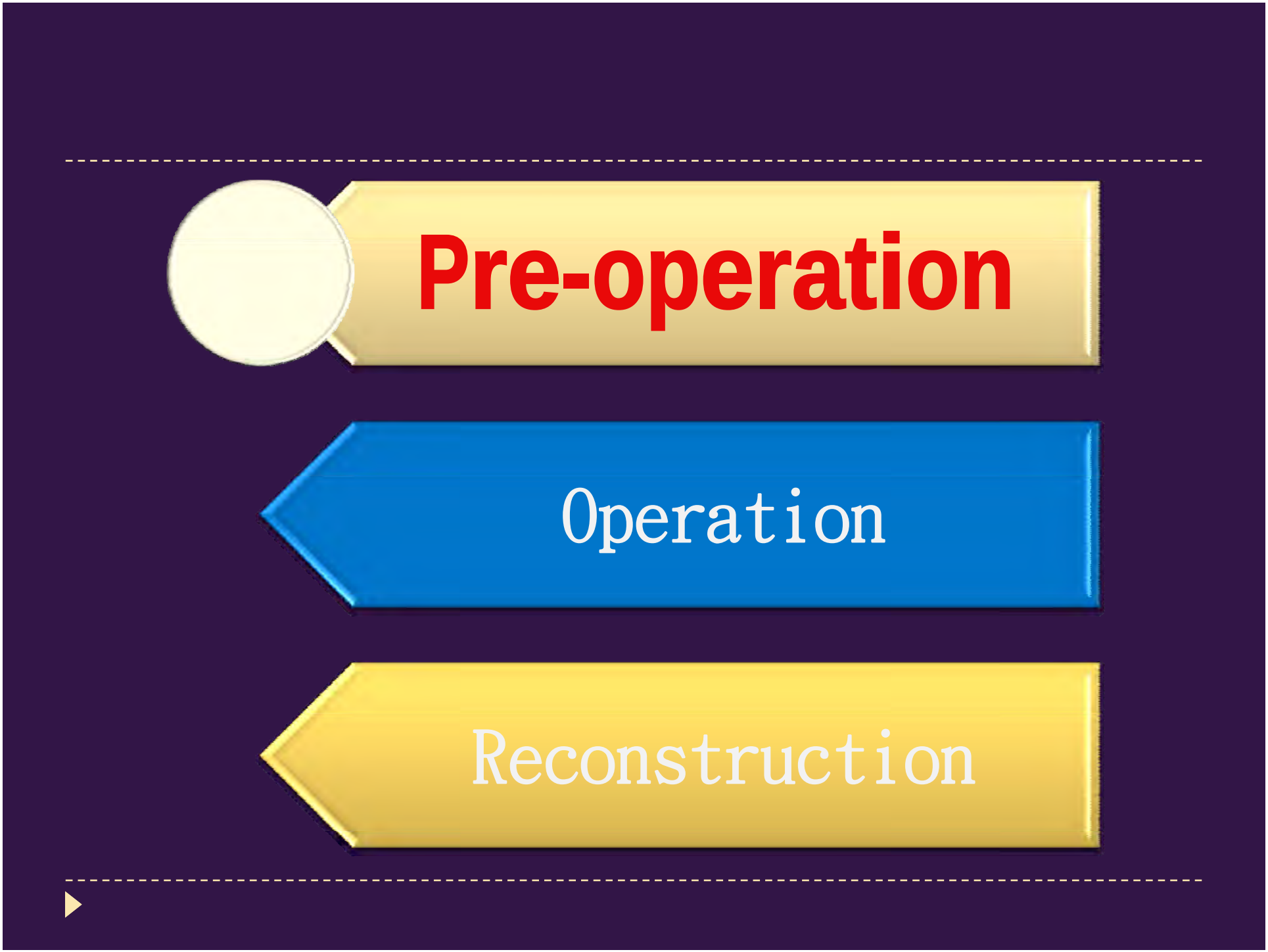
Benign

- *PLEOMORPHIC ADENOMA*

Malignant

- *MUCOEPIDERMOID CARCINOMA (LOW-GRADE)*

Treatment course


Pre-operation
Operation
Reconstruction

Treatment Course

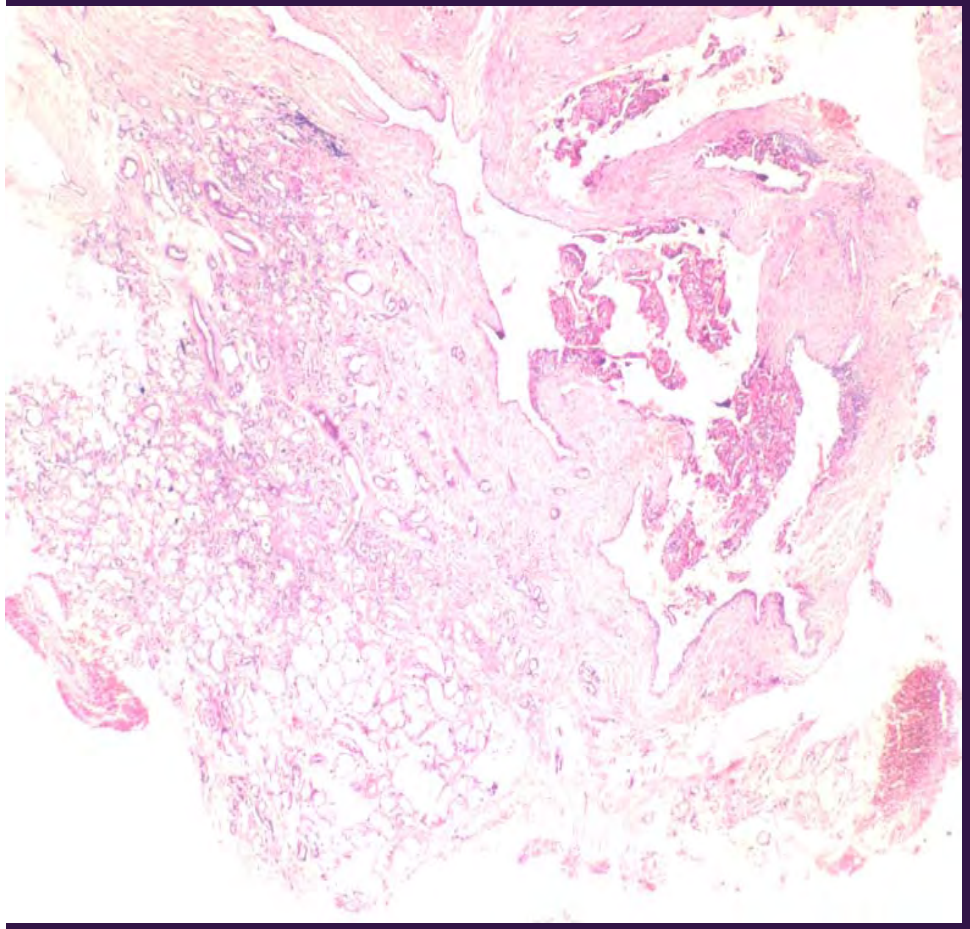
- 96/8/4　OM

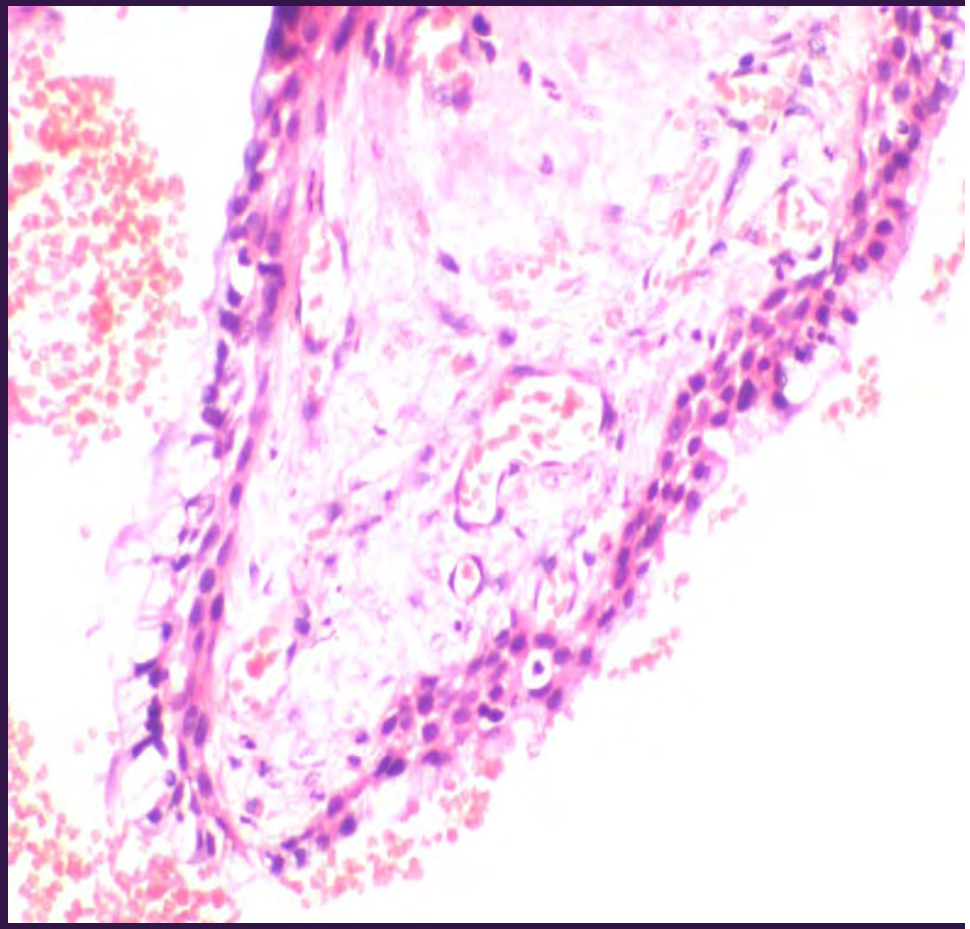
1. Refer to OS for Biopsy on 96.8.6
2. Suggest removal of crown and bridge, extraction of residual root

- 96/8/6　OS

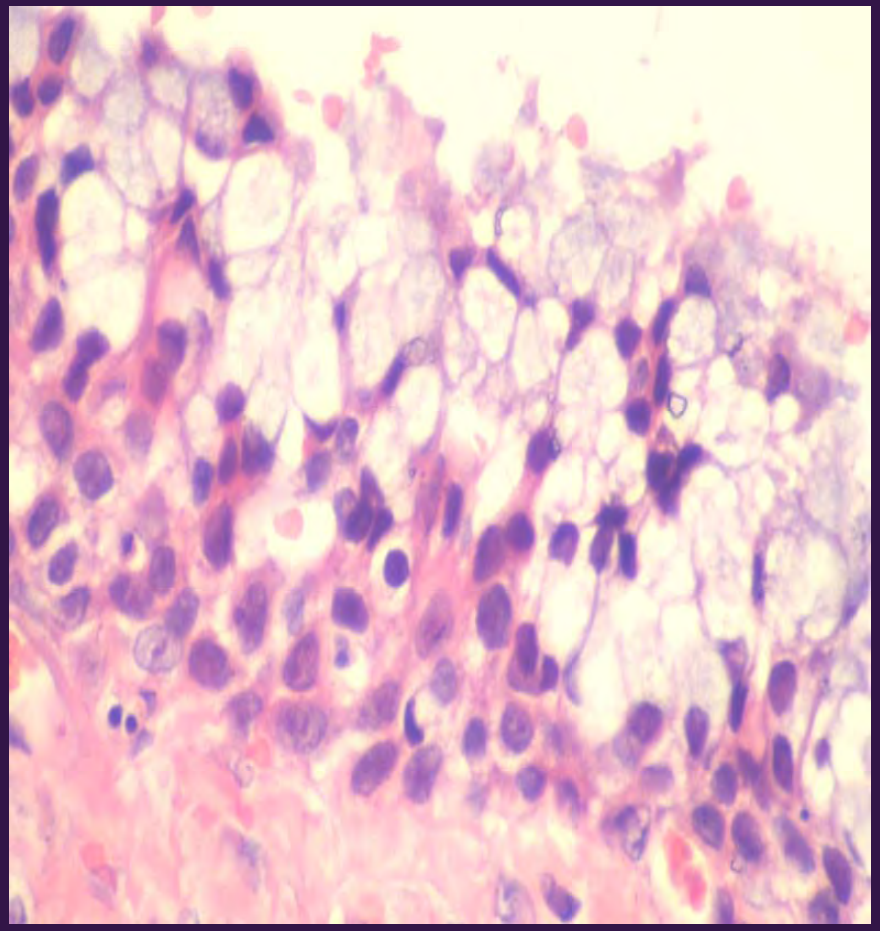
1. Incisional biopsy is performed under local anesthesia, and sticky mucin is noted during the operation

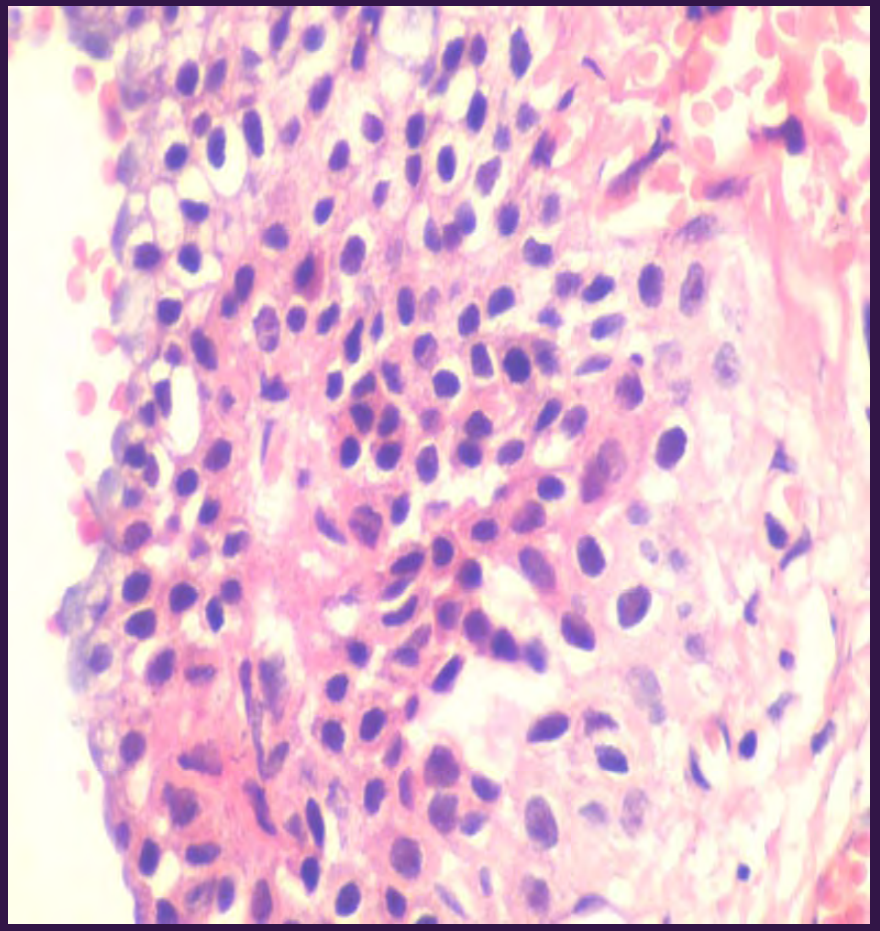
Histology Finding



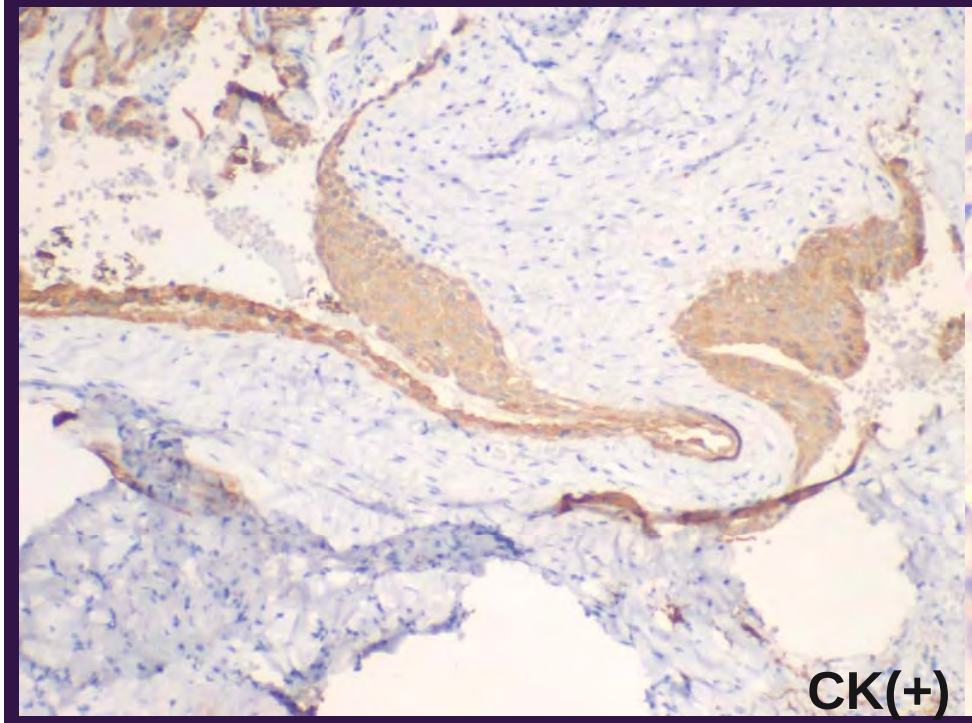


Histology Finding

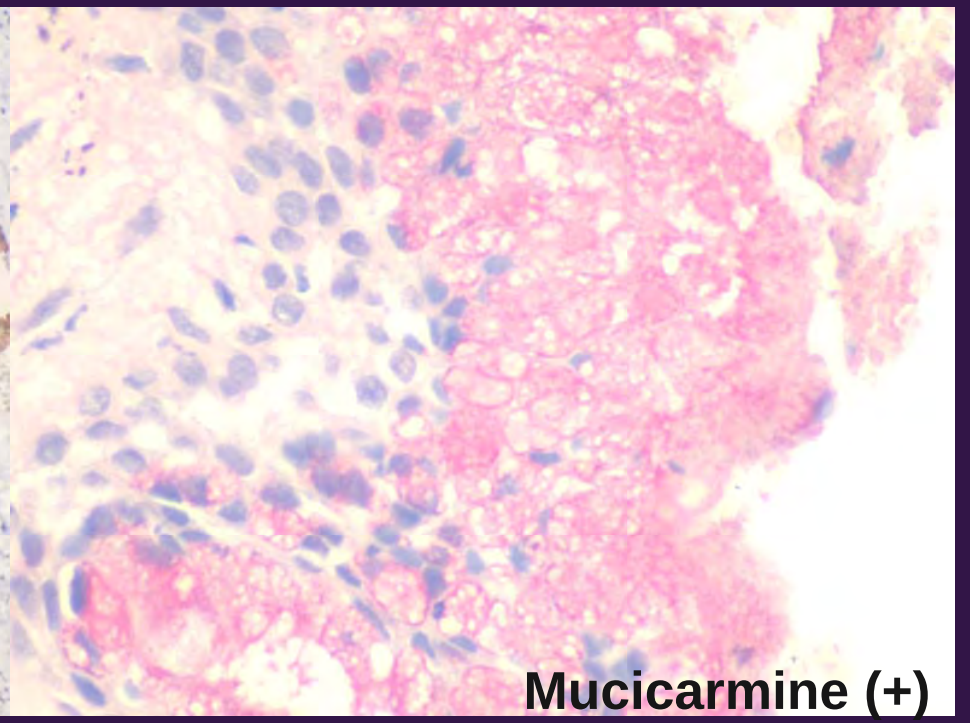




Histology Finding



CK(+)



Mucicarmine (+)

Pathological Diagnosis

- *MUCOEPIDERMOID CARCINOMA, LOW GRADE*

Treatment Course

- 96/8/17 OS

1. Arranged CT scan of maxilla

- 96/8/20 OS

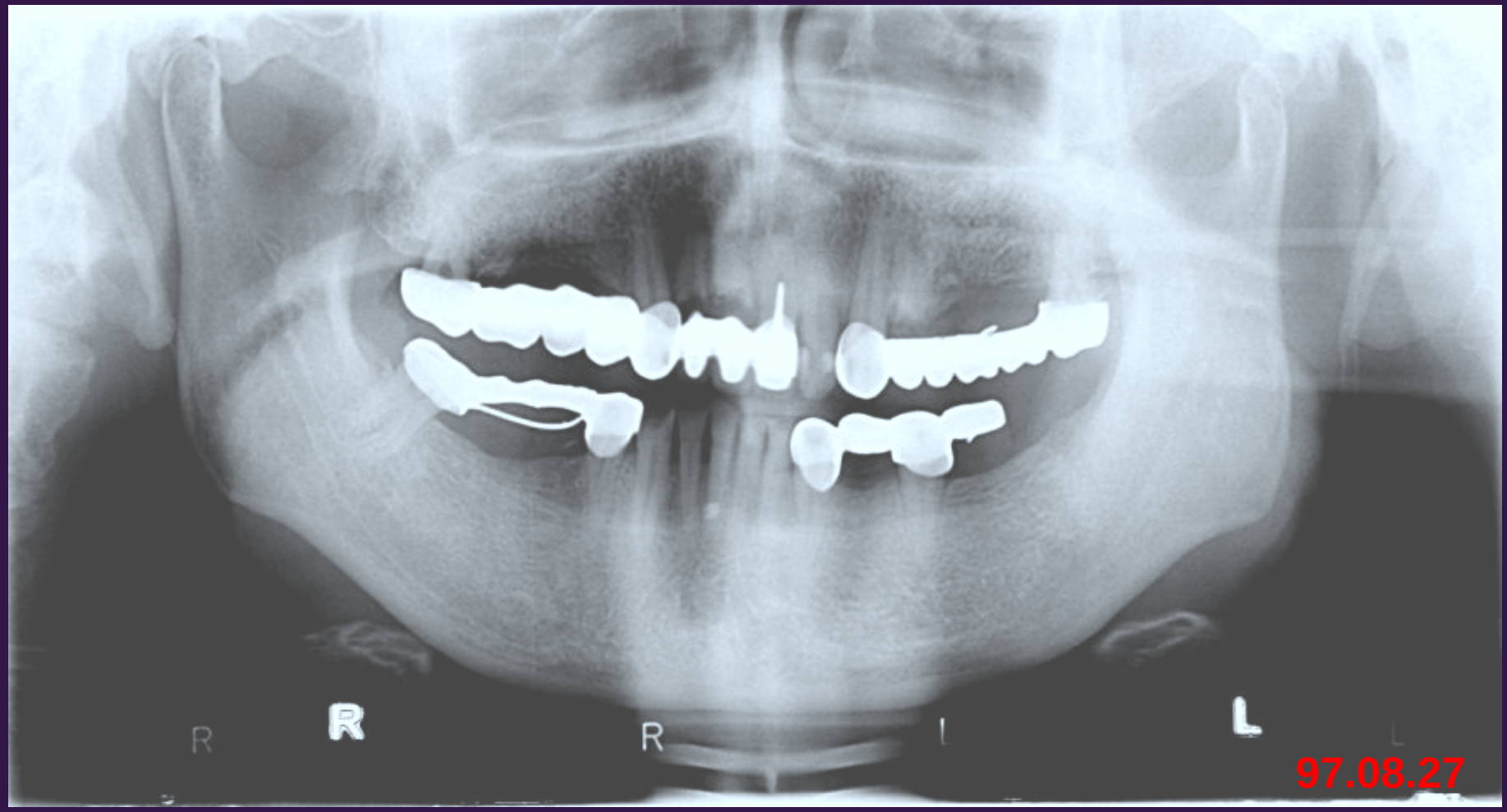
1. Arranged hemimaxillectomy operation on 96/9/16

- 96/8/27 OS

1. Arranged pre-operation examination
2. Panoramic x-ray taking

Panoramic Finding

(96/8/27)

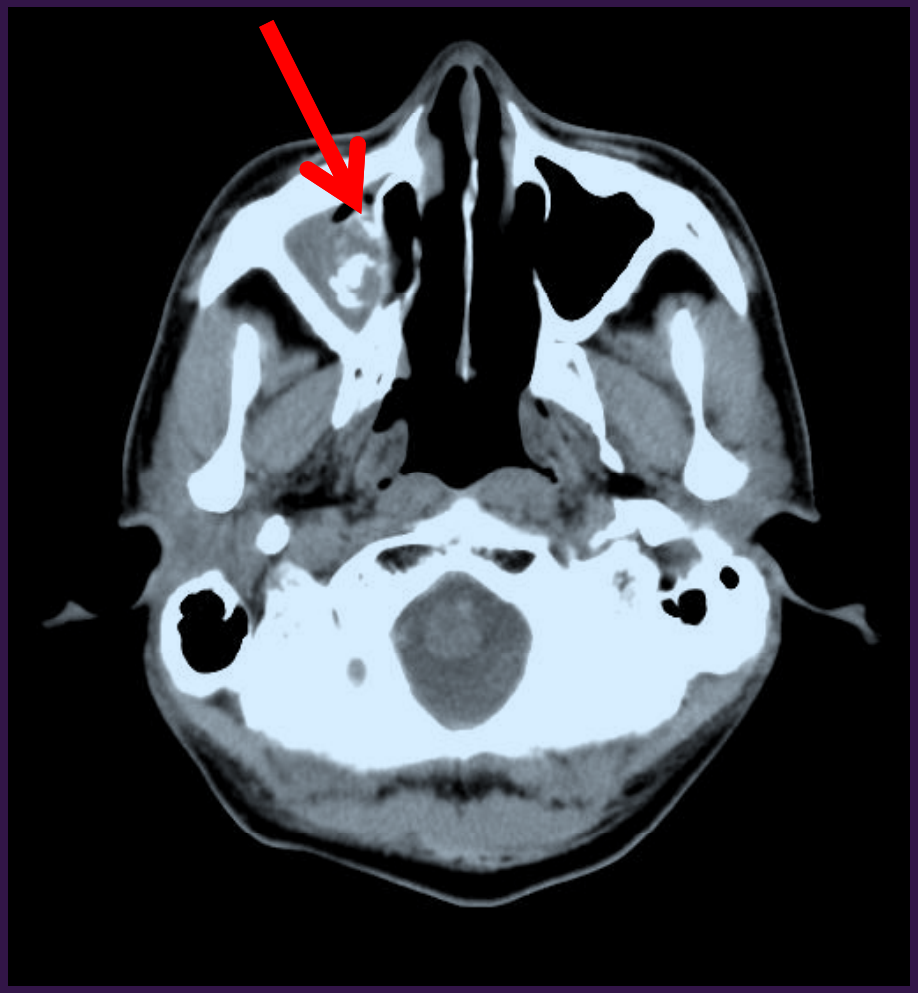


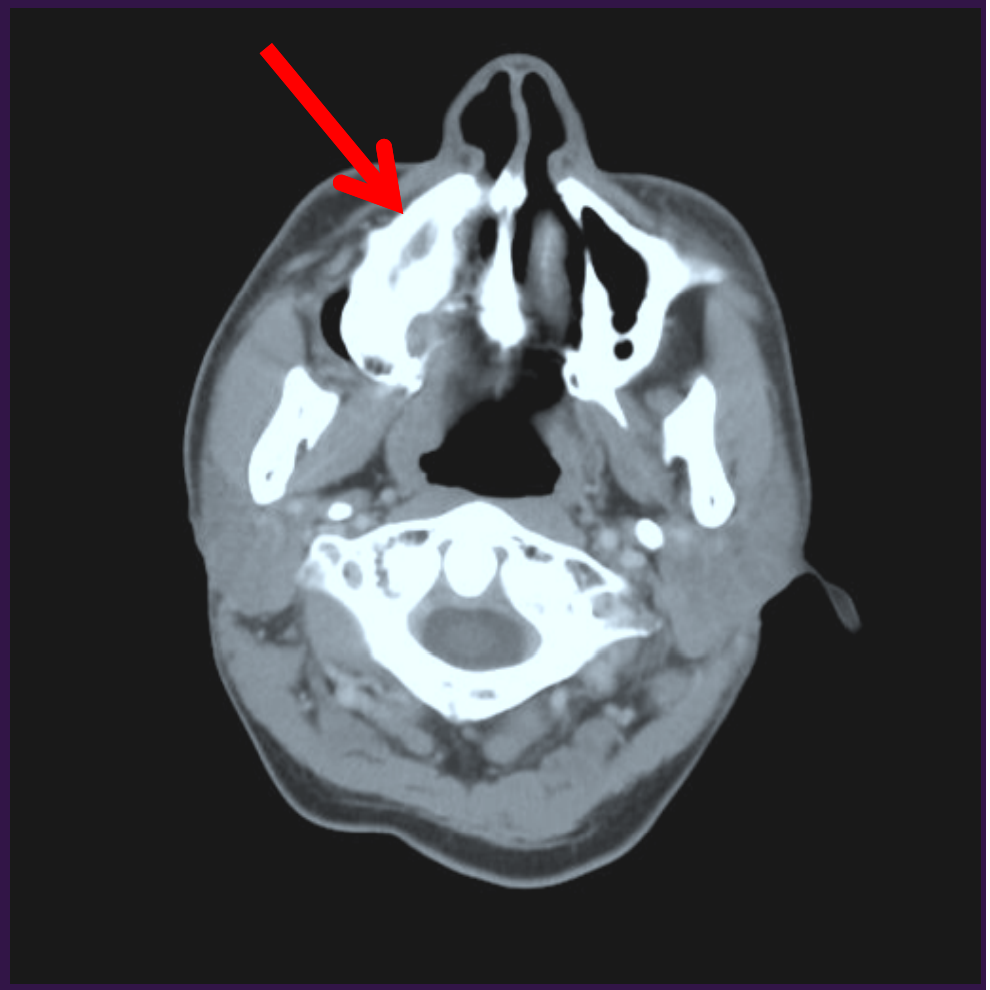
Skull Findings-
PA, Lateral View

Skull findings-Water's view (96/8/27)

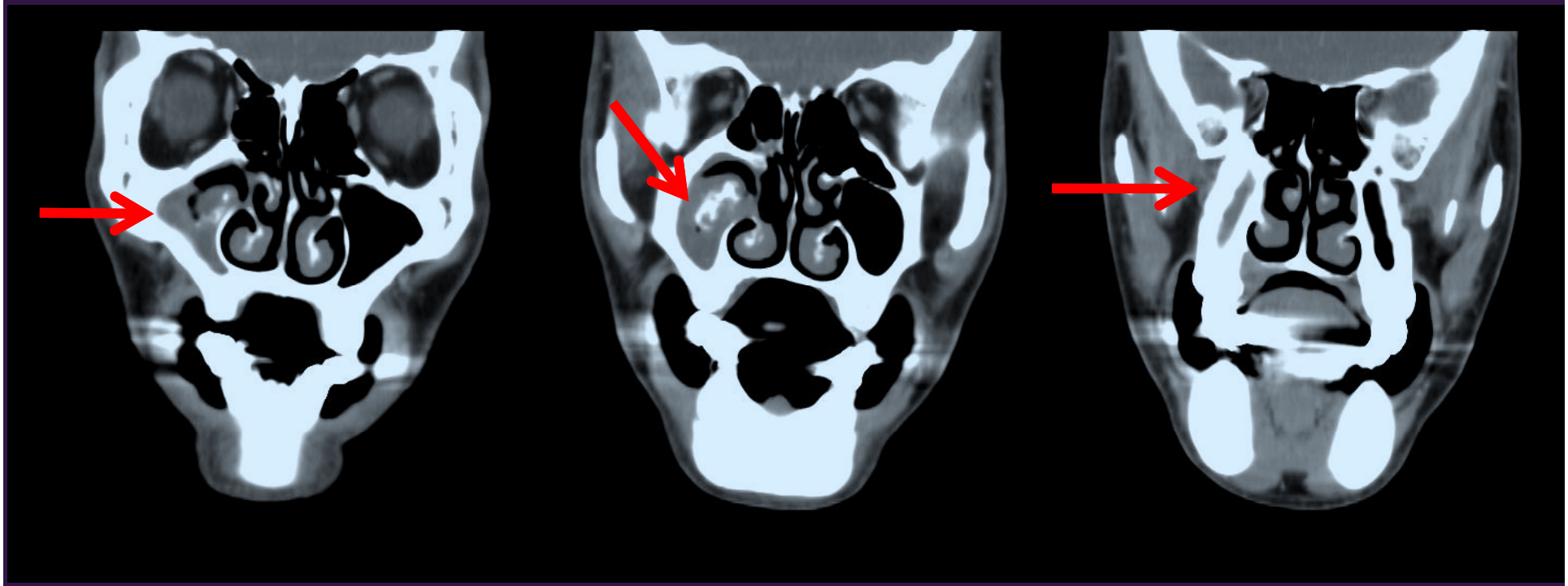
- Orbits and sinuses with intact structure
- No nasal septal deviation
- Obliteration of right maxillary sinus is present.

CT Findings-Axial View



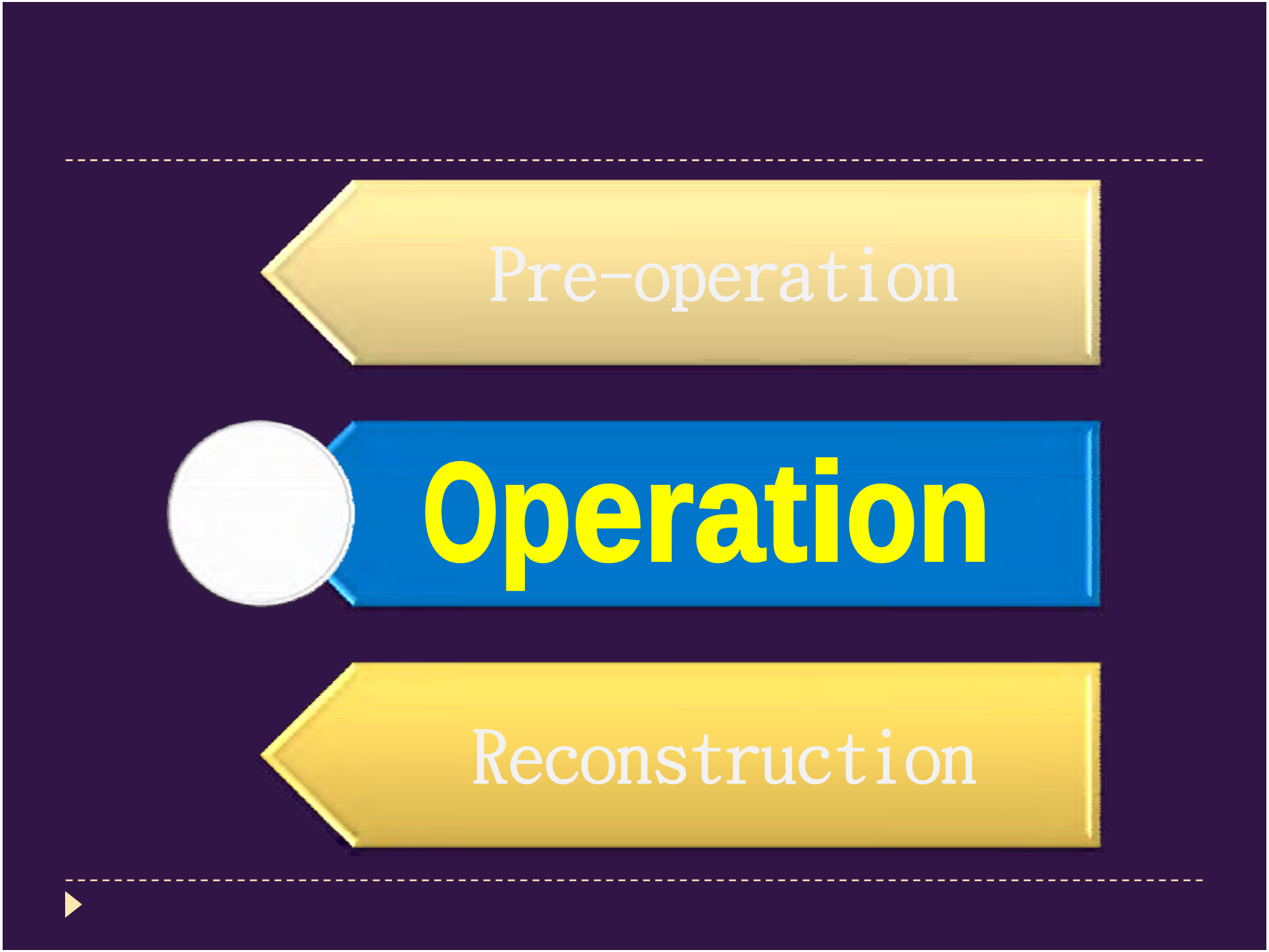


CT Findings-Coronal View



CT Examination Diagnosis

- FAILS TO DEFINE THE MAIN LESION OF RIGHT HARD PALATE.
- SINUSITIS OVER RIGHT MAXILLARY SINUS


Pre-operation
Operation
Reconstruction

Tentative Treatment Plan

- Pre-hemimaxillectomy instruction

1. Potential oro-antral communication.
2. Phonetic and deglutition problem.

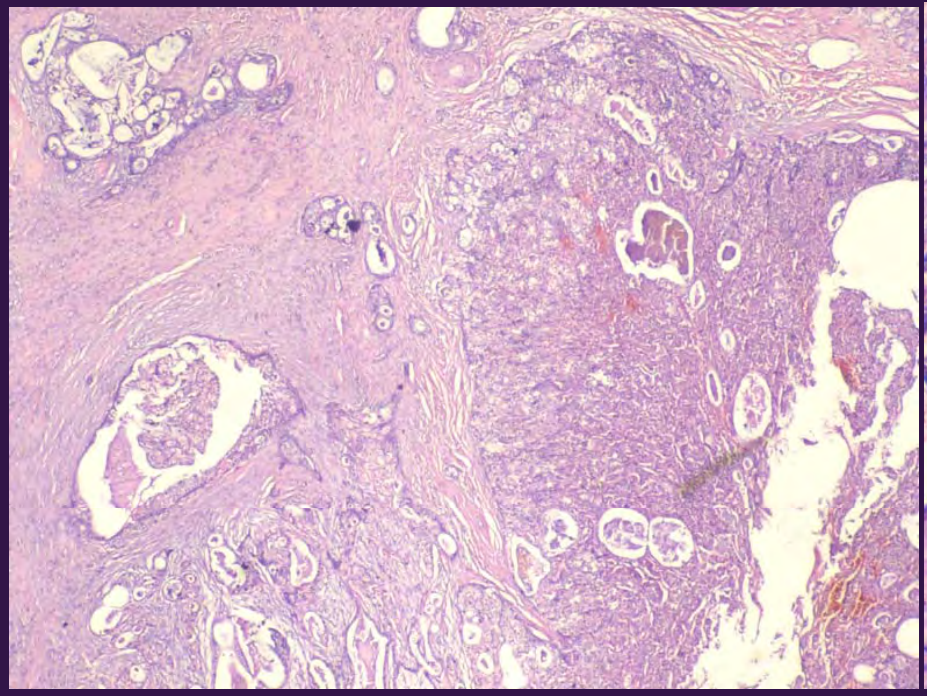
- Obturator is needed post surgery.

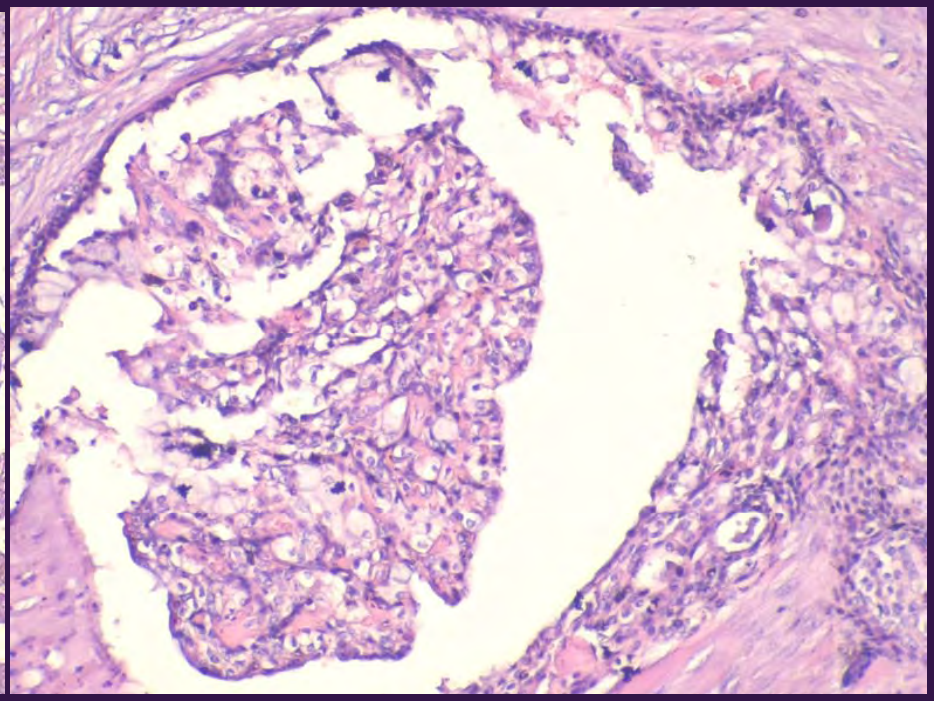
Treatment Course

- 96/9/4 Hospitalization
- 96/9/6 Operation

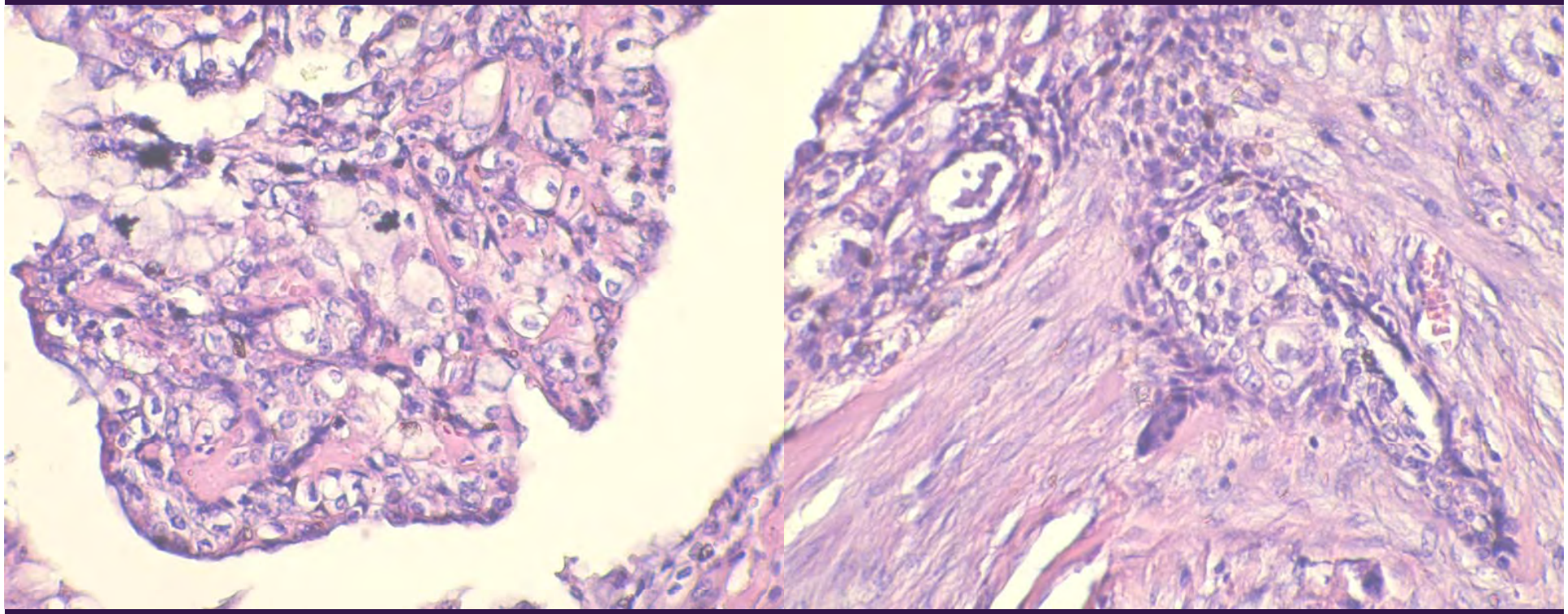
1. Hemimaxillectomy was performed from tooth 11 to pterygoid palate, nasal cavity to lateral wall of sinus.
2. Frozen section: Infraorbital wall and sinus membrane near to nasal cavity→ Free of malignancy

Microscopic Finding: Hard Palate

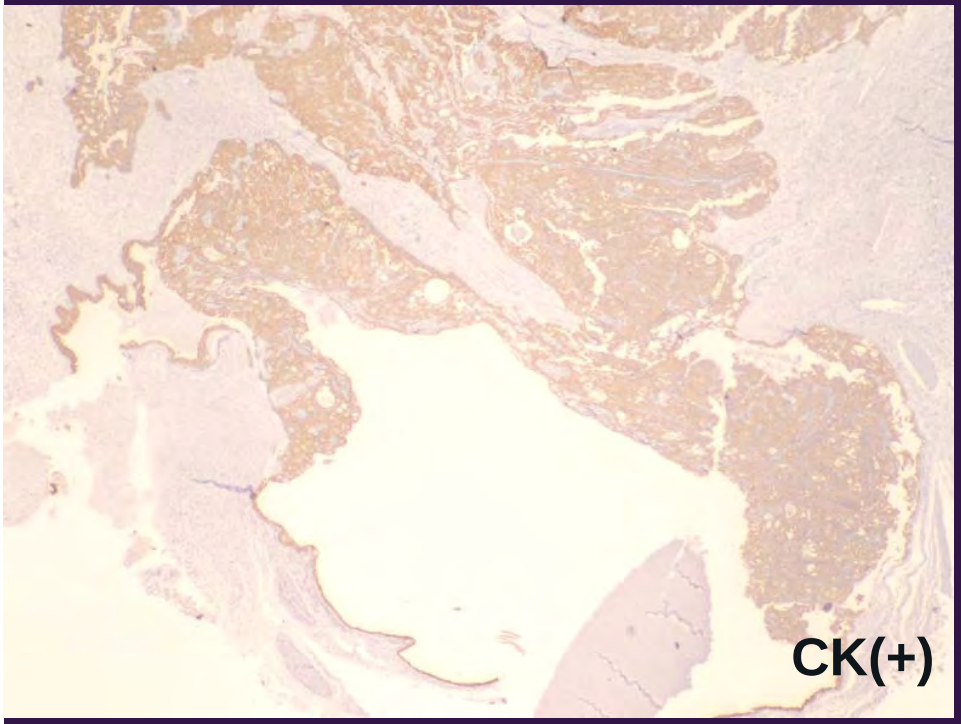


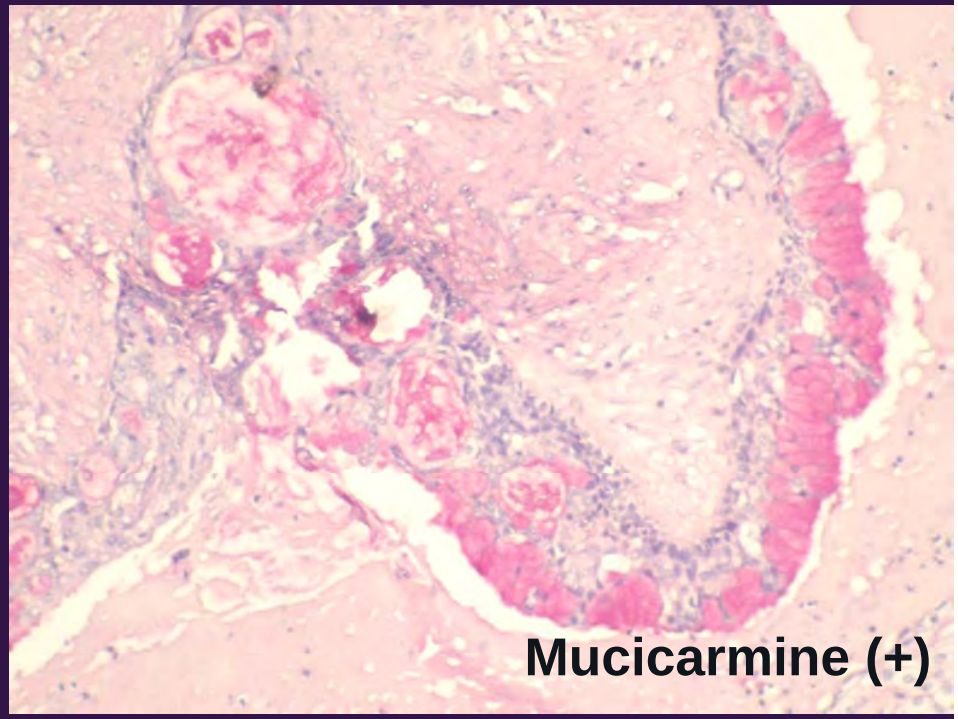


Microscopic Finding: Hard Palate

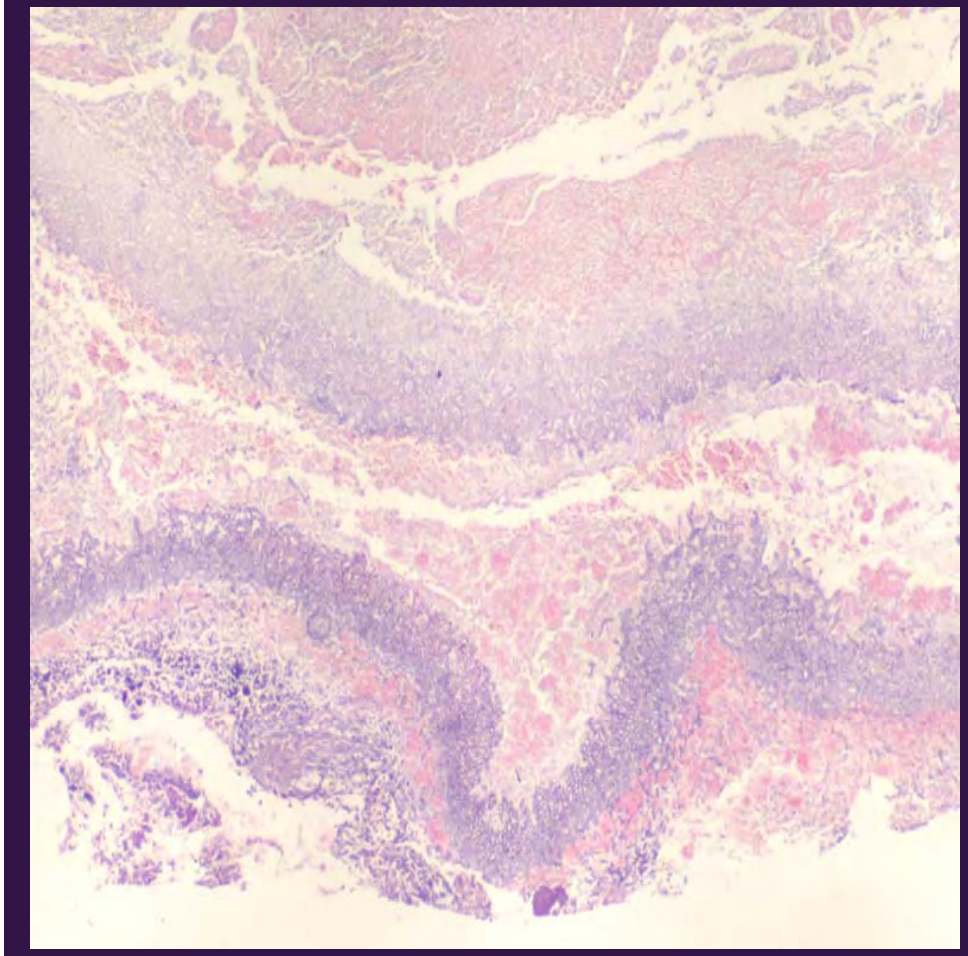


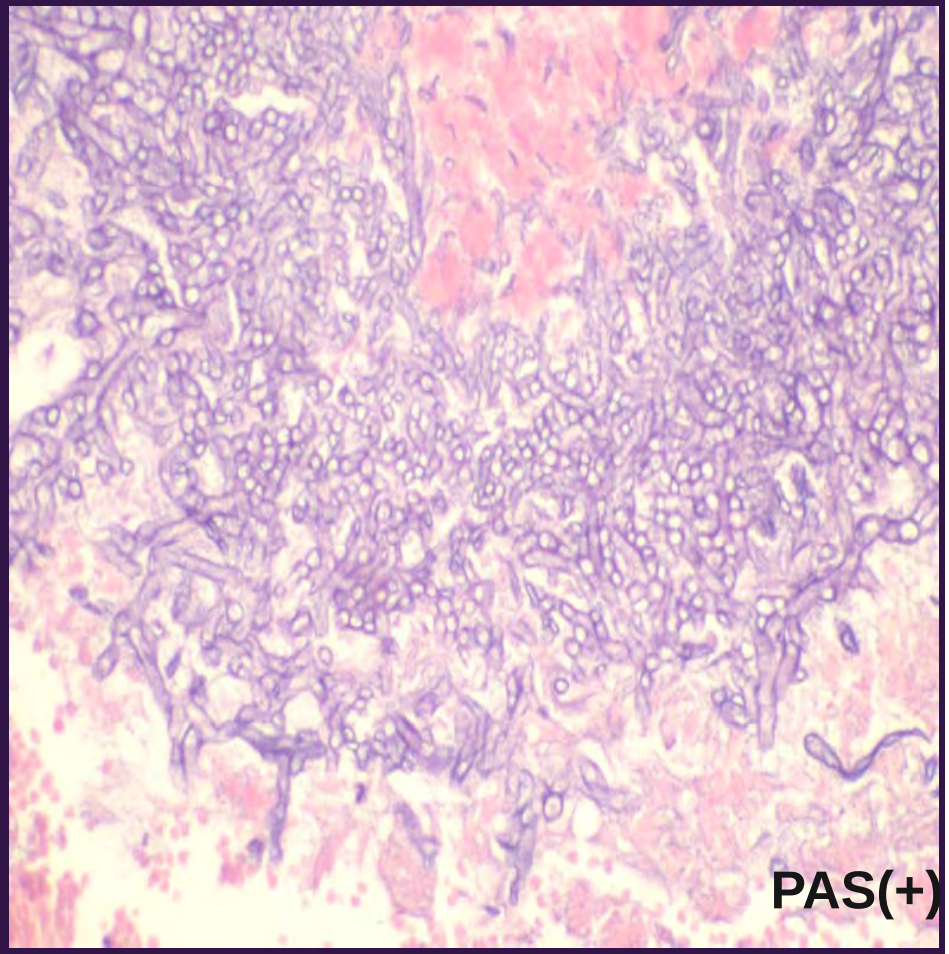
Microscopic Finding: Hard Palate


CK(+)

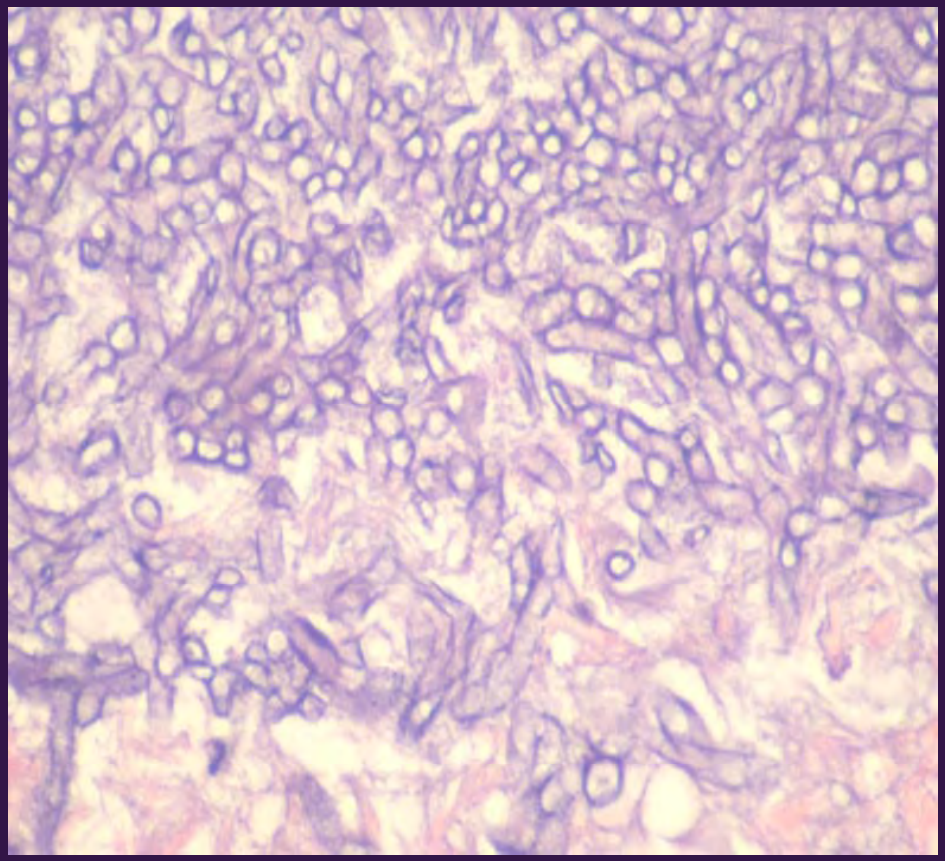

Mucicarmine (+)

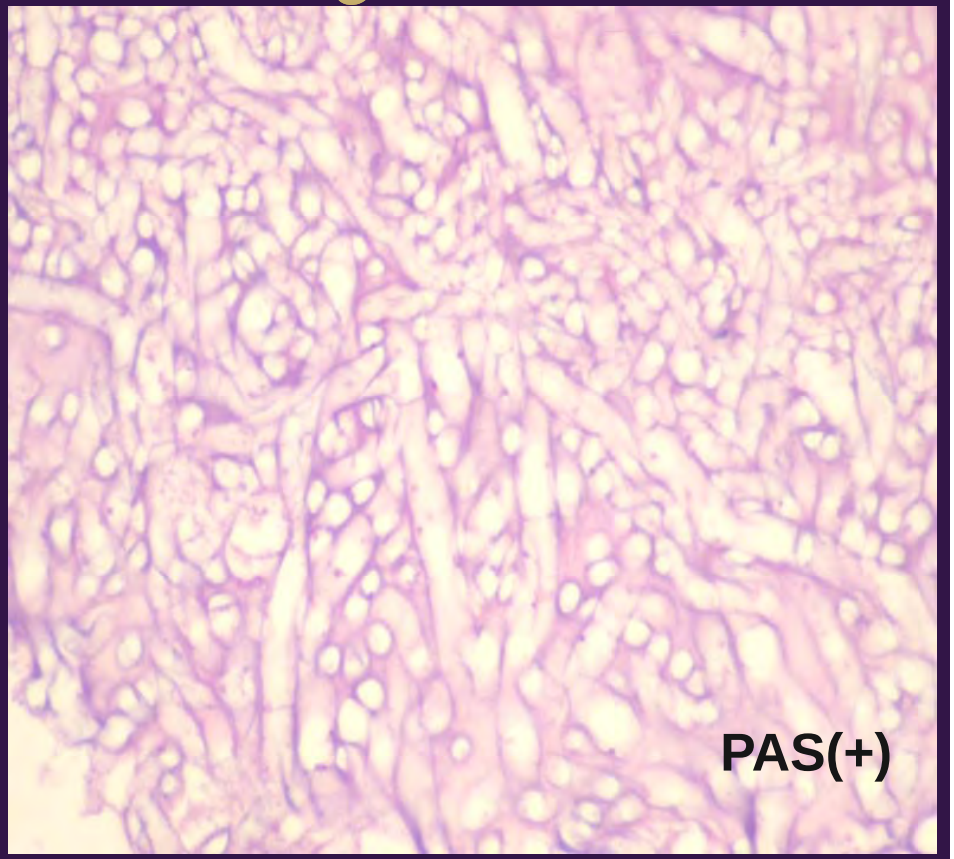
Microscopic Finding-Maxillary sinus





Microscopic Findings – Maxillary Sinus

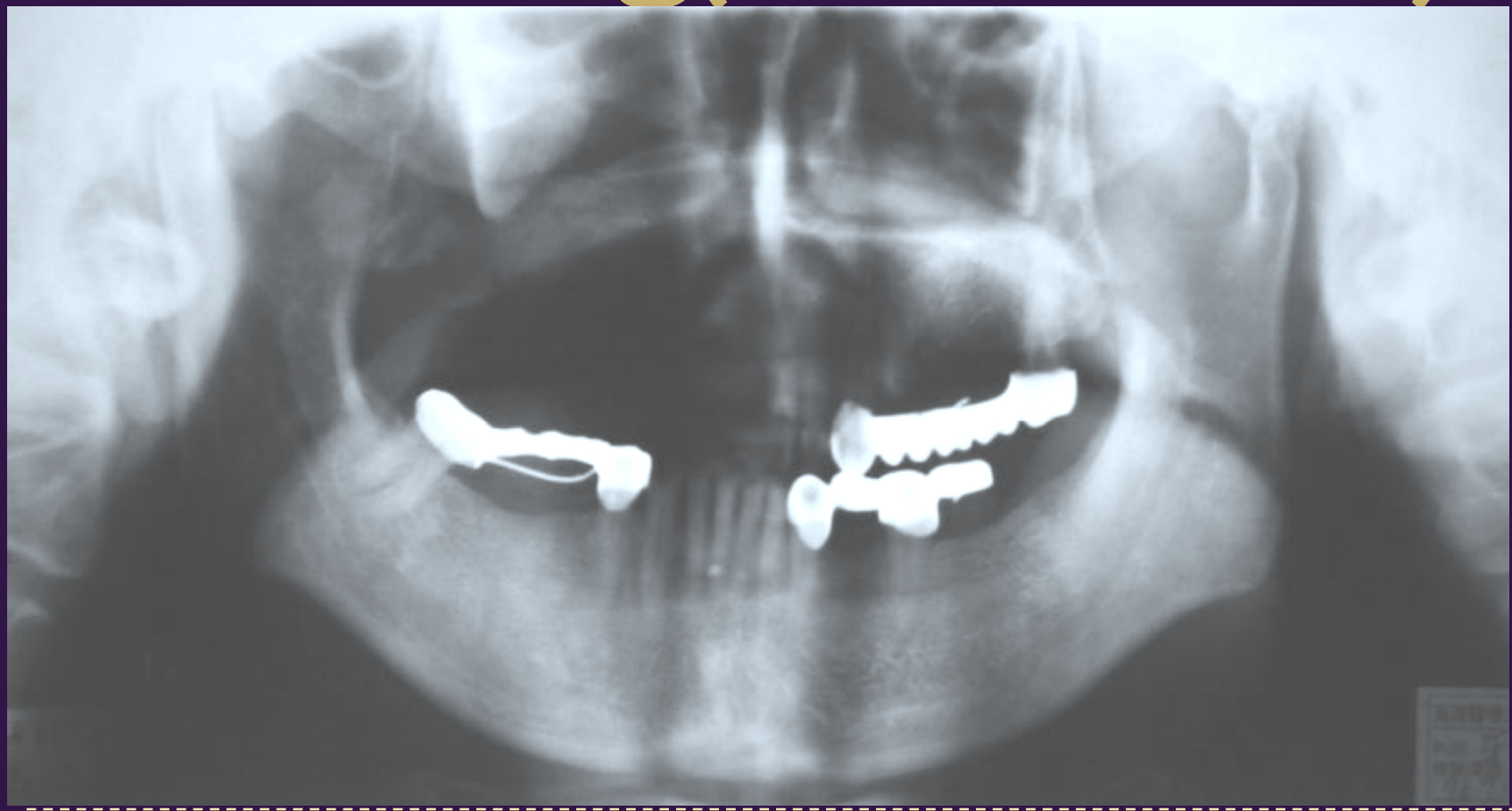




Final Diagnosis

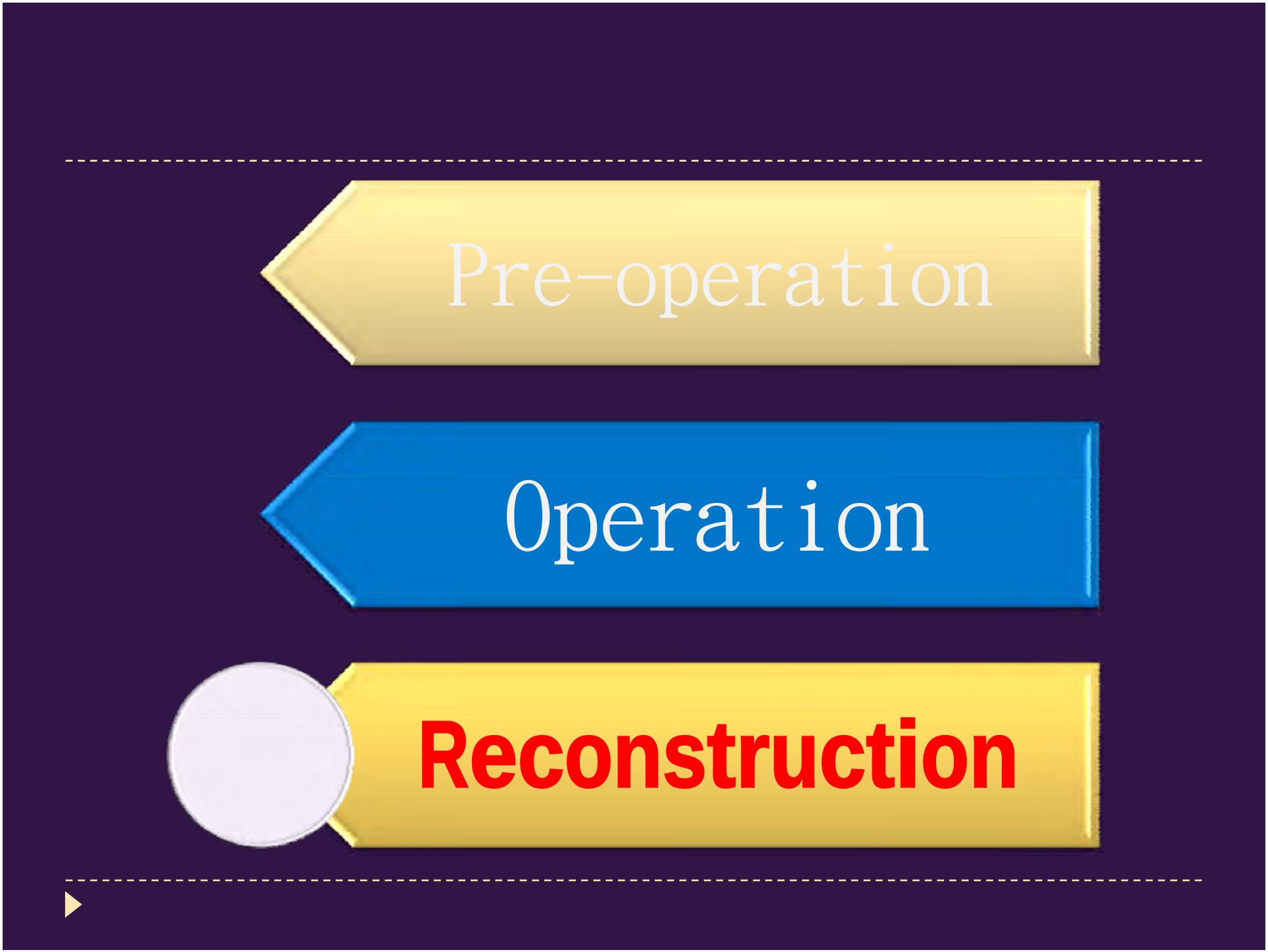
- MUCOEPIDERMOID CARCINOMA
  (LOW GRADE, ORAL CAVITY, HARD PALATE, RIGHT, EXCISION)
- ASPERGILOSIS
  (SINUS, MAXILLA, RIGHT, HEMIMAXILLECTOMY)

Panoramic Finding(96/09/19)

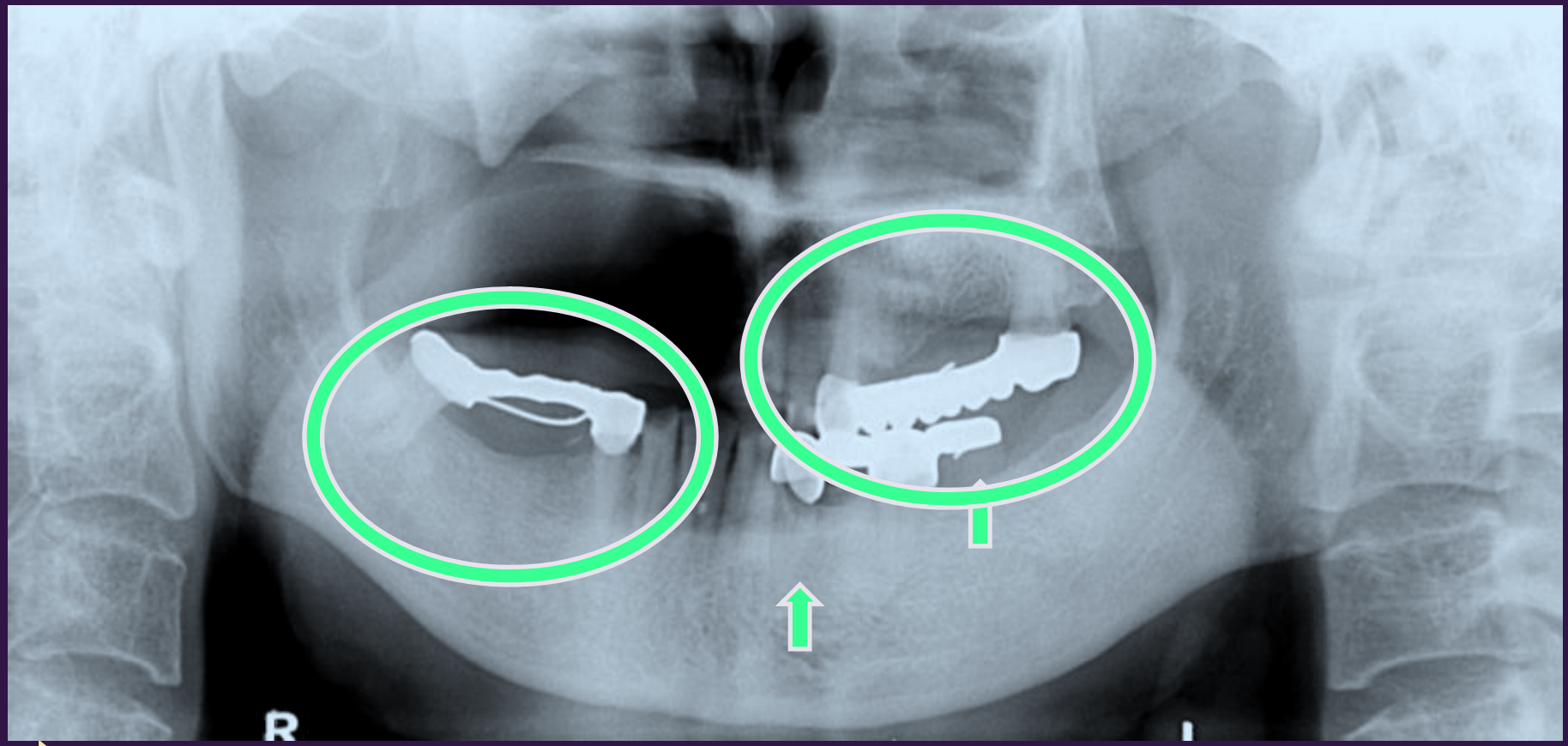


Treatment Course

- 96/9/7 ~ 96/9/11 Post Operation
  1. Oro-antral communication is noted.
  2. Deglutition.
  3. Disturbance in speech .
- 96/9/14 OS
  1. Impression for immediate obturator.

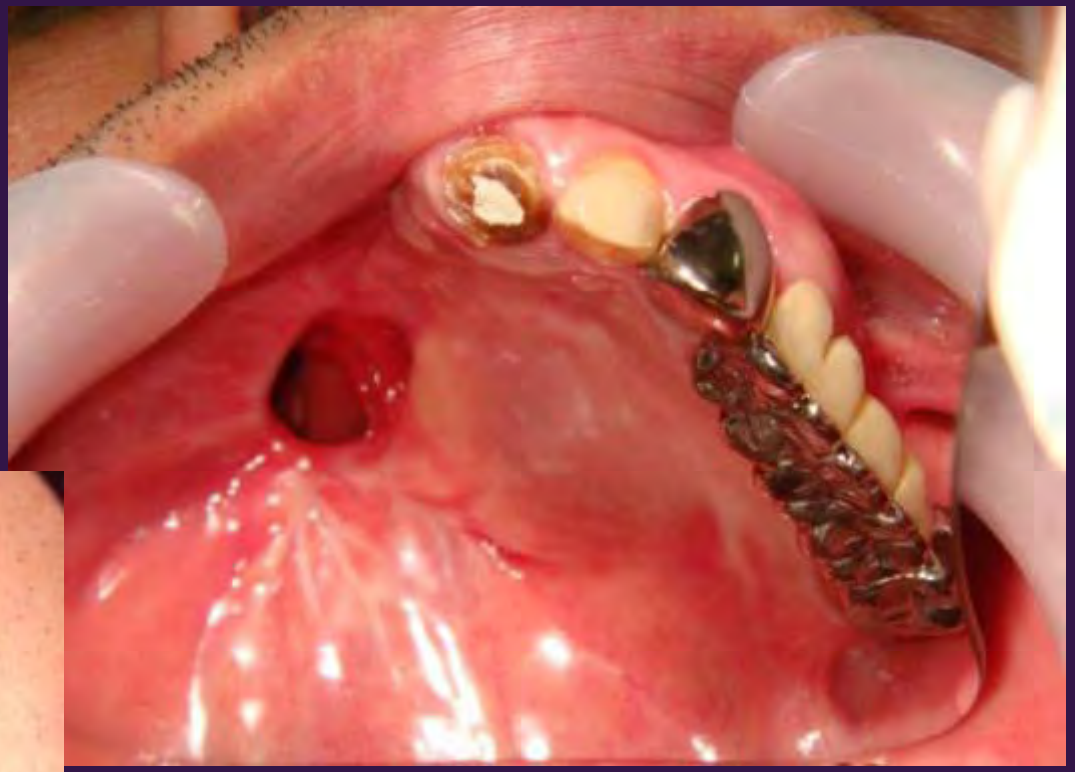

Pre-operation
Operation
Reconstruction

Panoramic Finding (97/07/21)



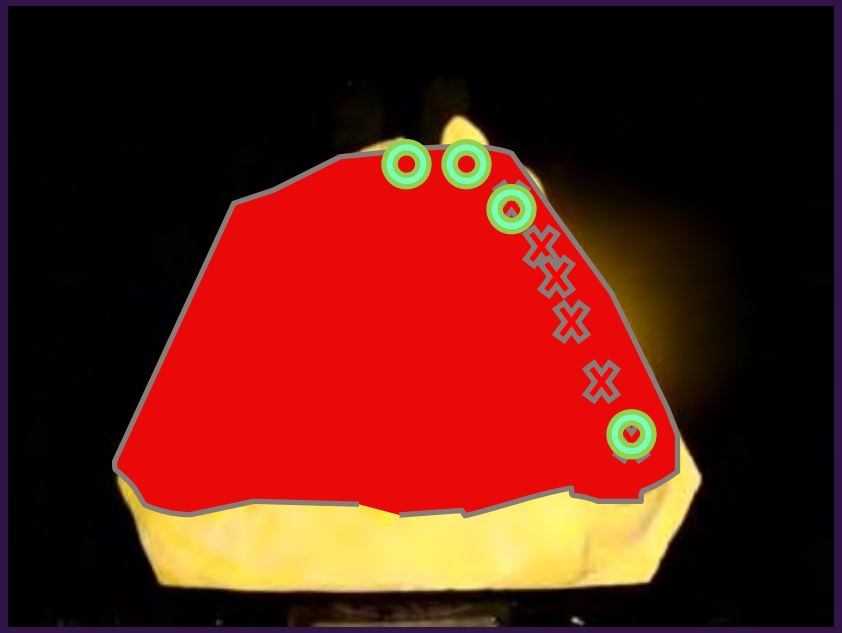
Treatment Course

- 97/8/11 OS
  - Oro-antral fistula is noted on right hard palate.
  - Palatal rotation flap to the fistula was performed under superior alveolar nerve block and suture with 3-0 Dexon.
- 97/12/22 OS
  - Refer to prosthodontic department for obturator fabrication.




2008 7 21

Prosthesis Treatment Plan



Upper

1. Remove upper left previous prosthesis
2. Telescope type obturator

Prosthesis Treatment Plan

Lower

1. Remove ill-fitting crown and bridge
2. Refer to OS for 33 residual root extraction
3. Tooth 35, 44,47 surveyed crown
4. Lower Kennedy Class II RPD

Discussion

Muco-

Muco-epidermoid Carcinoma

FUNGUS SINUSITIS

- CLINICAL AND HISTOLOGICAL FEATURE
- TUMOR GRADE
- CLINICAL AND HISTOLOGICAL FEATURES
- TUMOR GRADE CLASSIFICATION
- IMMUNOCHEMICAL MARKERS

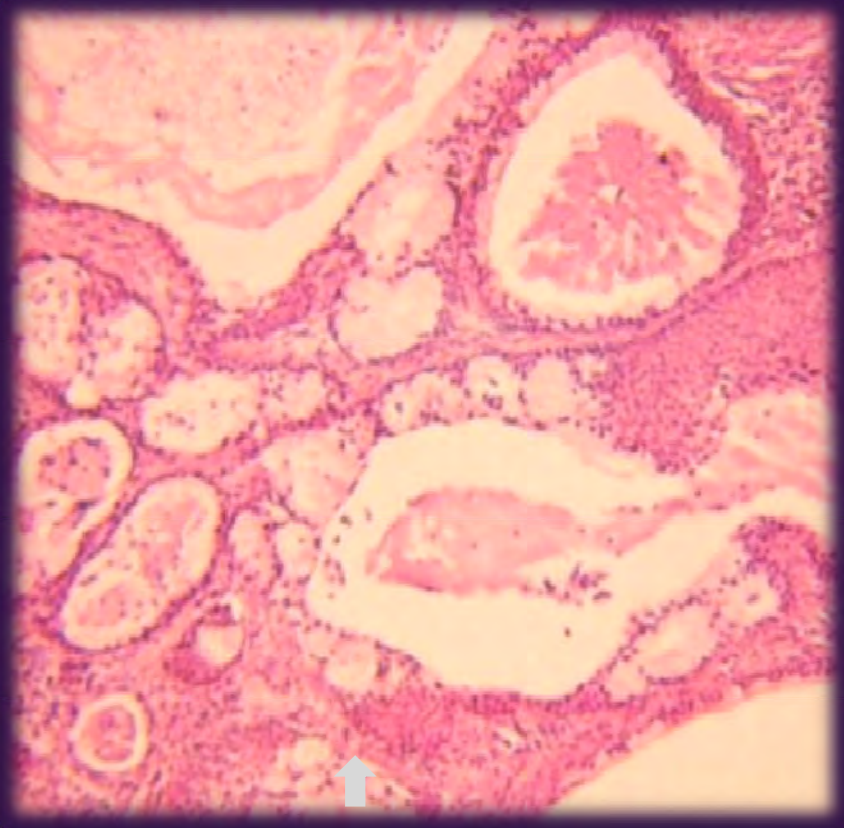
- Introduction
- Classification
- Related to our case

Clinical Features

- One of the most common salivary gland malignancies.
- A wide age range (20 to
- Slight female predilecti
- Site :
  - 1. Parotid gland,
  - 2. Minor salivary gland (especially pala
- Asymptomatic swelling
- Blue or red color

Histopathologic Feature

Mucus-producing cells	・Abundant foamy cytoplasm (positive with mucin stains)
Squamous cell	・Epidermoid cell
Inter-mediate cell	・Progenitor of above cell



Muco-epidermoid Carcinoma

- CLINICAL AND HISTOLOGICAL FEATURES
- TUMOR GRADE CLASSIFICATION
- IMMUNOCHEMICAL MARKERS

- Triantafillidou, K. et al ;Oral Disease 12, 364-370, 2006.
- Yih, Wei-Yung et al ;Journal of Oral Maxillofacial Surgery 63:805, 2005 Bell, R.
- Bryan et al ;Journal of Oral and Maxillofacial Surgery, 63:917-928, 2005
- Jaber et al;International Journal of Oral Maxillofacial Surgery 35:150-154, 2006.
- Yoon et al;International Journal of Oral Maxillofacial Surgery, 34:927-929, 2005

Quantitative Grading System

1. Amount of **cyst formation**
2. Degree of **cytologic atypia**
3. Relative numbers of **mucous, epidermoid, and intermediate cell**
   - Determine three histopathologic grades

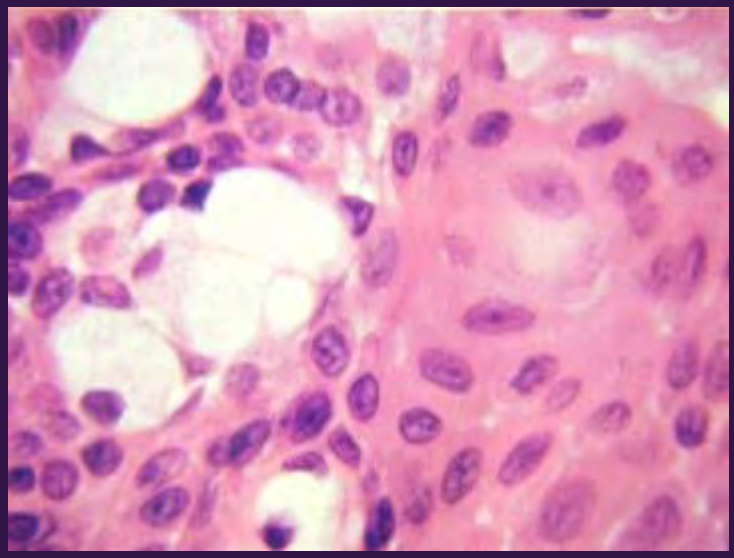
Low	Intermediate	High

Quantitative Grading System

- Low grade: cyst formation, minimal cellular atypia, high proportion mucous cells

Quantitative Grading System

- High grade :
  solid islands of squamous and intermediate cells, ill-defined margin, hemorrhage and necrosis
- Intermediate grade :
  Between the high and low grade.



Quantitative Grading System

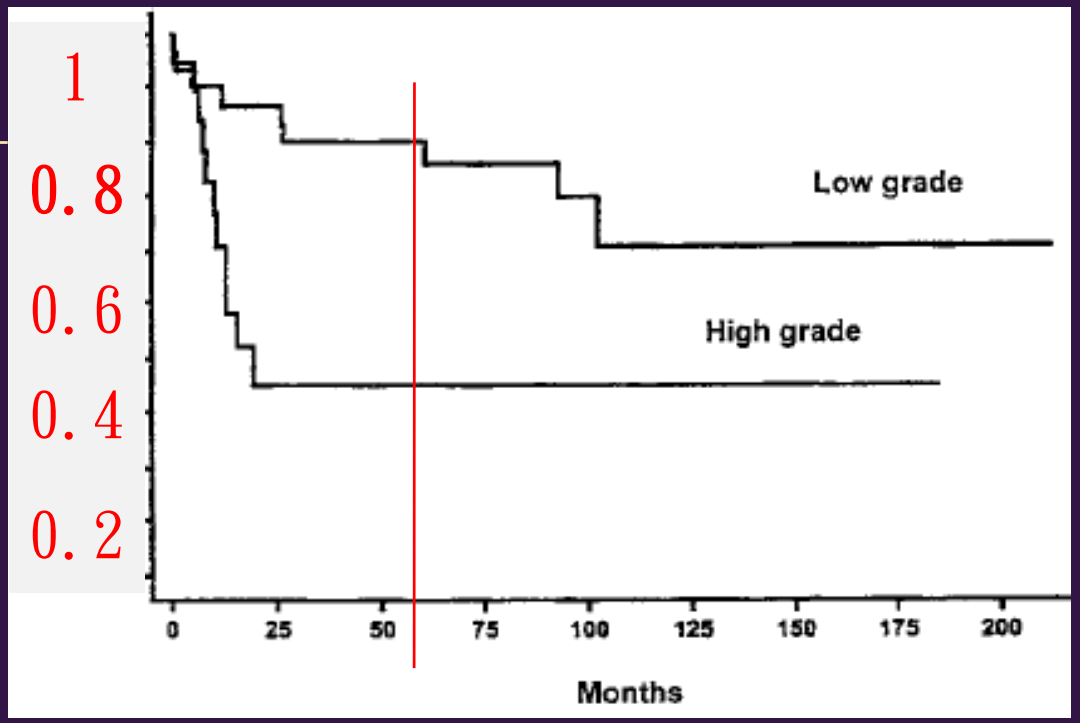
- Based on allocation of points of the five features

Parameter	Point value	Our Case
Intracystic component < 20%	+2	2
Neural invasion present	+2	0
Necrosis present	+3	0
Mitosis (4 or more per10 HPF)	+3	0
Anaplasia present	+4	0

Grade	Point score
Low	0-4
Intermediate	5-6
High	7-14

= 2, Low grade

Prognosis



- Low grade : good
- Intermediate grade: slightly worse.
- High grade : 30~54% survival
- Submandibular gland tumors are with poorer outlook
- Minor salivary gland → good prognosis

Muco-epidermoid Carcinoma

- CLINICAL AND HISTOLOGICAL FEATURES
- TUMOR GRADE CLASSIFICATION
- IMMUNOHISTOCHEMICAL MARKERS

Carlinfante et al;Pathology Research and Practice, 200, 791-799, 2005.
Giannoni, Carla et al ;Otolaryngology Head Neck Surgery 112, 391-398, 1995.

Immunohistochemical Markers

- Histopathology can be used to diagnosis tumor and classified the grade

- **Special stains** marking genes, protein, antigens differentiate tumors and to predict their prognosis

Immunohistochemical Markers

C-erbB-2	• Development, differentiation, mitogenic signalization • Low-grade tumor
Proliferating cell nuclear antigen (PCNA)	• Non-histone nuclear protein →DNA synthesis • Histologic grade of tumors and outcome → High-grade tumor
P53 tumor suppressor gene	• Critical point in the development of malignant tumors.
Carcinoembryonic antigen (CEA)	• More common and more intense in malignant tumors

Immunohistochemical Markers

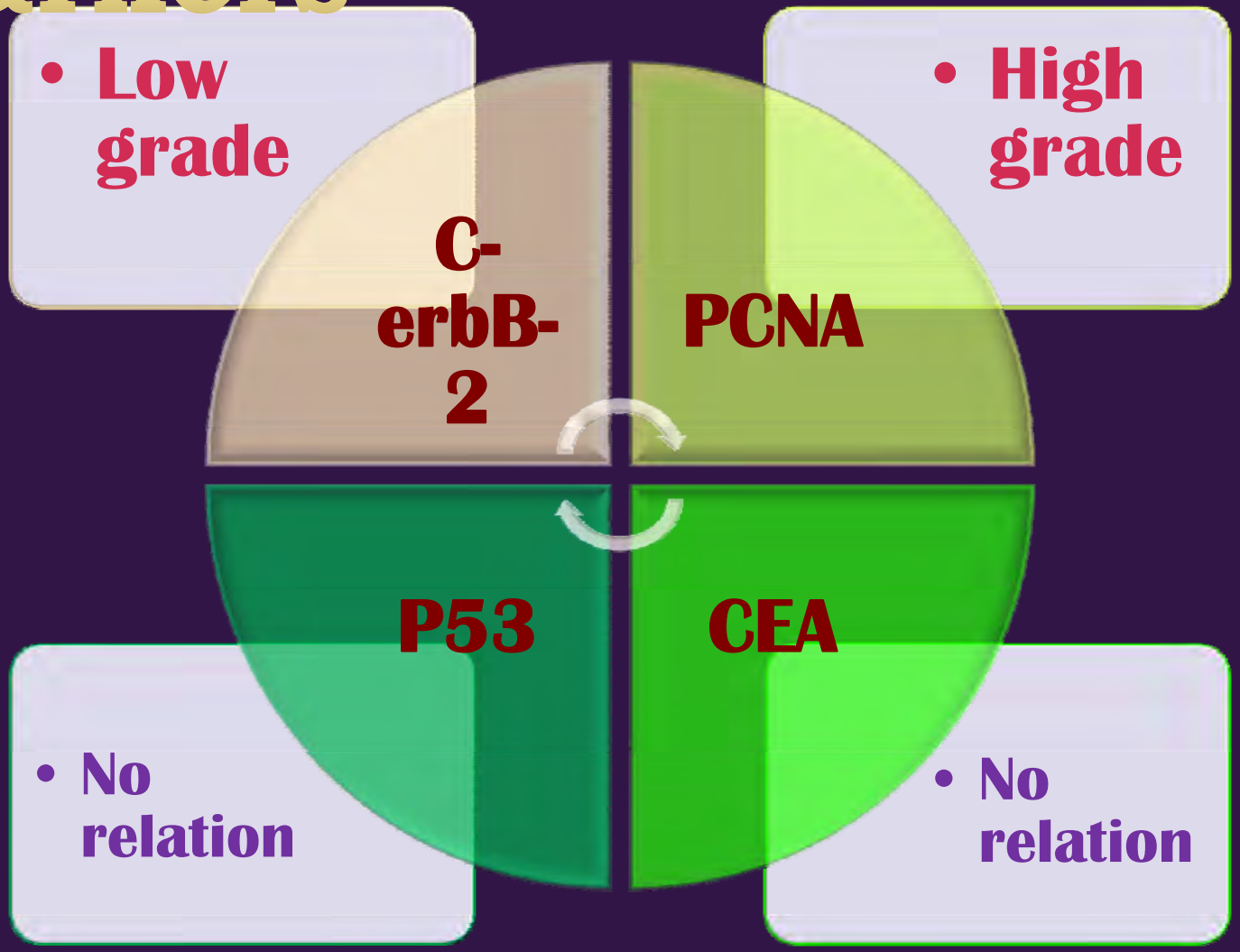
Low	Intermediate	High
13	9	5

	Category	Low grade	Intermediate	High
P53	-	13	9	4
	+	0	0	0
	++	0	0	1

	Category	Low grade	Intermediate	High
CEA	-	0	1	0
	+	0	1	0
	++	13	7	5

"Clinicopathologic and immunohistochemical study of intraoral mucoepidermoid carcinoma." Otolaryngology-Head and Neck Surgery 134, 622-626, 2006.

Immunohistochemical Markers



FUNGUS SINUSITIS

- Introduction
- Classification
- Related to our case

Craig C. Willard, DDS, MS et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96:550-60
Fabio Costa, MD et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103:e23-e29
Fabio Pagella et al. Mycoses (2007), 50, 451–456
María Fe García Reija et al. MEDICINA ORAL VOL. 7 / No 3 MAY.-JUN. 2002
N. K. Panda et al. Mycoses, 47, 277–283, 2003.
Pierre Grosjean et al. Eur Arch Otorhinolaryngol (2007) 264:461–470
S Mylona Dentomaxillofacial Radiology (2007) 36, 102–104 *q 2007*

FUNGUS SINUSITIS

- Introduction
- Classification
- Related to our case

Craig C. Willard, DDS, MS et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96:550-60
Fabio Costa, MD et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103:e23-e29
Fabio Pagella et al. Mycoses (2007), 50, 451–456
María Fe García Reija et al. MEDICINA ORAL VOL. 7 / No 3 MAY.-JUN. 2002
N. K. Panda et al. Mycoses, 47, 277–283, 2003.
Pierre Grosjean et al. Eur Arch Otorhinolaryngol (2007) 264:461–470
S Mylona Dentomaxillofacial Radiology (2007) 36, 102–104 *q 2007*

Introduction

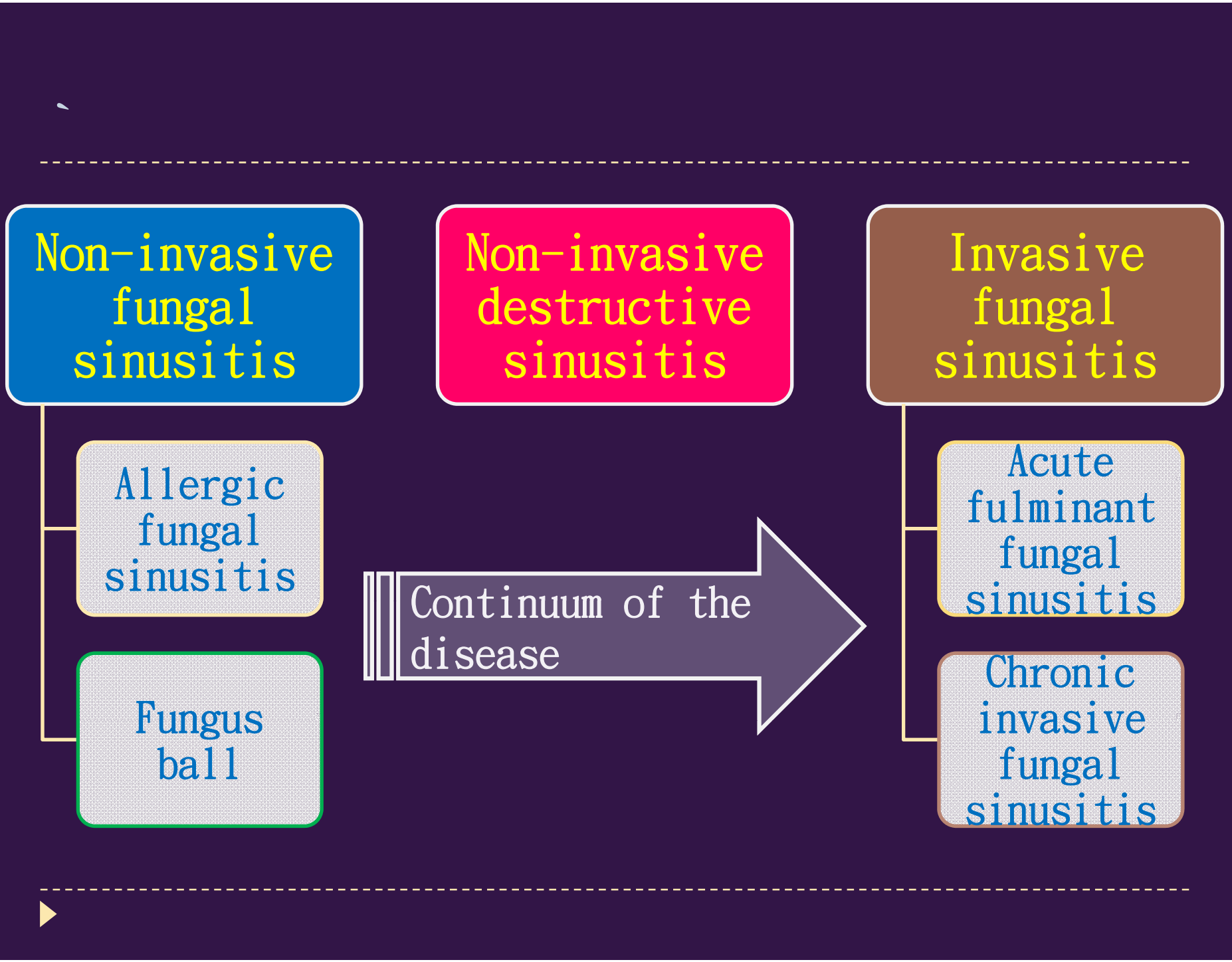
- Aspergillus: a spore-forming fungus
- Species: *A. fumigatus, A. niger, A. flavus*
- Infection site: lung, liver, spleen, bone, meninges, sinuses
- Predilection: female
- HP stains: Grocott, PAS → fungal hyphae

Introduction

- Clinical conditions posing added risk:
  - Poorly controlled DM, diabetic ketoacidosis
  - Leukemia and bone marrow transplant
  - End-stage renal disease
  - Prolonged antibiotic and corticosteroid treatment
  - Chronic immunosuppressive therapy

Introduction

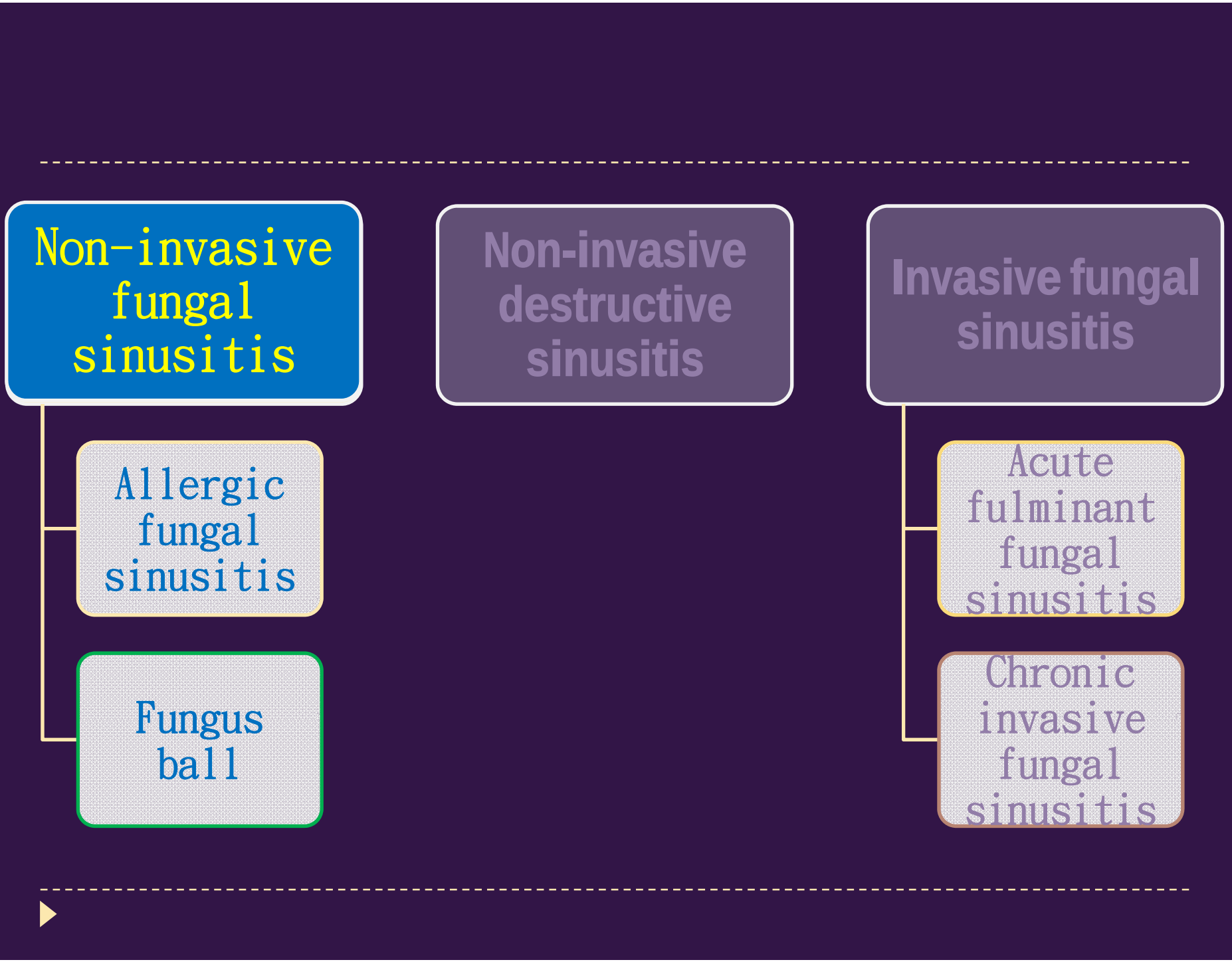
- Presence of microscopic evidence of fungal hyphae within the tissue
- Mucosa is intact?
  - No → invasive
  - Yes → non-invasive (extramucosal)


Non-invasive fungal sinusitis
Allergic fungal sinusitis
Fungus ball
Non-invasive destructive sinusitis
Continuum of the disease
Invasive fungal sinusitis
Acute fulminant fungal sinusitis
Chronic invasive fungal sinusitis

FUNGUS SINUSITIS

- Introduction
- Classification
- Related to our case

Craig C. Willard, DDS, MS et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96:550-60
Fabio Costa, MD et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103:e23-e29
Fabio Pagella et al. Mycoses (2007), 50, 451–456
María Fe García Reija et al. MEDICINA ORAL VOL. 7 / No 3 MAY.-JUN. 2002
N. K. Panda et al. Mycoses, 47, 277–283, 2003.
Pierre Grosjean et al. Eur Arch Otorhinolaryngol (2007) 264:461–470
S Mylona Dentomaxillofacial Radiology (2007) 36, 102–104 *q 2007*


Non-invasive fungal sinusitis
Allergic fungal sinusitis
Fungus ball
Non-invasive destructive sinusitis
Invasive fungal sinusitis
Acute fulminant fungal sinusitis
Chronic invasive fungal sinusitis

Allergic Fungal Sinusitis

- Most common sinusitis

Age	Young adult
Site	>1 sinus, unilaterally
Appearance	Nasal polyps and thick yellow-green mucus
CT finding	Bone destruction, sinus wall expansion
IgE level	↑
Treatment	Surgery with or without systemic or local application of steroids

Allergic Fungal Sinusitis

- HP finding:
  - Inspissated material made up of amorphous, laminated layers of strongly eosinophilic to basophilic mucus intermixed with variably degenerated sheets of eosinophils
  - Charcot-Layden crystals

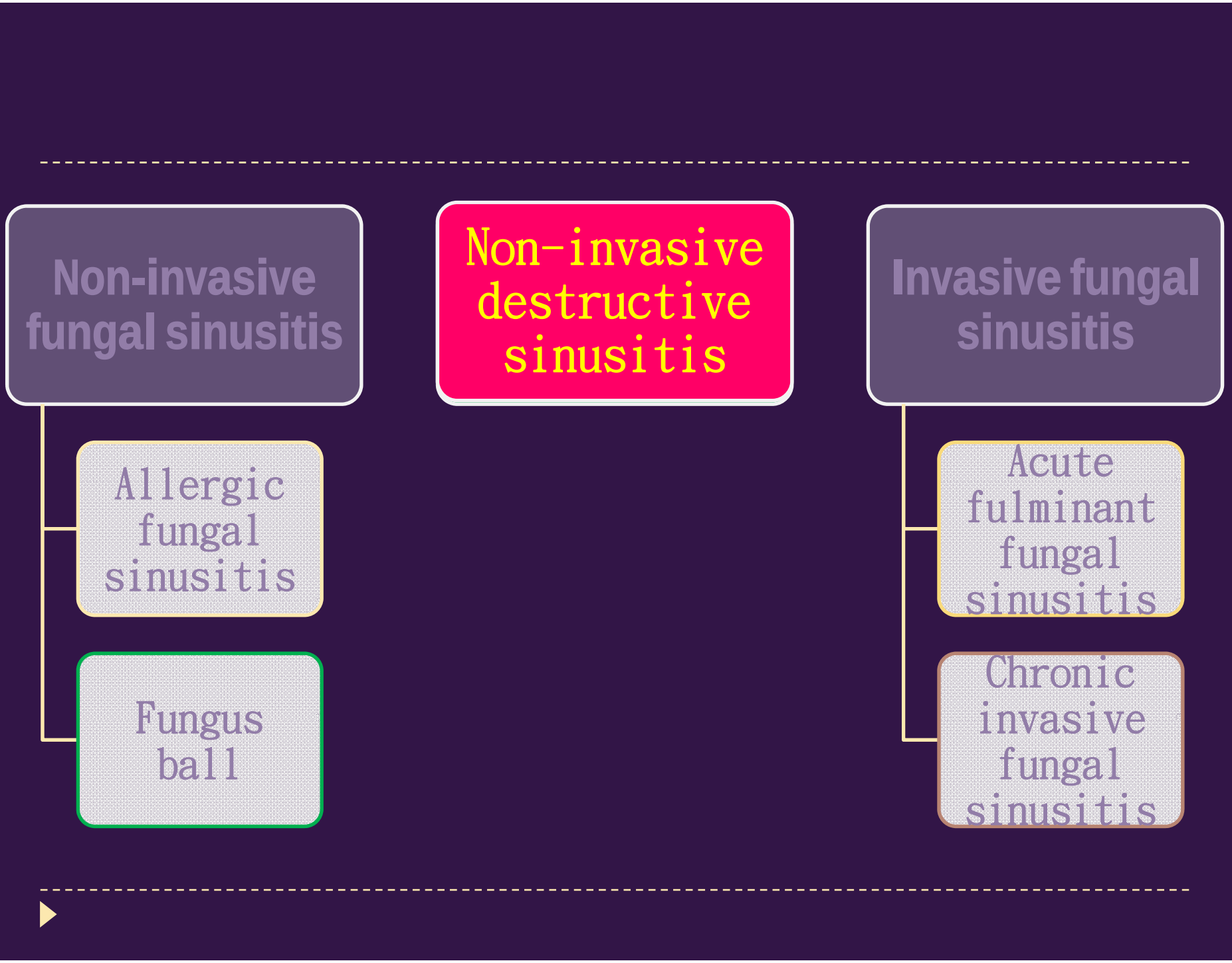
Fungus Ball

Complaint	Unilateral/bilateral nasal obstruction, nasal discharge
Site	One sinus (maxillary sinus, sphenoid sinus)
Appearance	Blackish or grayish cheesy material along with polyp, mycelia embedded in mucus
CT finding	Calcification areas within opacified mass, bilateral involvement of sinus
Histo-pathology	Without mucosal invasion
Treatment	Surgery without medical therapy

Fungus Ball

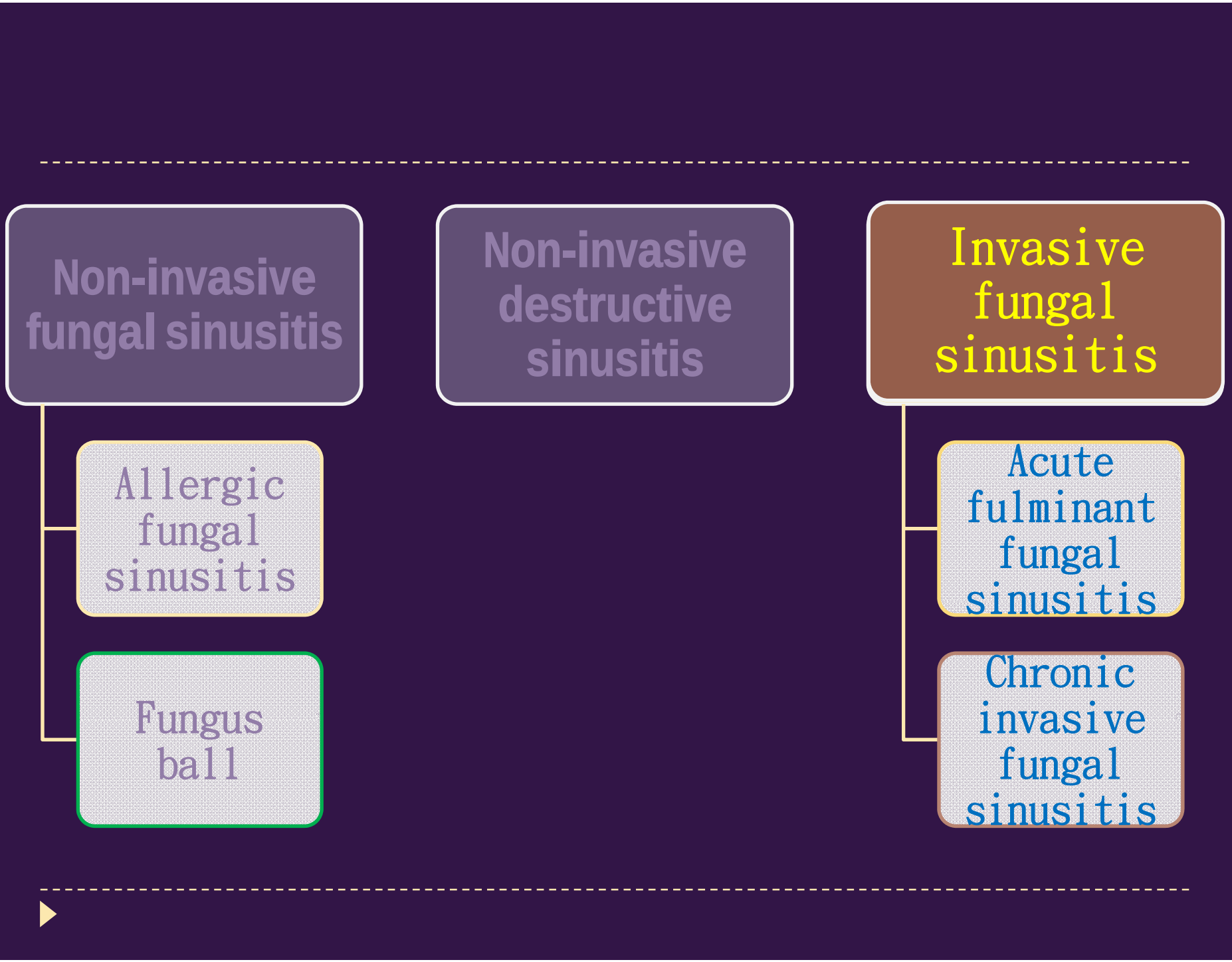
- Pathogenesis:

1. Iatrogenic oro-antral communication: Secondary to dental extraction, periodontal destruction, endodontic treatment with overfilling.
2. Aerogenic theory: Inhalation of high quantities of spores through natural ostium
3. *Aspergillus* spores: Poorly ventilated sinus, a pre-existing sinusitis, or foreign bodies in the sinus


Non-invasive fungal sinusitis
Allergic fungal sinusitis
Fungus ball
Non-invasive destructive sinusitis
Invasive fungal sinusitis
Acute fulminant fungal sinusitis
Chronic invasive fungal sinusitis

Non-Invasive Destructive

Complaint	Nasal discharge, nasal obstruction, headache
Appearance	Blackish or grayish cheesy material, mass of mycelia with bone destruction and dural exposure
Treatment	Surgery with or without medical therapy (itraconazole, ketoconazole, amphotericin B)
CT finding	Bone destruction and erosion, bilateral involvement of sinus
Histo-pathology	No mucosal invasion


Non-invasive fungal sinusitis
Allergic fungal sinusitis
Fungus ball
Non-invasive destructive sinusitis
Invasive fungal sinusitis
Acute fulminant fungal sinusitis
Chronic invasive fungal sinusitis

Acute Fulminant Sinusitis

- Rapid malignant course to the destruction of nasal cavity, orbit, and brain within a few days

Complaint	Persistent pyrexia, crusting of nasal mucous membrane, epistaxis, and headaches
Sign	facial swelling, orbital symptoms and systemic dissemination
CT finding	Opacity of the sinus with or without destruction

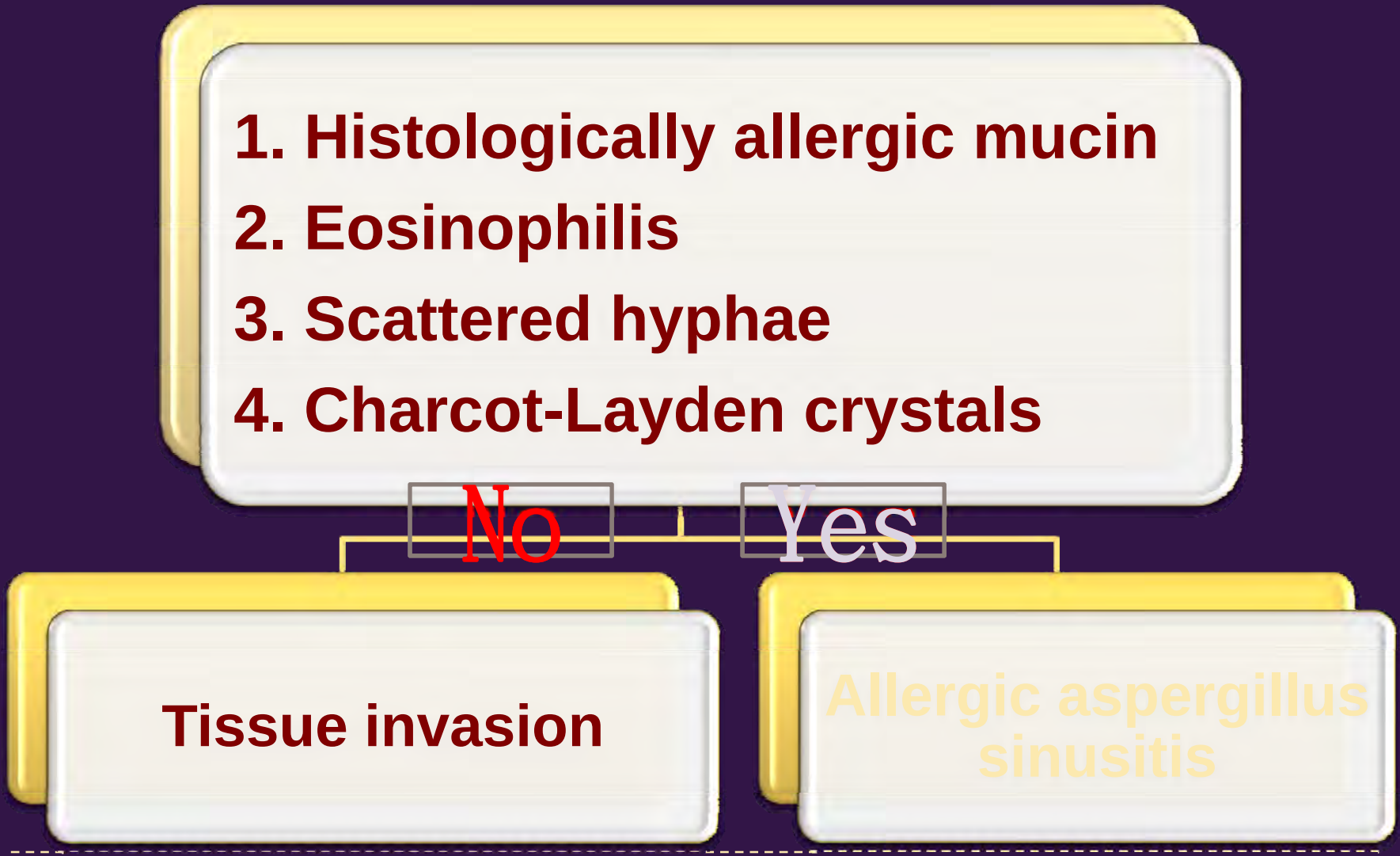
Chronic Invasive sinusitis

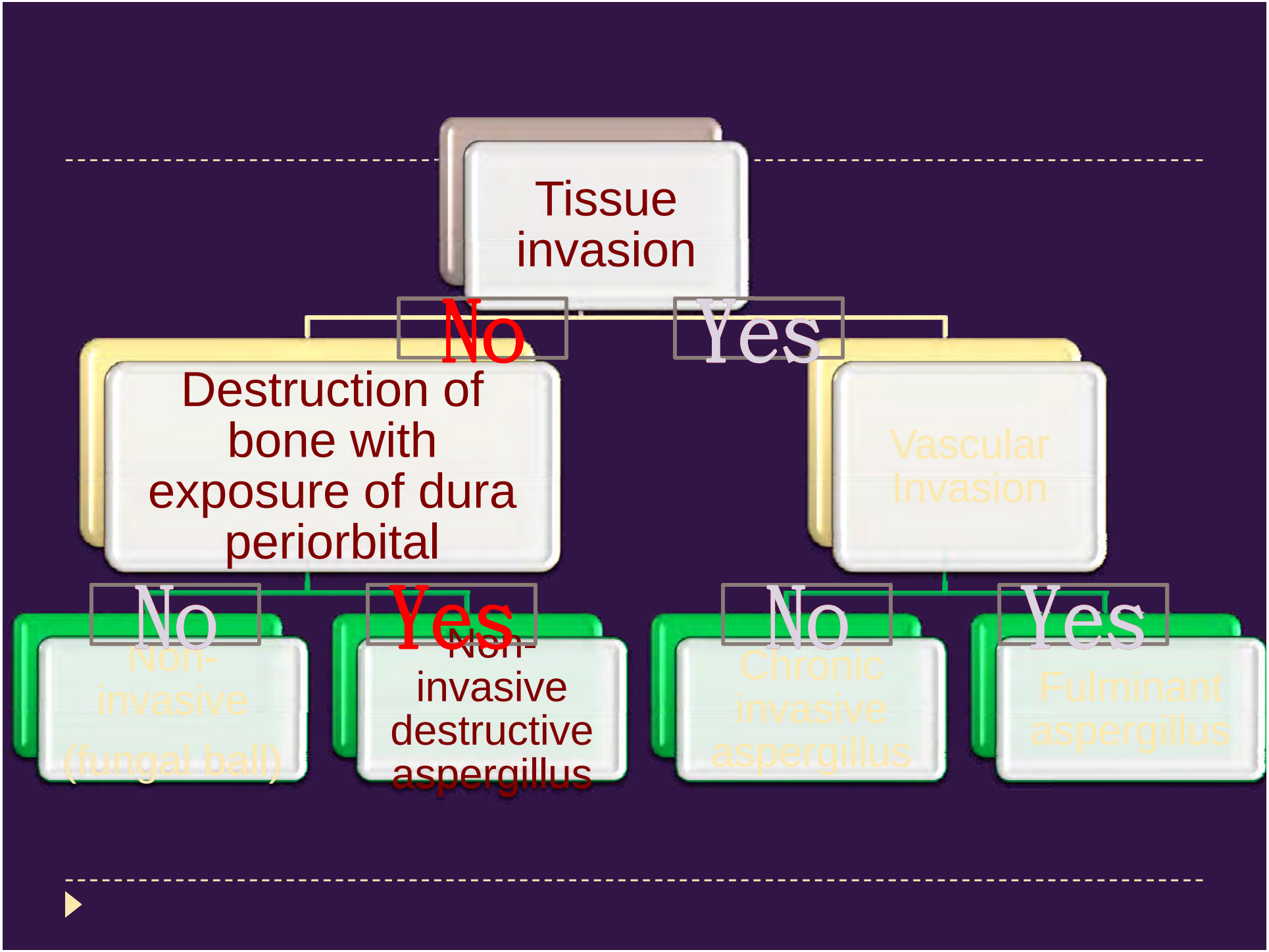
Sign	Extension to orbit with or without intracranial extension, slow progression
Site	Multiple sinus involvement
Appearance	Hard gritty mass
CT finding	Unilateral orbital, cavernous sinus, neurovascular structures, subcutaneous cheek
Histo-pathology	Mucosal invasion
Treatment	Surgery with or without medical therapy (itraconazole, ketoconazole, amphotericin B)

FUNGUS SINUSITIS

- Introduction
- Classification
- Related to our case

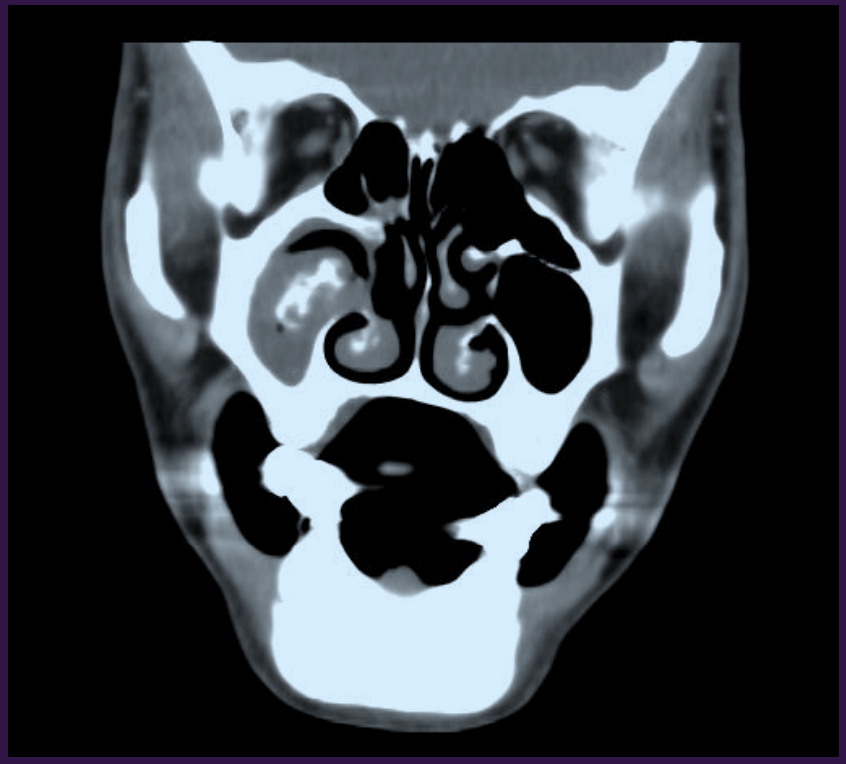
Craig C. Willard, DDS, MS et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96:550-60
Fabio Costa, MD et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103:e23-e29
Fabio Pagella et al. Mycoses (2007), 50, 451–456
María Fe García Reija et al. MEDICINA ORAL VOL. 7 / No 3 MAY.-JUN. 2002
N. K. Panda et al. Mycoses, 47, 277–283, 2003.
Pierre Grosjean et al. Eur Arch Otorhinolaryngol (2007) 264:461–470
S Mylona Dentomaxillofacial Radiology (2007) 36, 102–104 *q 2007*


1. Histologically allergic mucin
2. Eosinophilis
3. Scattered hyphae
4. Charcot-Layden crystals
No
Yes
Tissue invasion
Allergic aspergillus sinusitis

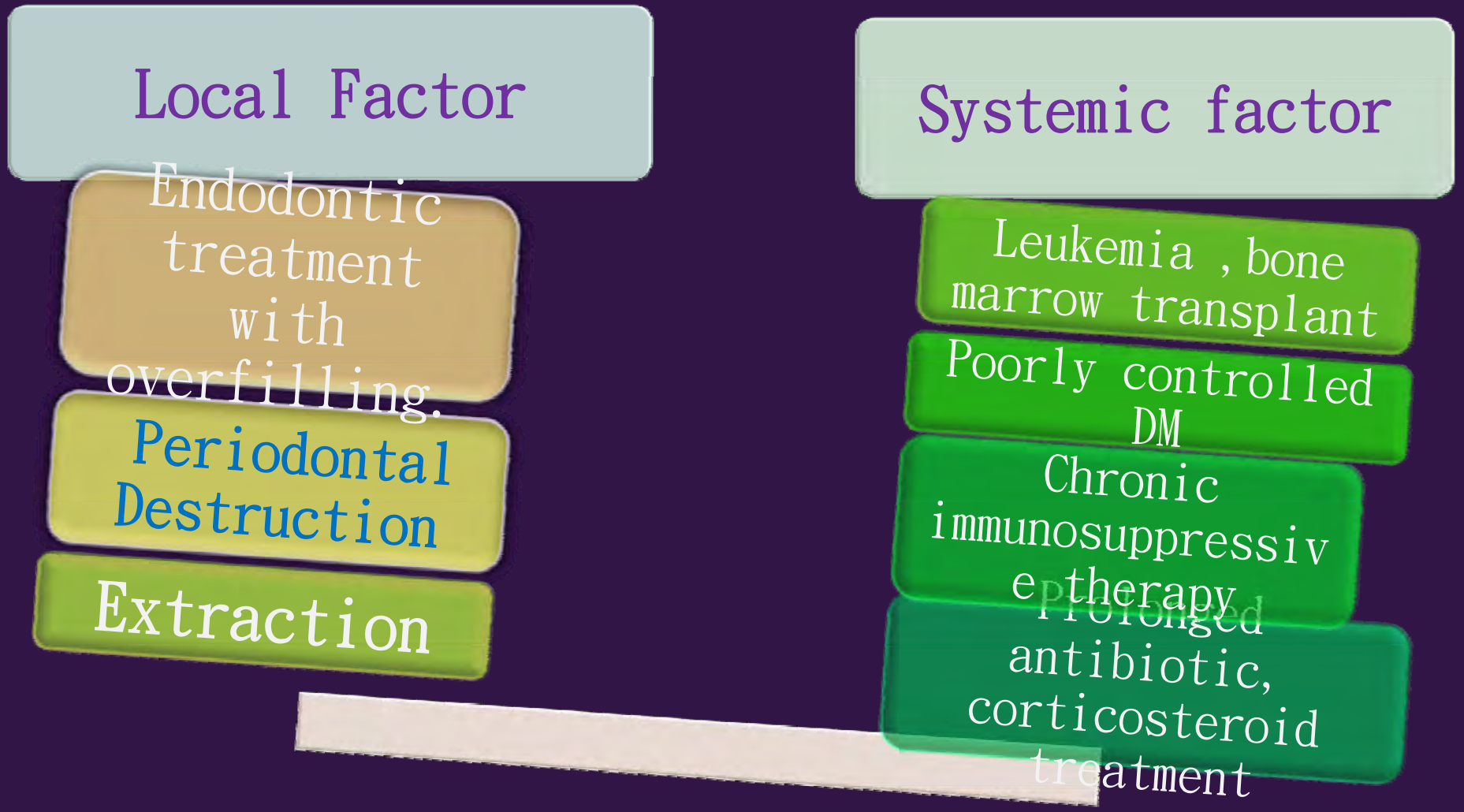

Tissue invasion
No
Yes
Destruction of bone with exposure of dura periorbital
Vascular Invasion
No
Yes
No
Yes
Non-invasive (fungal ball)
Non-invasive destructive aspergillus
Chronic invasive aspergillus
Fulminant aspergillus

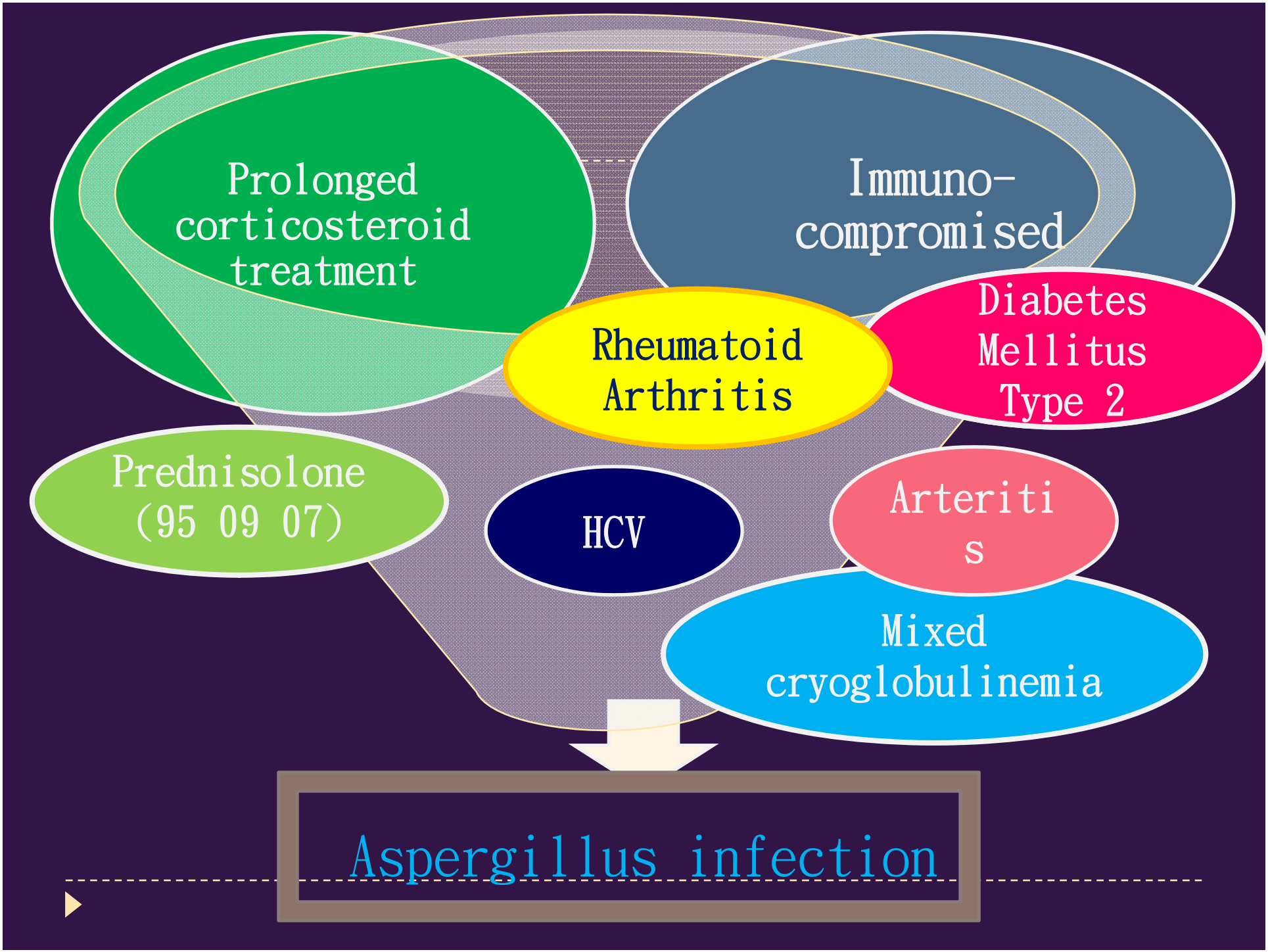
Conclusion

- Right hard palate: Mucoepidermoid carcinoma (low-grade)
- Right maxillary sinus: Aspergillosis



Predisposing Factor of Aspergillus




Prolonged corticosteroid treatment
Immuno-compromised
Rheumatoid Arthritis
Diabetes Mellitus Type 2
Prednisolone (95 09 07)
HCV
Arteriti s
Mixed cryoglobulinemia
Aspergillus infection

- Although these two concurrent lesions are distinct to each other histologically, the involved anatomic landmarks are in close proximity, so it is unable to clinically distinguish whether the two lesions are separated entities.
- So, these two lesions are removed together during the operation.
- Post-surgical obturator fabrication for palatal defect is necessary to promote the patient's life quality.

Thanks for Please your WAKE UP attention

References

- Bell, R. Bryan, Eric J. Dierks, Louis Homer, Bryce E. Potter. "Management and Outcome of Patients with Malignant Salivary Gland Tumors." Journal of Oral and Maxillofacial Surgery 63:917-928, 2005
- Carlinfante, Gabriele, Mirca Lazzaretti, Silvano Ferrari, Bernardo Bianchi, Pellegrino Crafa. "p53, bcl-2 and Ki-67 expression in adenoid cystic carcinoma of the palate. A clinico-pathologic study of 21 cases with long-term follow-up." Pathology Research and Practice 200, 791-799, 2005.
- Fukui, D., G. Bando, Y. Ishikawa, K. Kadota. "Adenosquamous Carcinoma with Cilium Formation, Mucin Production and Keratinization in the Nasal Cavity of a Red Fox." Journal of Contemporary Pathology 137:142-145, 2007.
- Giannoni, Carla, Adel K. El-Naggar, Nelson G. Ordonez, MC, Z. nora Tu, John Austin, Mario A. Luna, John G. Batsakis. "c-erbB-2/neu Oncogene and Ki-67 analysis in the assessment of palatal salivary gland neoplasms." Otolaryngology Head Neck Surgery 112, 391-398, 1995.

- Jaber, M. A. “Intraoral Minor Salivary Gland Tumors: a review of 75 cases in a Libyan population.” International Journal of Oral Maxillofacial Surgery 35:150-154, 2006.
- Lopes, Marcio Ajudarte, Danyel Elias da Cruz Perez, Fabio de Abreu Alves,Oslei Paes de Almeida,Luiz Paulo Kowalski. “Clinicopathologic and immunohistochemical study of intraoral mucoepidermoid carcinoma.” Otolaryngology-Head and Neck Surgery 134,622-626, 2006.
- Yoon, J.H., S.G. Ahn, S.G. Kim, J. Kim. “Calcifications in a clear cell mucoepidermoid carcinoma of the hard palate.” International Journal of Oral Maxillofacial Surgery 34:927-929, 2005.

- Parr, Gregory R,Greggory E. Tharp, Arthur O. Rahn. “Prosthodontic principles in the framework design of maxillary obturator prostheses.” The Journal of Prosthetic Dentistry 93:405-411, 2005.
- Sela, Mordechai,Karl Segal,Raphael Feinmesser. “Maxillofacial Prosthetic Treatment after Maxillectomy.” Operative Techniques in Otolaryngology-Head and Neck Surgery 7: 339-341, 1996.
- Triantafillidou, K., J dimitrakopoulos, F iordanidis, D Koufogiannis. “Mucoepidermoid carcinoma of minor salivary glands: a clinical study of 16 cases and review of the literature.” Oral Diseases 12, 364-370, 2006.
- Yih, Wei-Yung, F. James Kratochvil,Jeffery C.B. Stewart. “Intraoral Minor Salivary Gland Neoplasms: Review of 213 Cases.” Journal of Oral Maxillofacial Surgery 63:805, 2005.