ORAL CAVITY TUMOURS

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Head and Neck Surgery
Geneva
Summer school Bettlach 2017

HUG
Hôpitaux Universitaires de Genève

1. Quizz

2. Malignant tumours
   1. Epidemiology
   2. Risk factors
   3. Prognostic factors

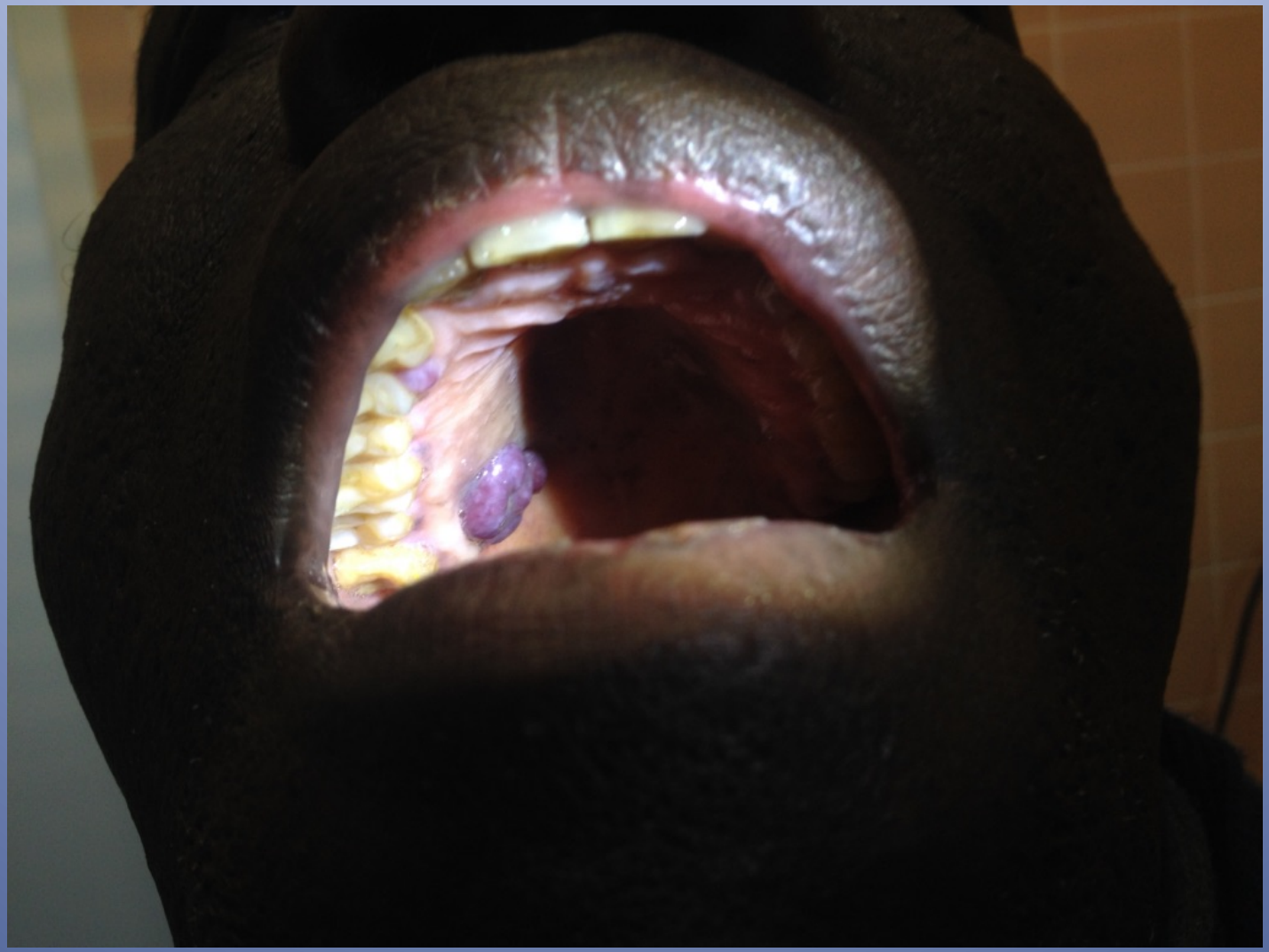
3. Treatment planning
   1. Decision
   2. Trans-oral
   3. Trans-cervico-mandibulo-facial

4. Cases

1. Quizz

- Benign? Mlaignant?
- Oral cavity SCC?

1. Quizz



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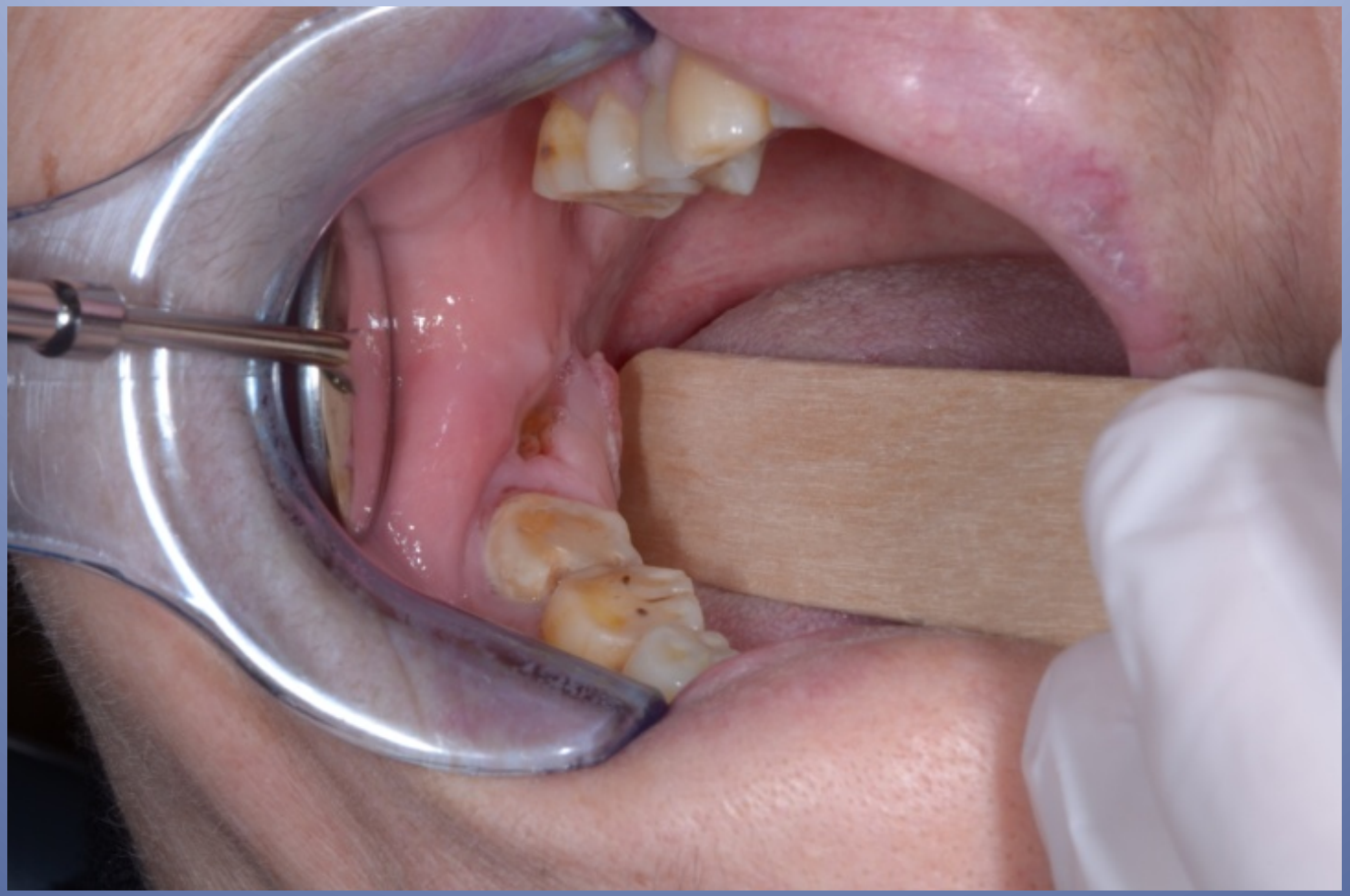

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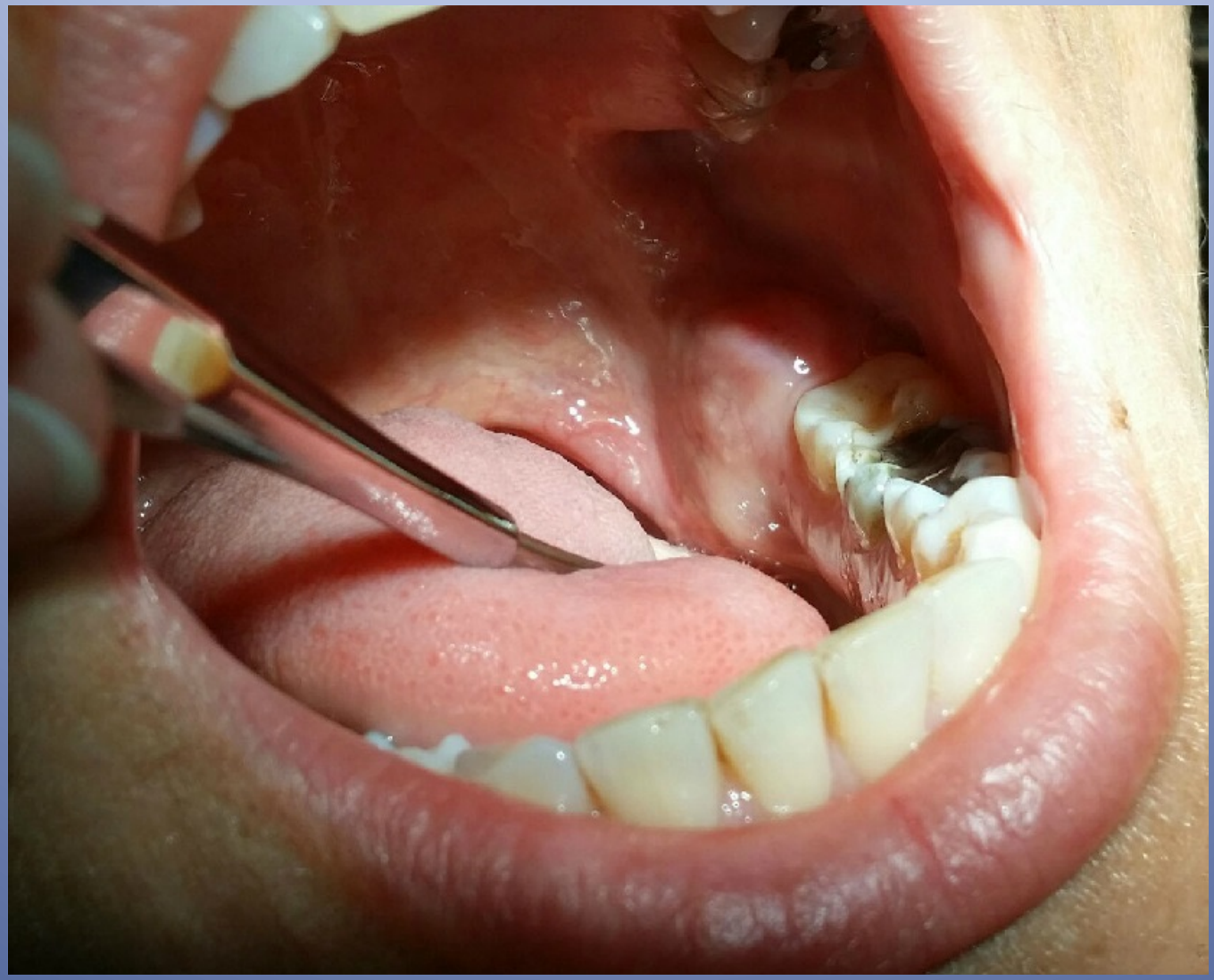

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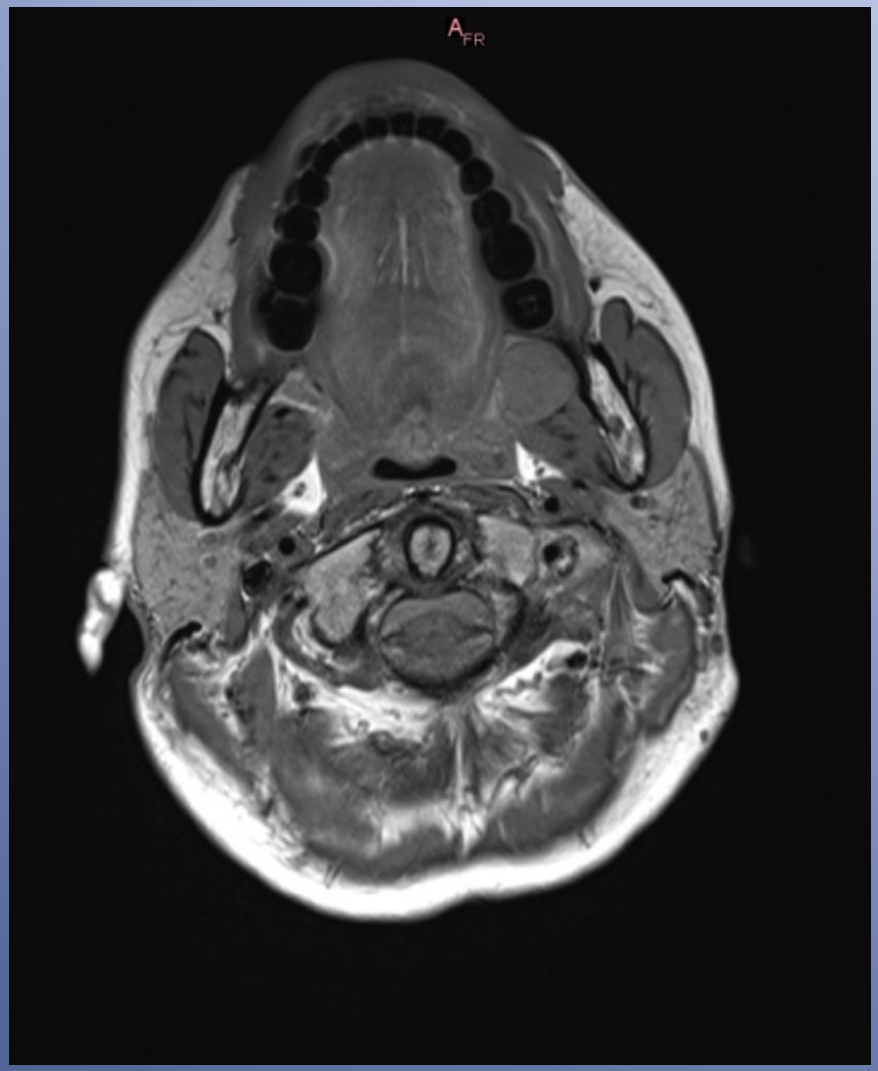

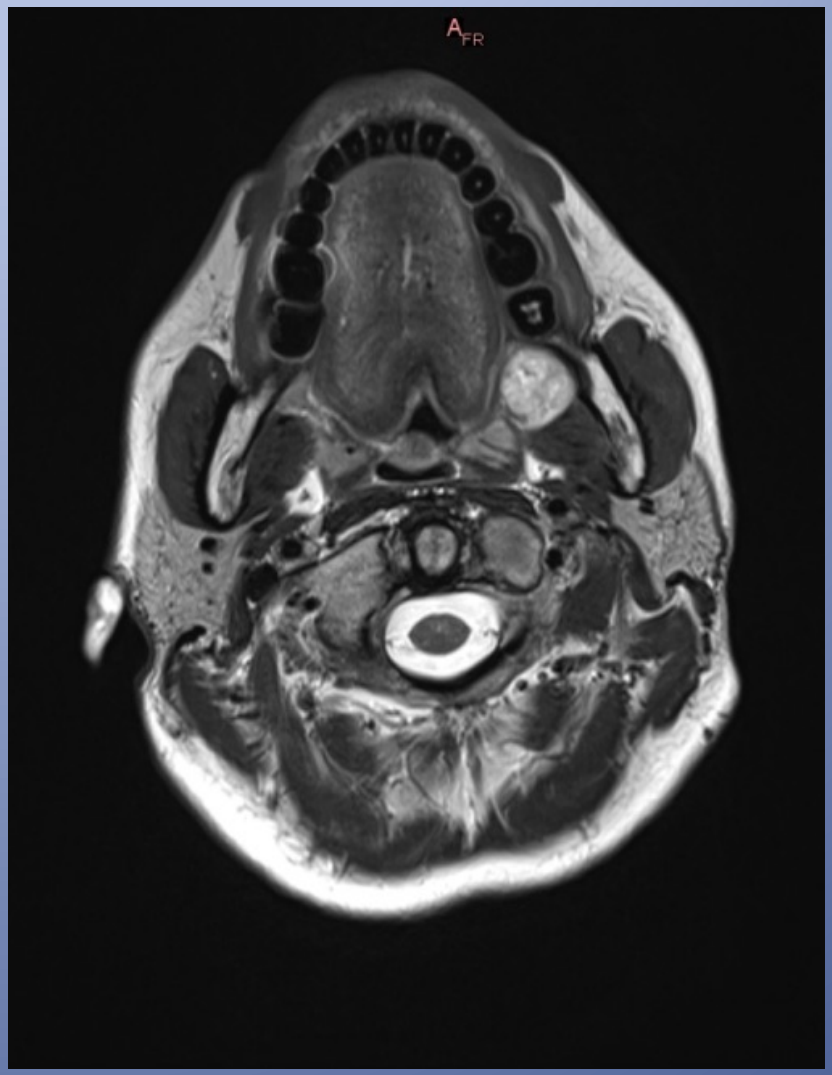

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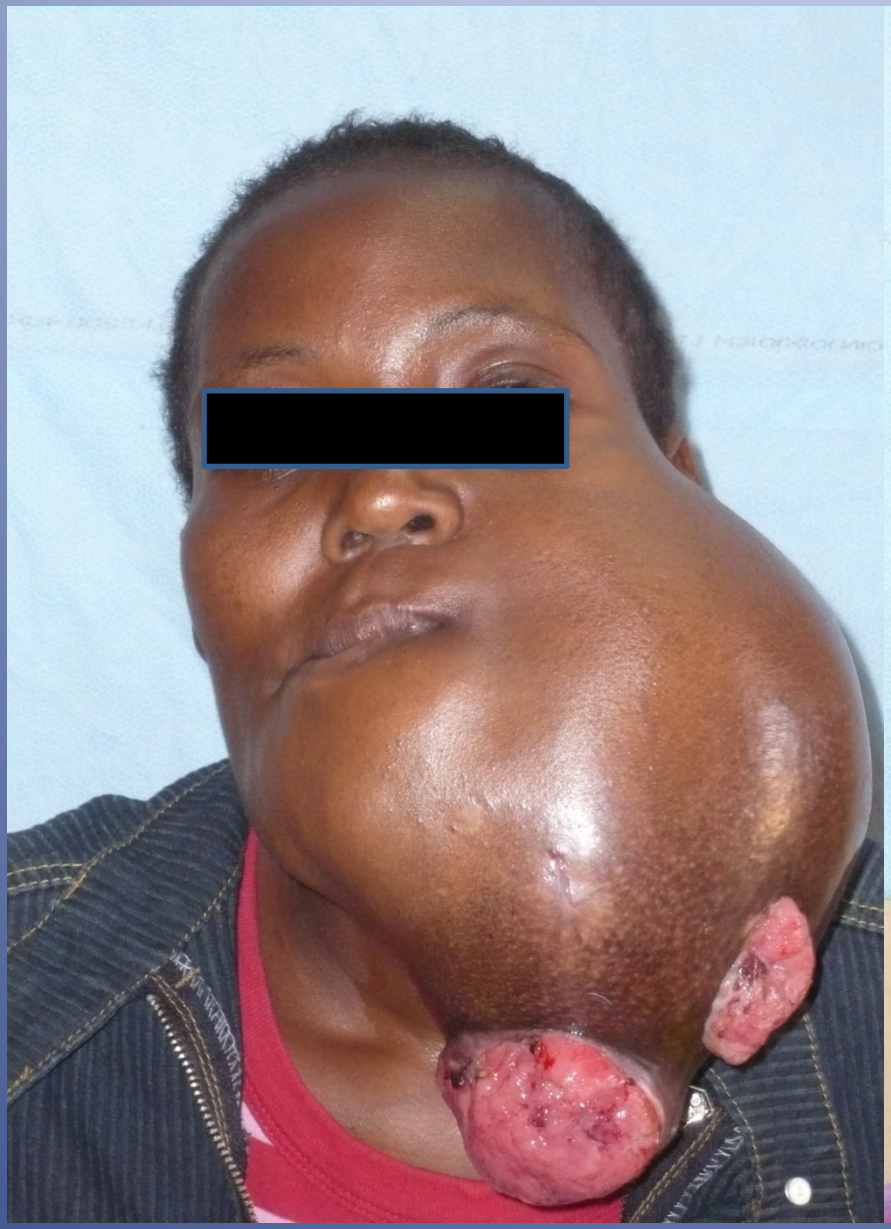
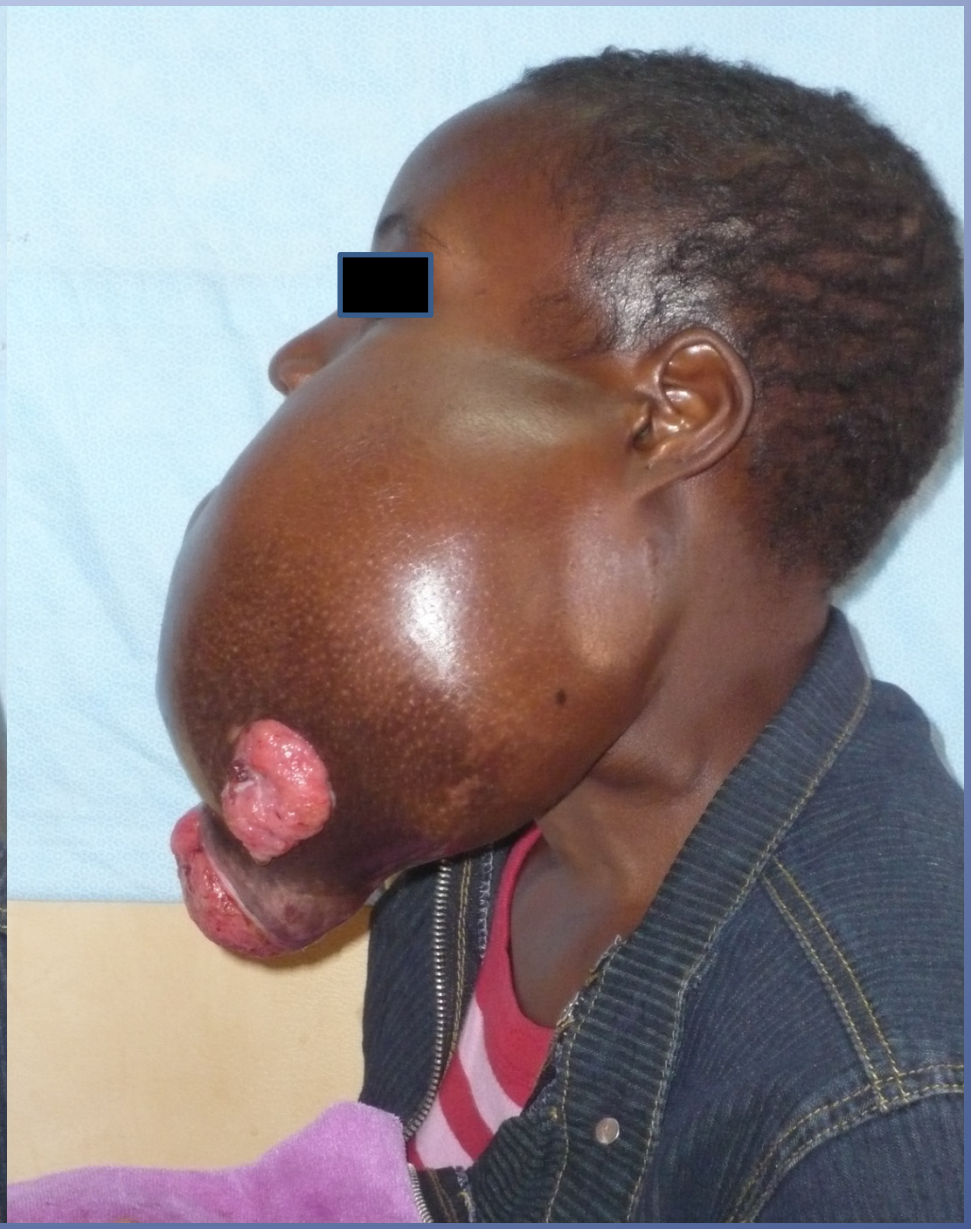
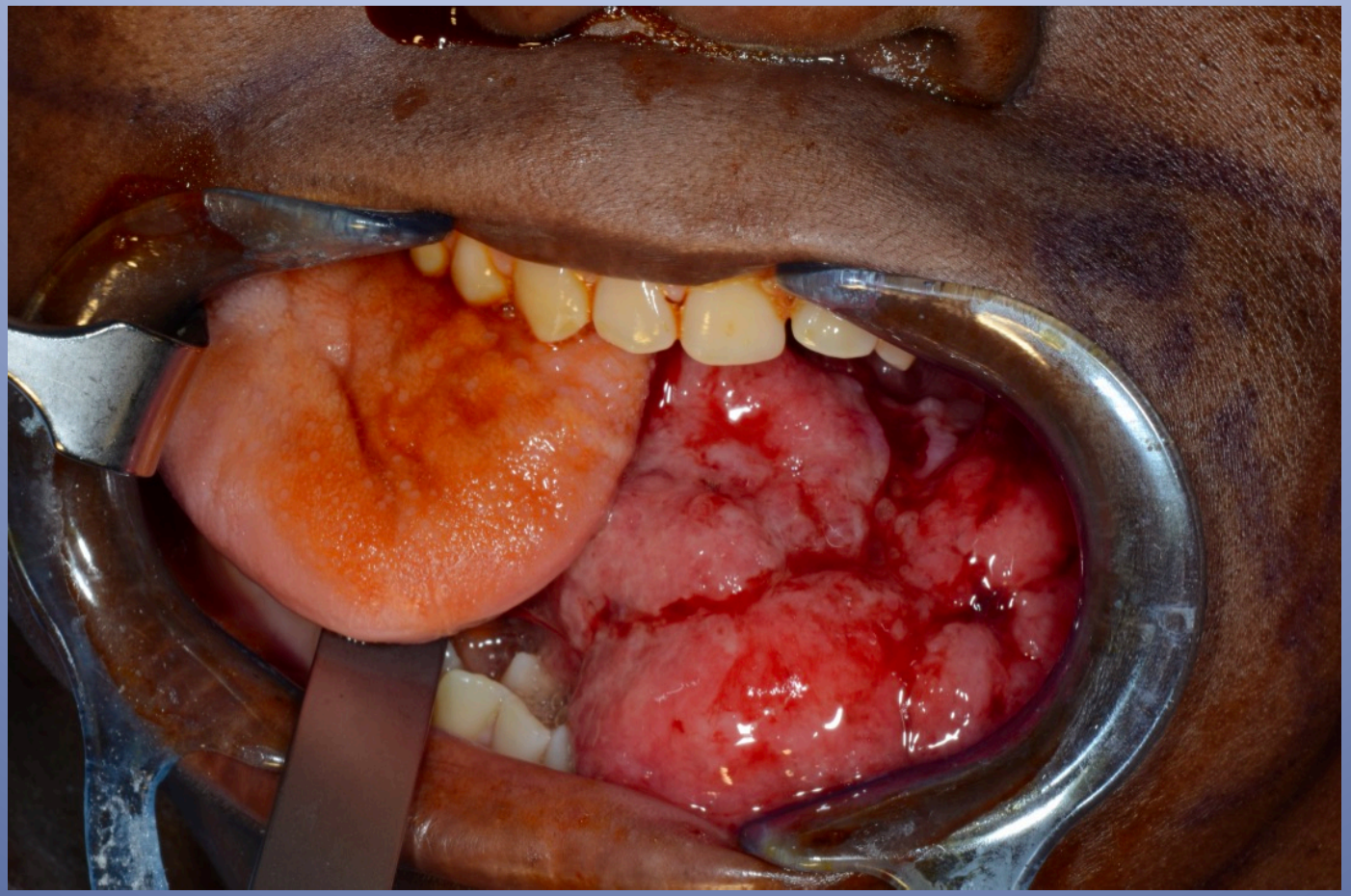
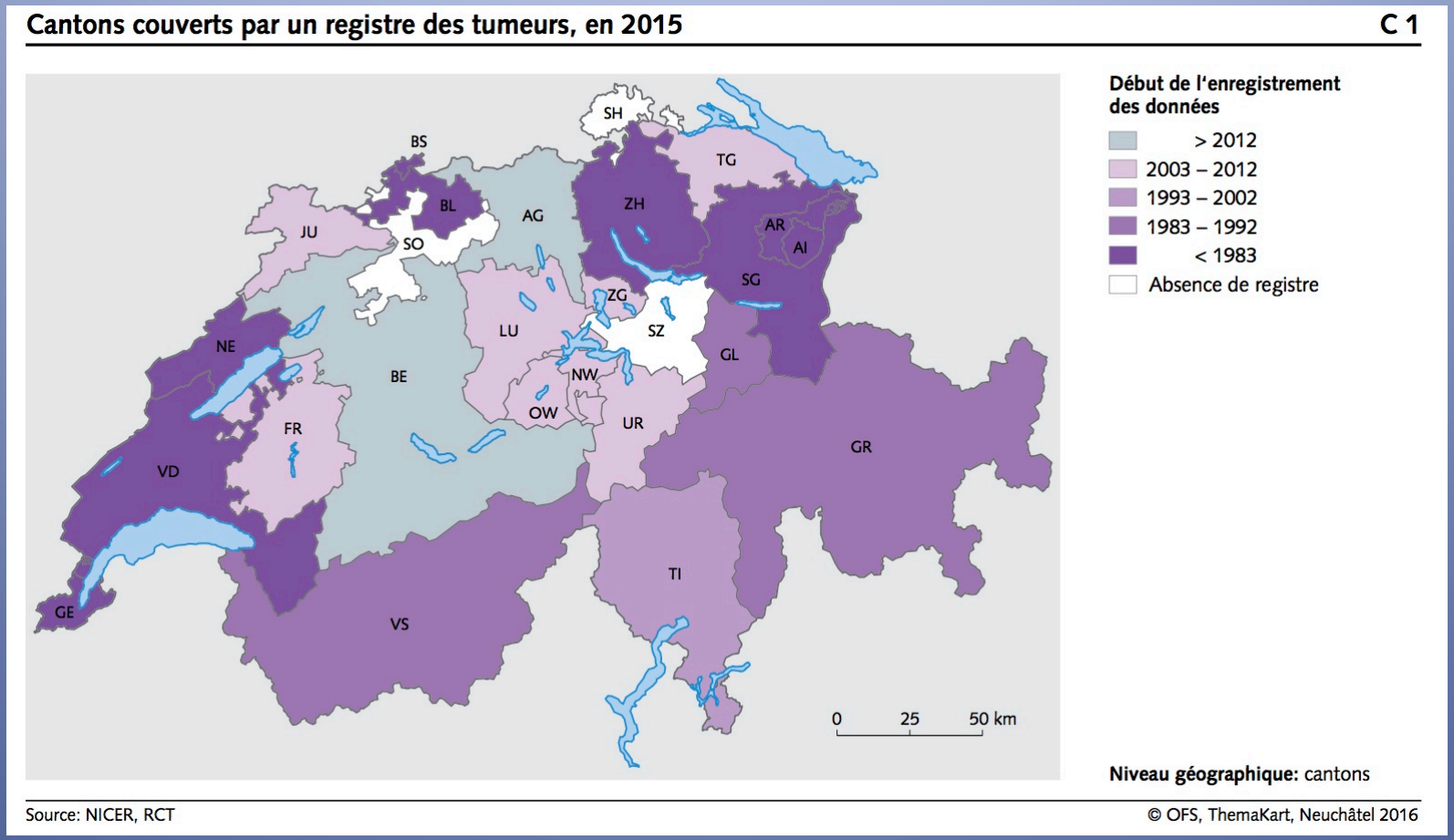




1. Quizz

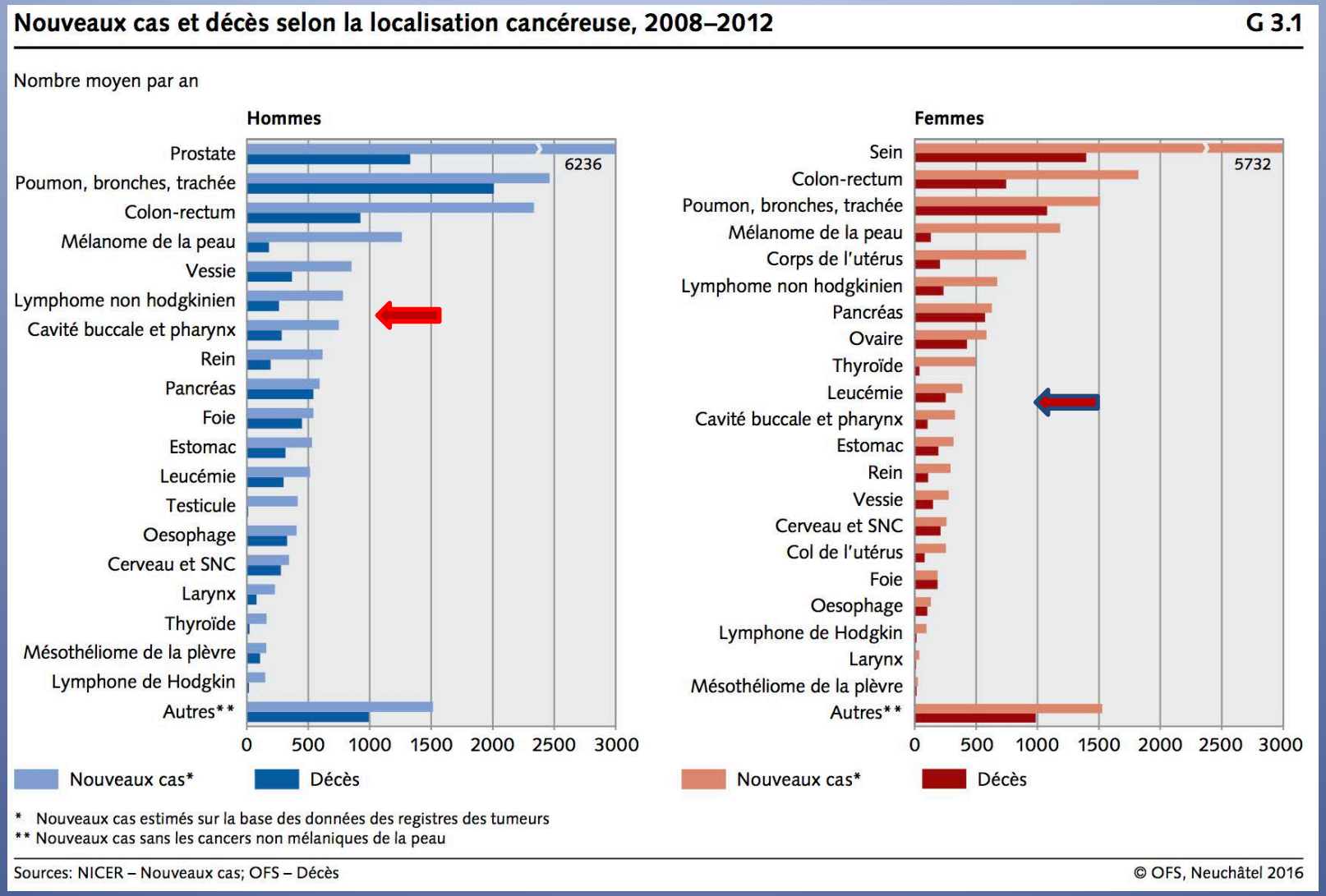


- 2.1 Epidemiology (OFSP 2015)
  - Data extrapolated from 12 national registries. 62 % covered

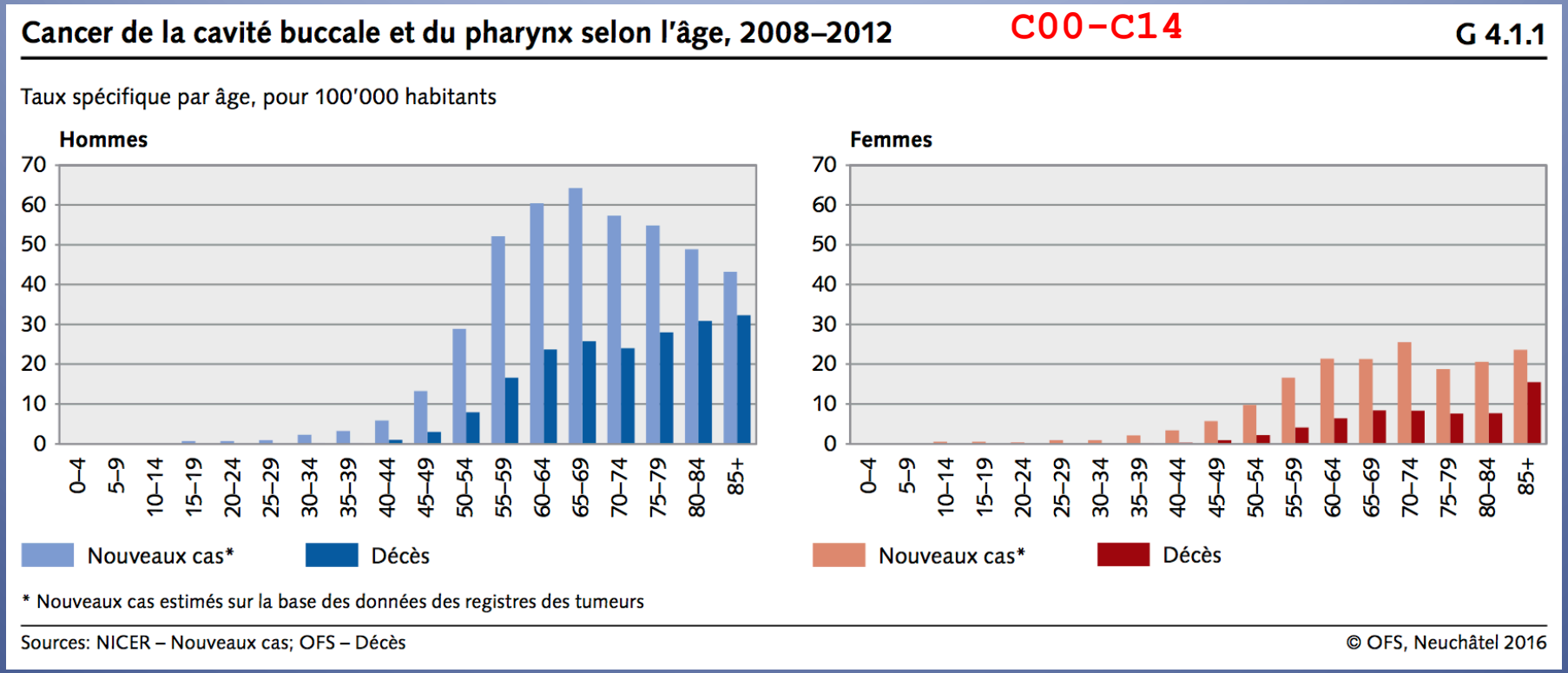


- 2.1 Epidemiology
  - 42000 new cases/year
  - 16000 death/year
  - 317000 living person with cancer
    - 200000 cured >5 years
    - 60000 under close monitoring 2-5 years
    - 55000 active tratment < 2 years
  - 47% men will have a cancer
  - 38% women will have a cancer

- 2.1 Epidemiology
  - 3.6 % 1.8% women



- 2.1 Epidemiology
  - Incidence 1.7% 0.8%
  - Risk of death 0.7% 0.3%



- 2.2 Risk factors

Table 1
Risk factors for oral cancer and precancer

Established	Strongly suggestive	Possible	Speculative
Smoking	Sunlight (lip)	Viruses	Mouthwashes
Chewing tobacco	Radiation	Immune deficiency	Mate drinking
Snuff dipping		Dentition?	Periodontal disease
Alcohol misuse		Ethnicity?	
Betel quid syphilis			Familial

- 2.2 Risk factors
  - Smoking
    - 1 billion daily smokers
    - 250 millions women
    - Consumption Asia > Americas > Eastern Europe > Western Europe
    - Chewing risk
    - Sniffing not so evident

S Petti/Oral oncology 45 (2009) 340-350

- 2.2 Risk factors

  - Carcinogenicity of tobacco chewing is evident and dose-dependent
  - 60 carcinogens:
    - nitrosamines, such NNK and N-nitrosonornicotine
    - polycyclic aromatic hydrocarbons (PAH)
    - aromatic amines
  - 25% oral cancer cases are attributable to cigarette smoking

• 2.2 Risk factors

Table 30. Prevalence of areca-nut and betel-leaf chewing habit among chewers in Durban, South Africa

Habit	Men (n = 77)	Women (n = 479)
Chewing habit		
Betel leaf only	5.2	2.9
Areca nut only	29.9	28.8
Areca nut + betel leaf	64.9	68.3
Ingredients added		
Lime	64.9	63.4
Tobacco	7.8	2.8
Catechu	32.5	14.2

From Schonland & Bradshaw (1969)

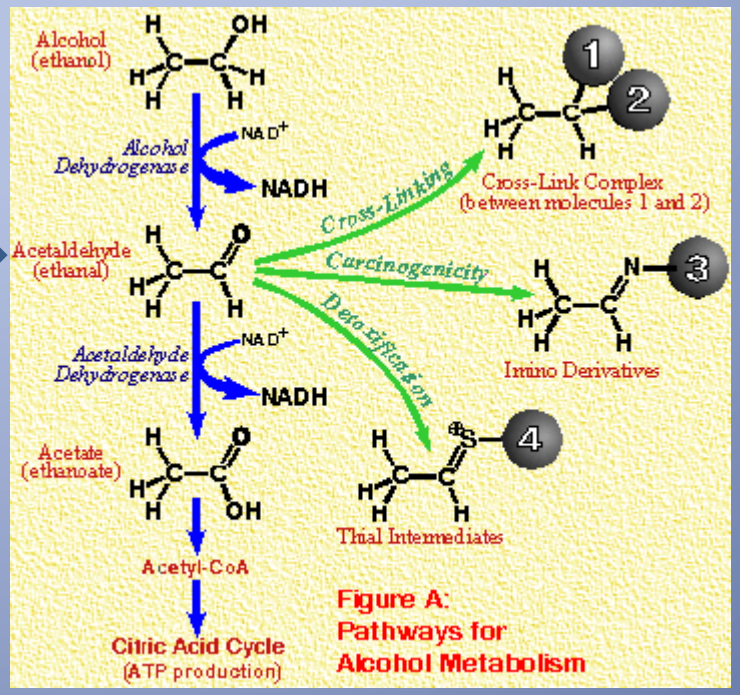
- 2.2 Risk factors

  - Betel quid
    - 600 millions-1.2 billions
    - South-east Asia
    - Immigration population
    - Chewing -> extraction of arecoline, natural cholinergic agonist (muscarinic rec)
    - Addiction mild to moderate

- 2.2 Risk factors
  - Oral carcinogen with dose-dependant relationship
  - Endogenous nitrosation and transformation in nitrosamines
  - 50 % of oral cancer attributable to high consumption

- 2.2 Risk factors
  - 2 billions Alcohol consumer
  - 80 millions with alcohol abuse disorder
  - 4-5 drinks daily -> risk increases to 2-3 fold compared to non-drinkes

- 2.2 Risk factors
  - Uncertainty on true carcinogenicity[11]
  - 7-19% due to heavy alcohol
  - Potentiator



[11] *Hashibe M Alcohol drinking in never users of tobacco, cigarette smoking in vever drinkers, and the risk of Head and neck cancer. 2007*

- 2.2 Risk factors

  - Diet
    - Deficiencies in fruits, non-starchy vegetables, and food with carotenoids
    - Disbalance between anti-oxydants and anti-carcinogenic (vit a,c,e)with detrimental carcinogenic activities.

    - 10-15% of oral cancer attributable to low fruit and vegetable intake

- 2.2 Risk factors

  - Viruses
    - HPV: inconsistencies between studies. Rather not involved in carcinogenesis of oral SCC
    - EBV: Burkitt Lymphoma, Nasopharyngeal carcinoma
    - HHV-8: Kaposi sarcoma

- 2.2 Risk factors
  - Pre-cancerous lesions

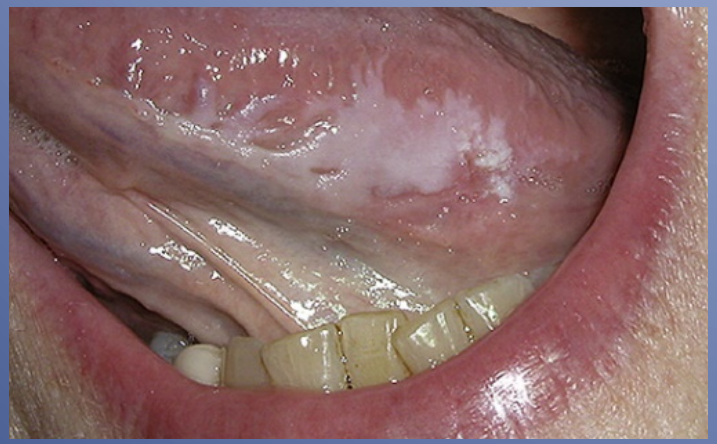
Prevalence of oral precancer (leukoplakia, SMF, erythroplakia, verrucous hyperplasia, lichen planus and smokers palate).

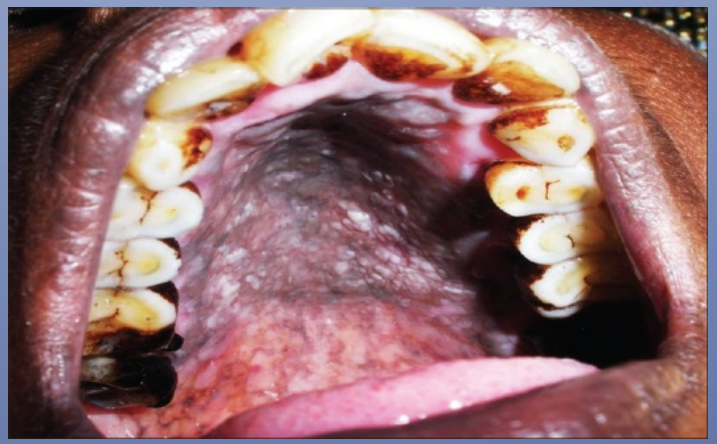
Prevalence	Non user 293,869	Non tobacco *pan masala* user 11,635	Tobacco user 97,165	Population 402,669
Leukoplakia	100 (0.03)	69 (0.59)	2811 (2.89)	2980 (0.74)
SMF	251 (0.09)	277 (2.38)	4683 (4.82)	5211 (1.29)
Erythroplakia	1 (0.00)	1 (0.01)	13 (0.01)	15 (0.00)
Verrucous hyperplasia	2 (0.00)	0 (0)	5 (0.01)	7 (0)
Lichen planus	24 (0.01)	3 (0.03)	54 (0.06)	81 (0.0)
Smokers palate	0 (0)	0 (0)	1900 (1.96)	1900 (0.47)
Multiple lesions	86 (0.03)	19 (0.16)	2412 (2.48)	2517 (0.63)
Oral precancer	464 (0.16)	369 (3.17)	11,878 (12.22)	12,711 (3.16)

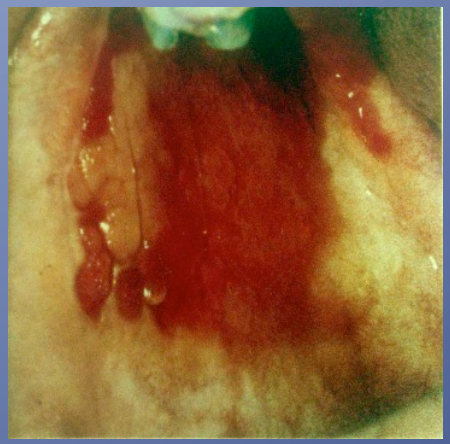
- 2.2 Risk factors

Table 1. Erythroplakia: prevalence and malignant transformation rates

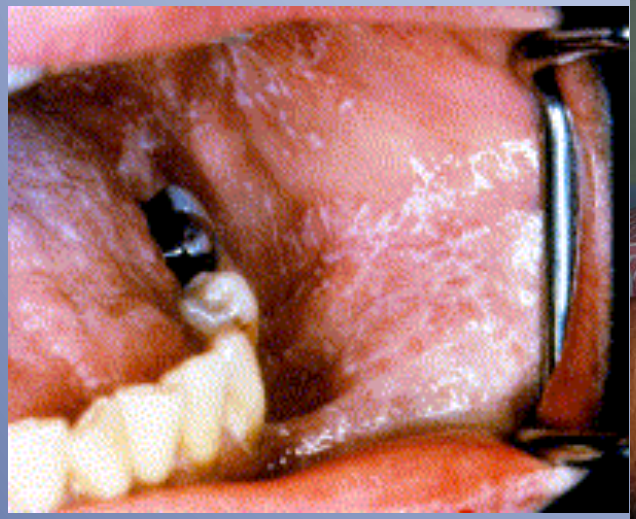
Author	Year	Country	Sample (n)	Erythroplakia (n)	Prevalence (%)	MT† n (%)
Lapthanasupkul [18]	2007	Thailand	7177	9	0.13	6 (66.7)
Hashibe [15]	2000	India	47 773	100	0.2	
Lumerman [21]	1995	USA	50 000	7	0.01	1 (14.3)
Vedtofte [27]	1987	Denmark		14		5 (35.7)
Amagasa [28]	1985	Japan		12		6 (50.0)
Silverman [29]	1984	USA	257‡	22		8 (36.0)
Lay [30]	1982	Burma	6000	5	0.08	
Shafer [19]	1975	USA	64 345	58	0.09	33 (56.9)
Mincer [31]	1972	USA	67	16		3 (18.8)
Metha [14]	1971	India	50 915	9	0.02	

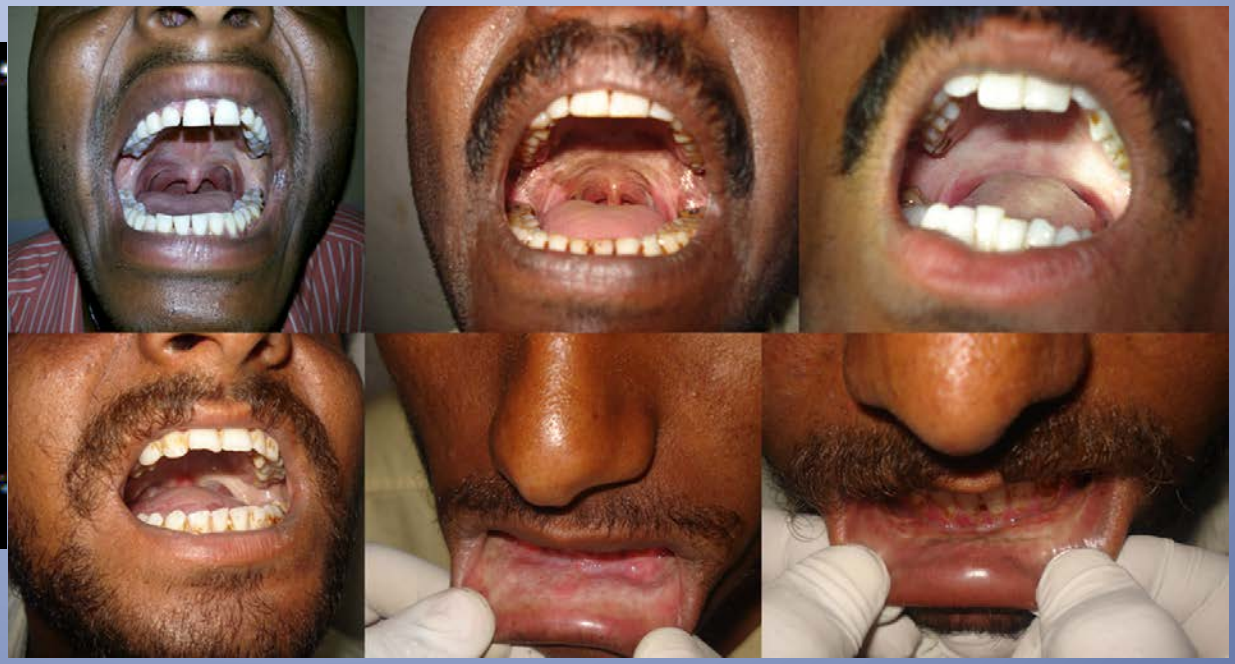






• 2.2 Risk factors





Authors/Year	Country	Material (no. of cases)	Observation period (years)	Cases with malignant transformation (%)
Pindborg et al., 1968 (2049)	Denmark	248	3.9	4.4
Silverman and Rosen, 1968 (2362)	USA	117	1-11	6.0
Kramer et al., 1970 (1366)	UK	167	-	4.8
Mehta et al., 1972 (1699)	India	117	10	0.9
Silverman et al., 1976 (2358)	India	4762	2	0.13
Bánóczy, 1977 (118)	Hungary	670	9.8	6.0
Silverman et al., 1984 (2361)	USA	257	7.2	17.5
Lind, 1987 (1517)	Norway	157	9.3	8.9
Schepman et al., 1998 (2261)	Netherlands	166	2.5	12.0

- 2.3 Prognostic factors

I. Tumour-related characteristics

II.Host-related characteristics

III.Environment-related

- 2.3 Tumour characteristics
  - No biomarker of tumour biology is prognostic in oral cavity SCC.
  - Morphologic markers:
    - Clinical
    - Radiological
    - Histologic

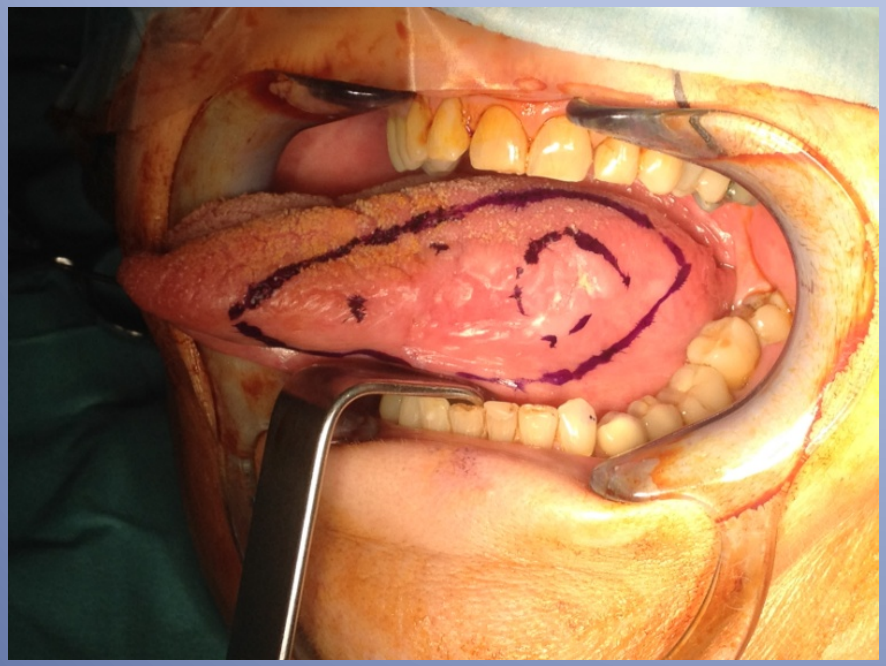
- 2.3 Tumour characteristics

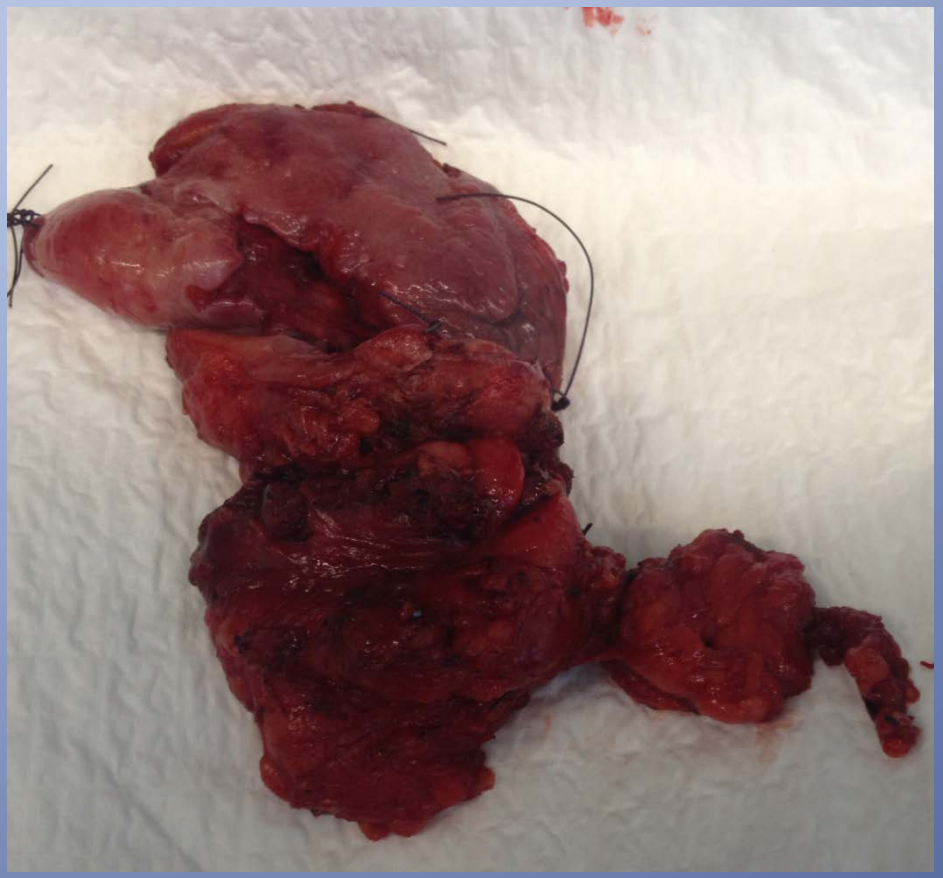
Table 34–3 • **Five-Year Disease-Specific Survival for Cancer of the Oral Cavity by Site and Stage**

Site	No. of Patients	No. of Patients by AJCC Stage				5-yr Survival Rates (%)			
		I	II	III	IV	I	II	III	IV
Tongue*	297	109	102	62	24	90	72	54	34
Floor of mouth†	216	65	65	40	46	65	65	40	46
Buccal†	35	8	9	8	10	53	100	71	38
Palate†	62	14	19	18	11	77	82	61	46
Gum, retromolar trigone†	129	33	41	36	19	70	80	64	47

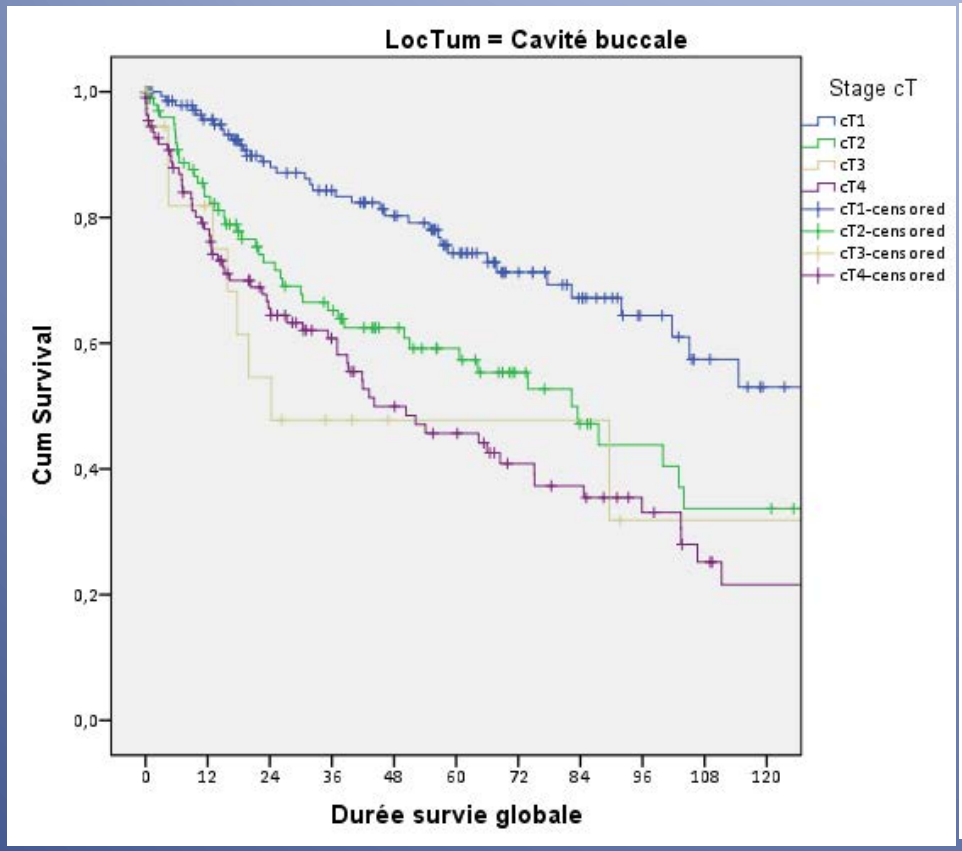
*Data from Franceschi D, Gupta R, Spiro RH, Shah JP: Improved survival in the treatment of squamous cell carcinoma of the oral tongue. Am J Surg 166:451, 1994.
†Unpublished data from Kraus DH, Anderson PE, Shah JP: Head and Neck Service, Memorial Sloan-Kettering Cancer Center, 1975–1985.

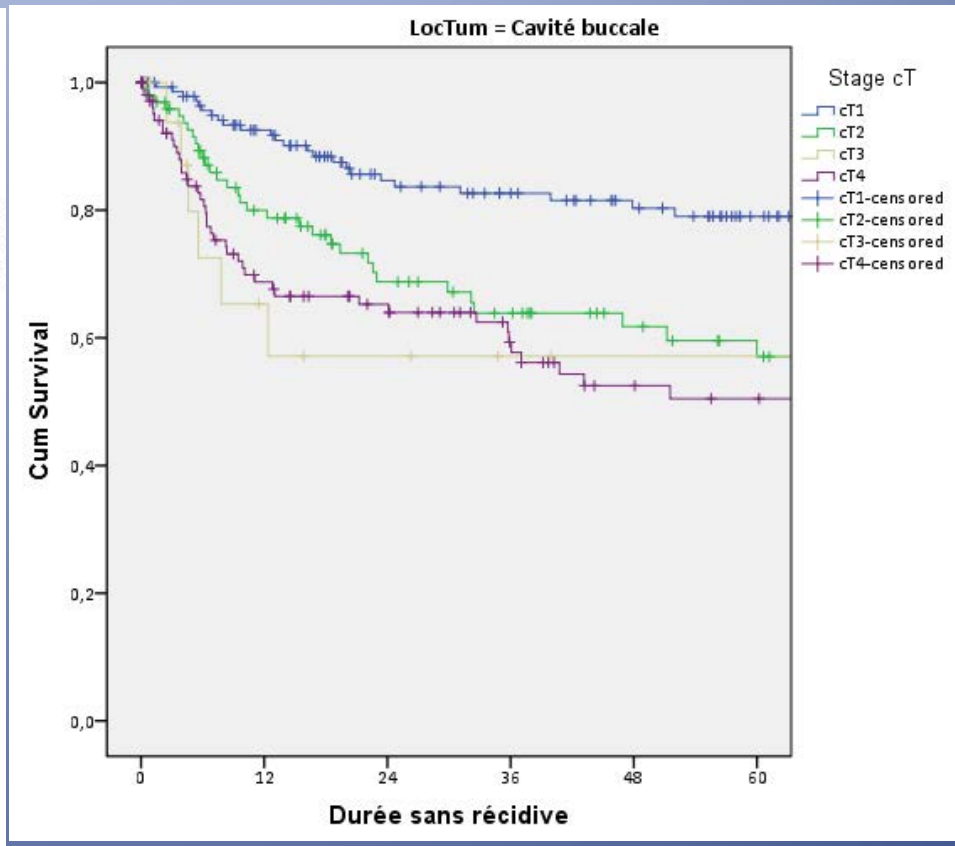
- 2.3 Tumour characteristics



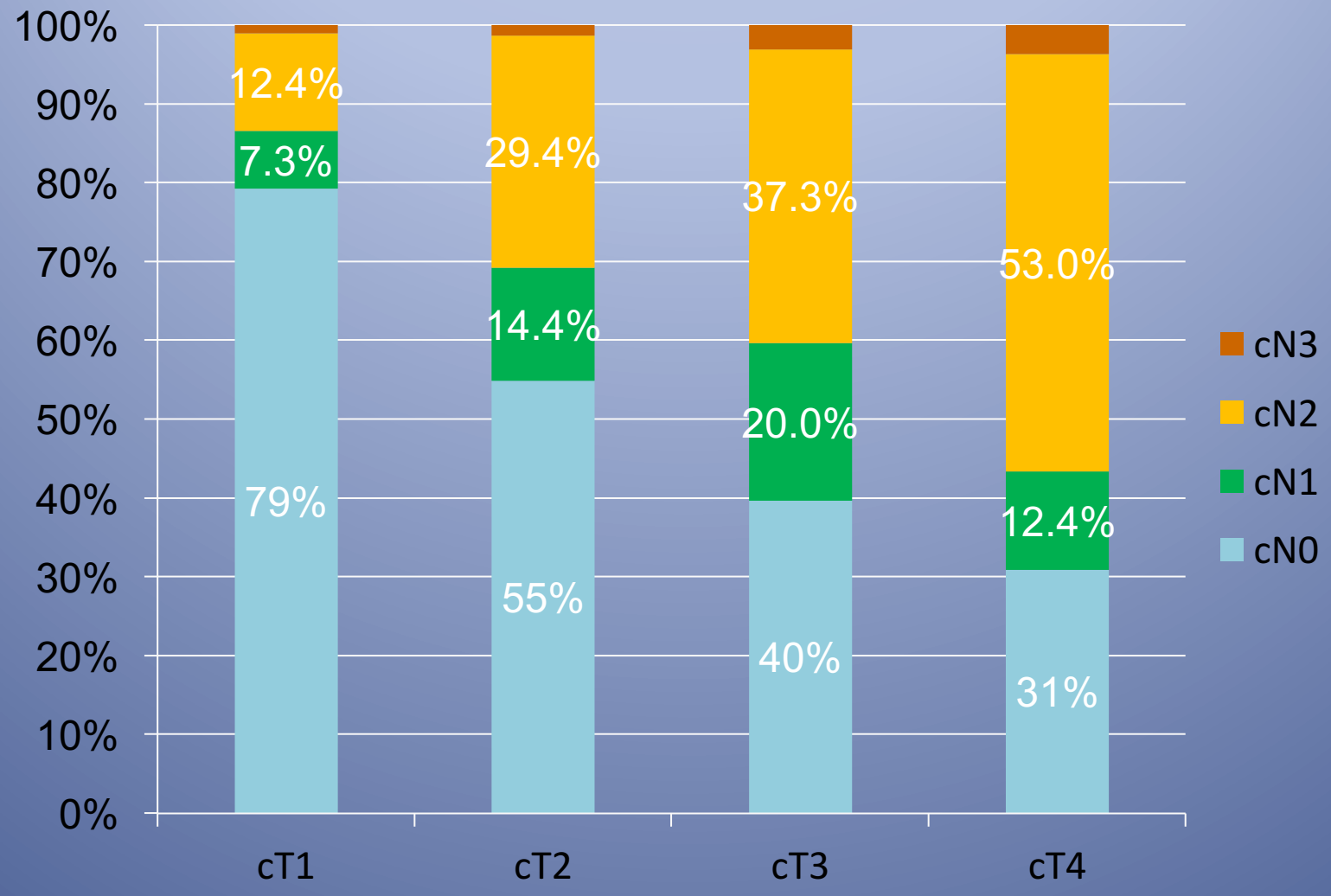


- 2.3 Tumour characteristics
  - Stade T

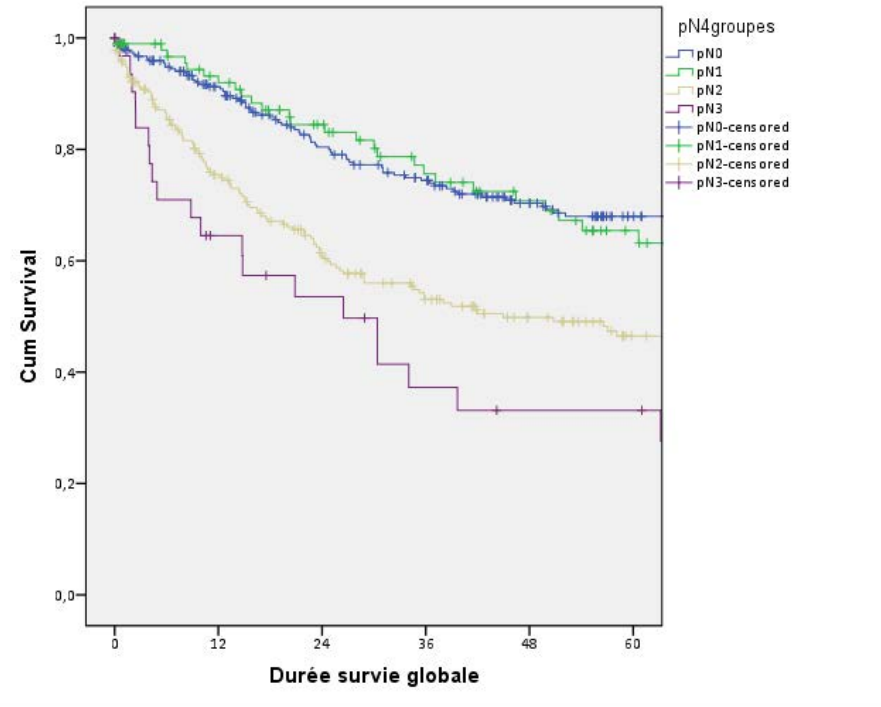


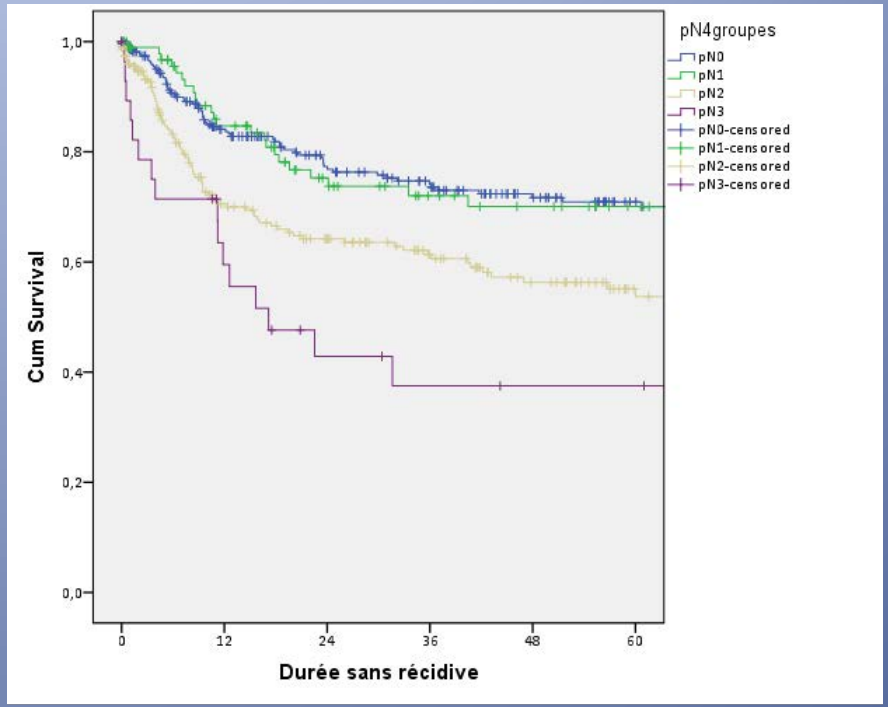


- 2.3 Tumour characteristics



- 2.3 Tumour characteristics
  - Stade N





- 2.3 Tumour characteristics

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Elective versus Therapeutic Neck Dissection in Node-Negative Oral Cancer

At 3 years:
elective node dissection resulted in an improved rate of overall survival 80.0%; vs 67.5 %.
elective-surgery group had a higher rate of disease-free survival than those in the therapeutic-surgery group 69.5% vs. 45.9%.

- 2.3 Tumour characteristics

Tumor Thickness Predicts Cervical Metastasis in Patients with Stage I/II Carcinoma of the Tongue

Takahiro Asakage, M.D.[1]
Tomoyuki Yokose, M.D.[2]
Kiyoshi Mukai, M.D.[2]
Shoichiro Tsugane, M.D.[3]
Yoshitaka Tsubono, M.D.[4]
Masao Asai, M.D.[1]
Satoshi Ebihara, M.D.[1]

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[2] Pathology Division, National Cancer Center Research Institute East, Chiba, Japan.

[3] Epidemiology and Biostatistics Division, National Cancer Center Research Institute East, Chiba, Japan.

[4] Department of Public Health, Tohoku University School of Medicine, Miyagi, Japan.

BACKGROUND. The incidence of cervical metastases after surgery for Stages I/II carcinoma of the tongue is 30–40%. Postoperative cervical metastases are an adverse prognostic factor for patients with this malignancy. The purpose of this study was to evaluate the clinicopathologic factors associated with late cervical metastases in patients with carcinoma of the tongue.

METHODS. The clinicopathologic features of 44 patients with previously untreated Stage I/II carcinoma of the tongue were reviewed. All patients were treated with partial glossectomy only.

RESULTS. Cervical metastases developed in 21 of 44 patients within 5 years. Factors significantly associated with the development of cervical metastases were invasive growth, differentiation, nuclear polymorphism in the deep portion, tumor border, nest formation, infiltrative growth ratio, depth, and thickness. No statistical correlations between cervical metastases and age, gender, tumor location, clinical stage, Brinkman index, alcohol index, mitosis, connective tissue, lymphocytic infiltration, or perineural invasion were found. Multivariate analysis demonstrated that only tumor thickness > 4 mm had a predictive value for cervical metastasis (risk ratio 9.4; 95% confidence interval, 1.5–57.7).

CONCLUSIONS. The current study data indicate that patients with Stage I/II carcinoma of the tongue > 4 mm in thickness are at increased risk for subsequent cervical metastasis. Thus, conservative supraomohyoid neck dissection is indicated in patients with Stage I/II carcinoma of the tongue > 4 mm in thickness. ***Cancer* 1998;82:1443–8.**

- 2.3 Tumour characteristics

ELSEVIER

Oral Oncology

Volume 39, Issue 2, February 2003, Pages 130-137

Cervical lymph node metastasis in oral cancer: the importance of even microscopic extracapsular spread

J.A. Woolgar [a], S.N. Rogers [b], D. Lowe [b], J.S. Brown [b], E.D. Vaughan [b]

The 3-year survival probability was similar for patients with macroscopic and only microscopic extracapsular spread (33 and 36%, compared with 72% for patients with intranodal metastasis.
The most predictive factor was extracapsular spread followed by status of resection margins.
Extracapsular spread should be incorporated into pathological staging systems.
Even microscopic extracapsular spread is of critical importance and must be sought especially in small-volume metastatic disease.

• 2.3 Tumour characteristics

TABLE 1. Summary of publications that define resection margin standards and their associated outcome.

Author	Year	Sites (all stages, unless otherwise indicated)	Patients	Margin definition	Locoregional recurrence (inadequate versus adequate margins)	Survival (inadequate versus adequate margins)
Chen et al[4]	1987	Oral, oropharyngeal, laryngeal, hypopharyngeal	270	5 mm	55% vs 17%	7% vs 39% 5-year disease-free survival
Loree and Strong[5]	1990	Oral	303	5 mm	30% vs 18%	52% vs 60% 5 year OS
El-Husseiny et al[7]	2000	Tongue	66	5 mm	0% vs 63% DFS	21% vs 72%
de Visscher et al[14]	2002	Lip	72	3 mm	8 patients had inadequate margins. LR developed in 1 of these 8 patients, plus 1 patient with adequate margins.	
Sutton et al[15]	2003	Oral	200	5 mm	55% positive vs 33% close vs 12% negative	0% positive vs 26% close vs 54% negative alive and disease-free
McMahon et al[13]	2003	Oral and oropharyngeal	332	10 mm	Margin status associated with LR and DSS on univariate analysis but not multivariate analysis	
Amaral et al[8]	2004	Oral, Stage I/II	188	5 mm		66% vs 73% DFS
Weijers et al[9]	2004	Oral	68	5 mm	6.6% vs 7.9% (adequate versus close, positive margins excluded)	
Kademani et al[11]	2005	Oral	233	2 mm		"Positive margins did not influence survival"
Brandwein-Gensler et al[12]	2005	Oral and oropharyngeal	168	5 mm	23% vs 13% (adequate versus close margins, positive margins excluded)	
Garzino-Demo et al[6]	2006	Oral	245	5 mm		48% vs 65% 5 year OS
Liao et al[10]	2008	Oral	827	This group examined the impact of different resection margin cut-off values for resection margins ($\leq$ 3 mm to $\leq$ 11 mm, in 1 mm intervals) by hazard ratio and 95% confidence intervals. On multivariate analysis, resection margins of $\leq$ 7 mm were significantly associated with decreased local disease control.		

Hinni ML et al Head and Neck. 09.2013

- 2.3 Host-related characteristics
  - Performance status:
    - Karnofsky score
    - ECOG
  - Exposure to risk factors (response to radiation)
  - Age
  - Co-morbidity (compromise)

• 2.3 Host-related characteristics

	Global 5-year survival				Disease-specific 5-year survival			
	<65 yo n=620	65-80 yo n=341	>80 yo n=76	p	<65 yo n=620	65-80 yo n=341	>80 yo n=76	p
Overall (n=1037)	60.3	53.7	32.2	<0.001	54.9	43.7	36.6	<0.001
T1 (n=301)	74.3	67.5	44.9	<0.001	57.7	47.8	44.2	0.31
T2 (n=277)	63.8	54.1	35.7	0.002	53.6	37.6	31.2	0.001
T3 (n=179)	54.5	48.2	19.6	0.06	51.9	40.3	20.6	0.02
T4 (n=239)	39.8	38.3	25.0	0.07	52.0	49.0	50.2	0.37
N0 (n=491)	67.7	61.9	34.7	<0.001	54.4	45.5	36.7	0.002
N1 (n=144)	63.8	55.5	44.0	0.006	57.6	34.2	44.4	0.08
N2 (n=376)	51.7	43.4	10.7	0.02	52.7	43.0	16.6	0.15
N3 (n=26)	50.0	12.5	50.0	0.08	87.5	100	100	0.77
Cavité buccale (n=302)	59.5	55.5	45.3	0.02	56.8	40.1	50.7	0.008
Oropharynx (n=337)	57.4	54.2	41.7	0.18	53.6	42.3	38.1	0.13
Larynx (n=233)	74.4	59.4	13.9	<0.001	54.3	46.6	21.3	<0.001
Hypopharynx (n=124)	45.9	35.4	NE	NE	51.4	50.0	NE	NE
ASPE[b] (n=41)	72.7	51.0	NE	NE	67.2	50.0	NE	NE

Disease-specific survival rates according to T, N, and location of primary tumor

• 2.3 Host-related characteristics

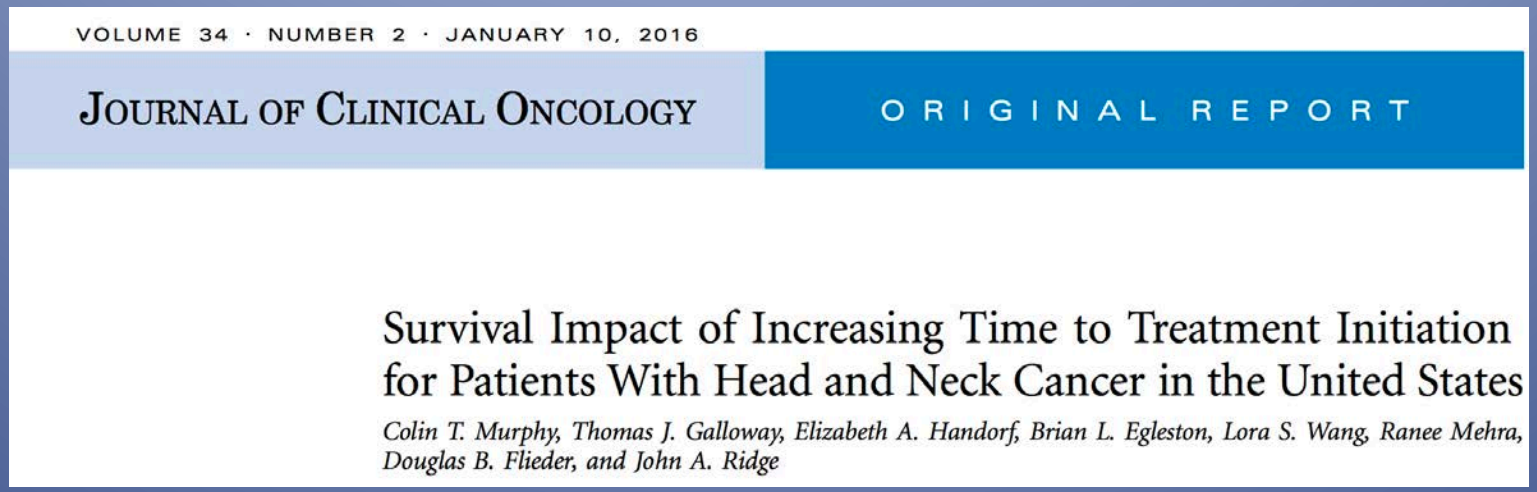
		Univariable			Multivariable*		
		HR	95%CI	p	HR	95%CI	p
Age group	<65	1			1		
	65-80	1.35	1.16; 1.58	<0.001	1.37	1.17; 1.60	<0.001
	>80	1.47	1.10; 1.96	<0.001	1.55	1.13; 2.13	0.006
N	N0	1			1		
	N1	0.99	0.80; 1.22	0.90	1.04	0.82; 1.31	0.75
	N2	1.02	0.87; 1.20	0.80	1.08	0.89; 1.32	0.45
	N3	0.69	0.36; 1.34	0.27	0.77	0.39; 1.52	0.45
T	T0	1			1		
	T1	1.31	0.89; 1.93	0.17	1.33	0.86; 2.05	0.20
	T2	1.31	0.89; 1.93	0.18	1.36	0.88; 2.09	0.16
	T3	1.44	0.96; 2.16	0.08	1.37	0.88; 2.15	0.17
	T4	1.38	0.92; 2.07	0.12	1.35	0.88; 2.07	0.17
Location	Oral cavity	1			1		
	Hypopharynx	0.95	0.72; 1.25	0.72	1.00	0.75; 1.33	1.00
	Larynx	1.04	0.86; 1.27	0.68	1.07	0.86; 1.32	0.55
	Oropharynx	1.02	0.85; 1.22	0.82	1.05	0.86; 1.28	0.62
	Unknown primary	0.75	0.51; 1.11	0.16	-	-	-
N tumors		1.01	0.90; 1.13	0.89			0.73

Multivariable Cox model of disease-specific 5-year survival

- 2.3 Environment-related
  - Access to care
  - Multidisciplinary team decision with expertise in:
    - Radiological assesment
    - Resection
    - Reconstruction
    - Radiation therapy
    - Chemotherapy protocol (study trial)
  - Time to diagnosis
  - Time to treatment

- 2.3 Environment-related
  - Time to diagnosis
    - Small tumour have better outcome
    - Screening – litte benefit in risk factors population
    - Exemple of « 2 week wait » rule using proforma in UK for HNSCC: 9% of malignancy
    - Best is GP education

- 2.3 Environment-related
  - Time to treatment initiation
    - TTI independently affect survial
    - TTI >46 days. Increased risk of death
    - Prolonged TTI affects survival



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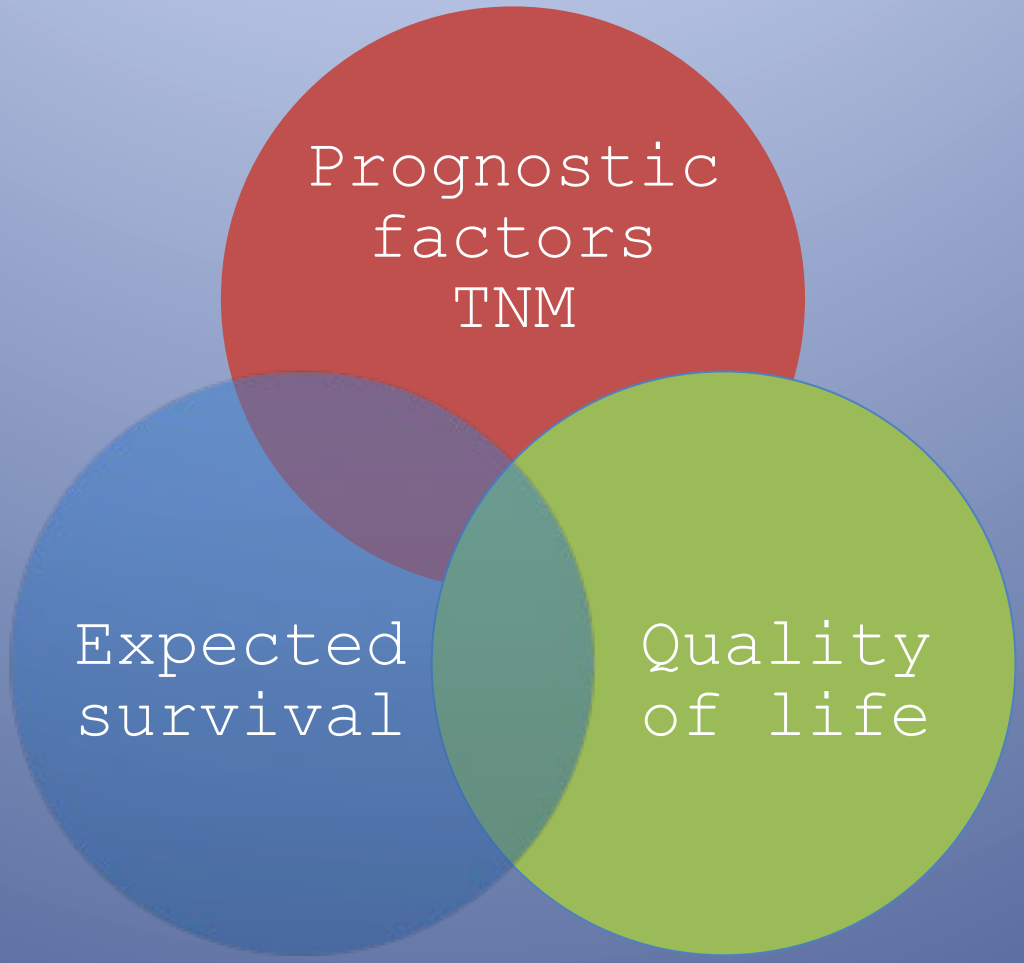
ORIGINAL REPORT

Survival Impact of Increasing Time to Treatment Initiation for Patients With Head and Neck Cancer in the United States

Colin T. Murphy, Thomas J. Galloway, Elizabeth A. Handorf, Brian L. Egleston, Lora S. Wang, Ranee Mehra, Douglas B. Flieder, and John A. Ridge

3.1 Treatment planning

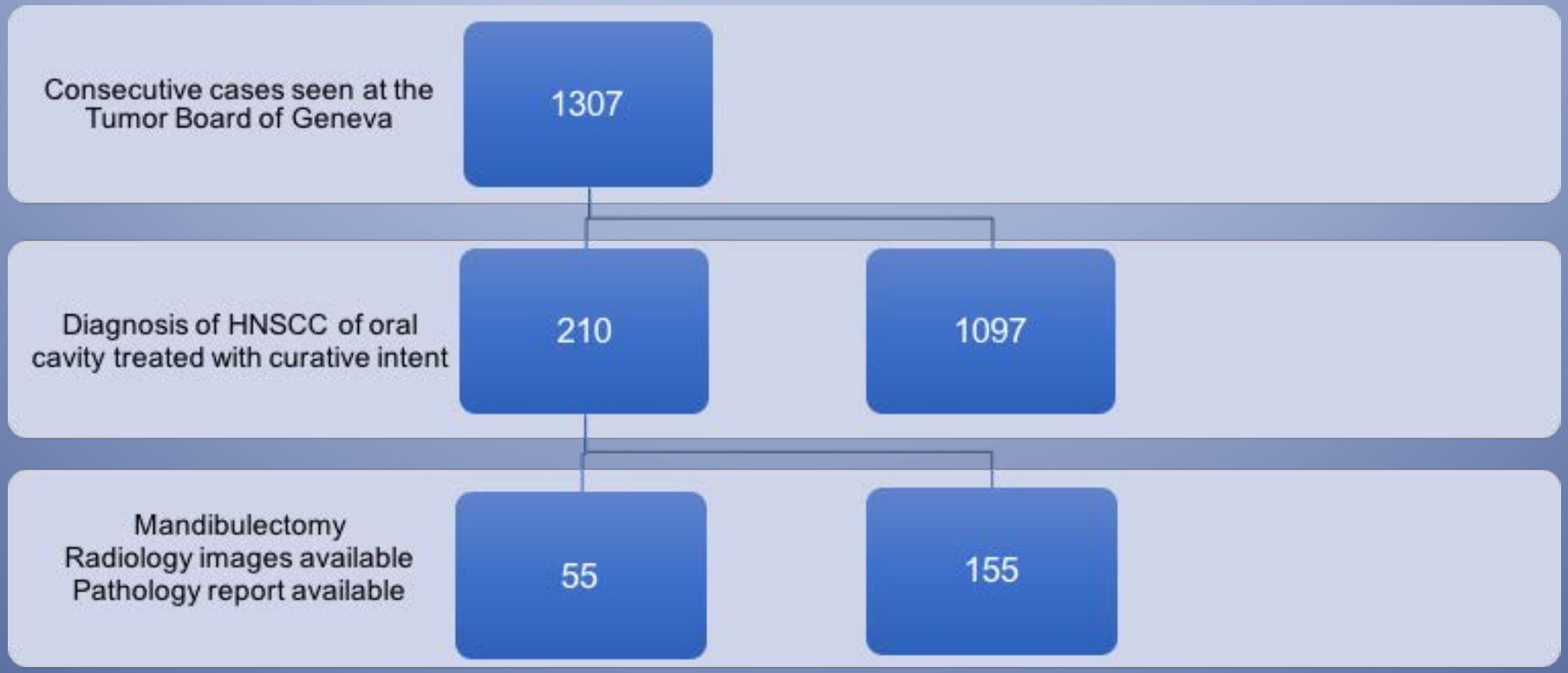
- MDT decision



3.1 Treatment planning

- Extension of tumour assesment under GA
  - Bi-manual palpation
  - Fixation to mandible
  - Trismus? Alleviated by GA
- Second primary?
- Confront with radiology
  - Mandible invasion
  - Mode of deep tissue extension (relation to fascia)

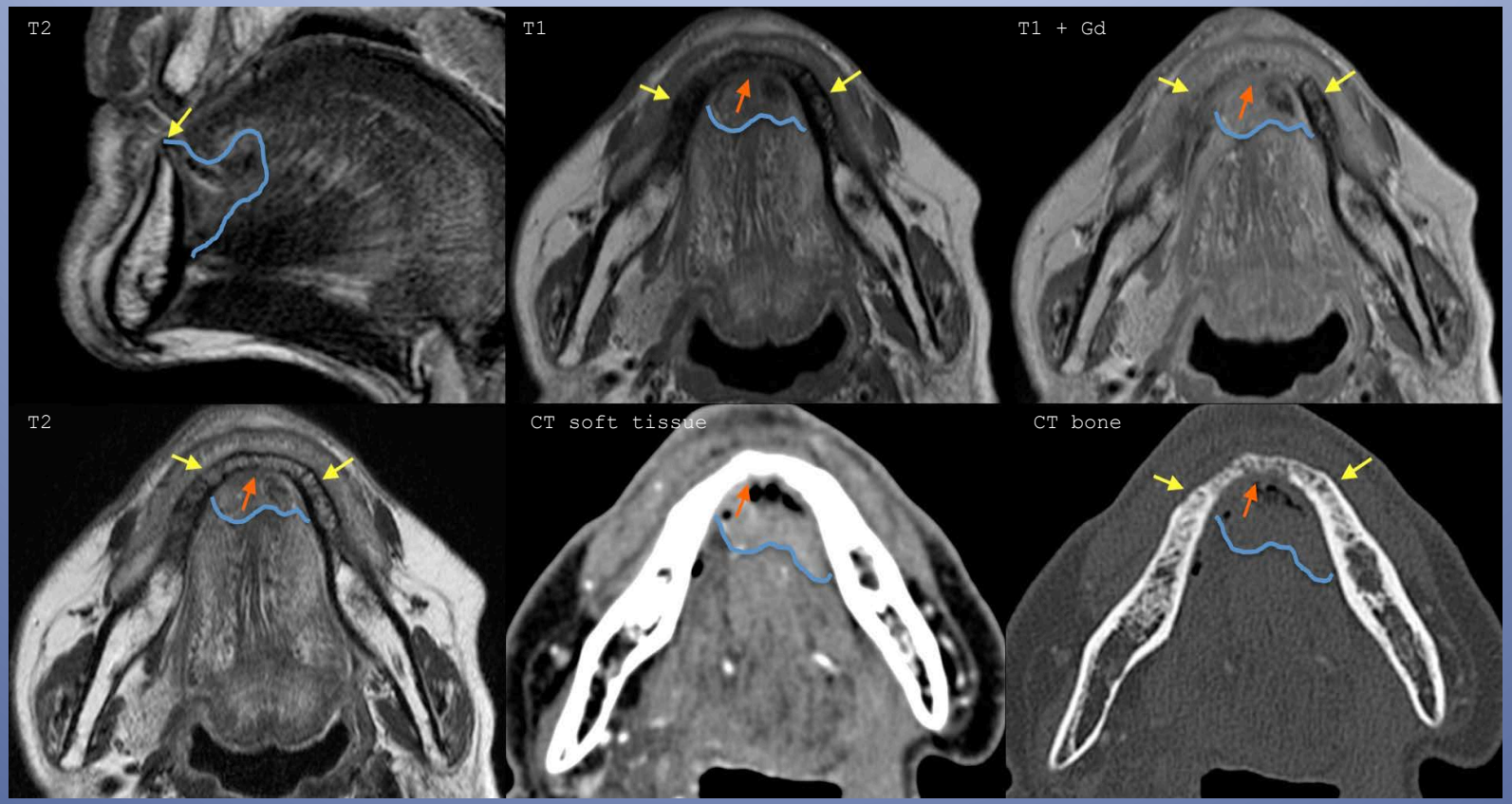
3.1 Treatment planning



3.1 Treatment planning

- CT evaluation criteria
  - Remodeling cortical
  - Cortex erosion
  - Sclerosis medullary cavity
  - Osteolysis
  - Periosteal react
  - Perineural spread
- MRI evaluation criteria
  - T2 and STIR
  - T1, T1 + Gd
  - Diffusion
  - ADC tumor (apparent diffusion coefficient)
  - ADC mandible
  - Perineural spread
  - Cortical erosion

3.1 Treatment planning



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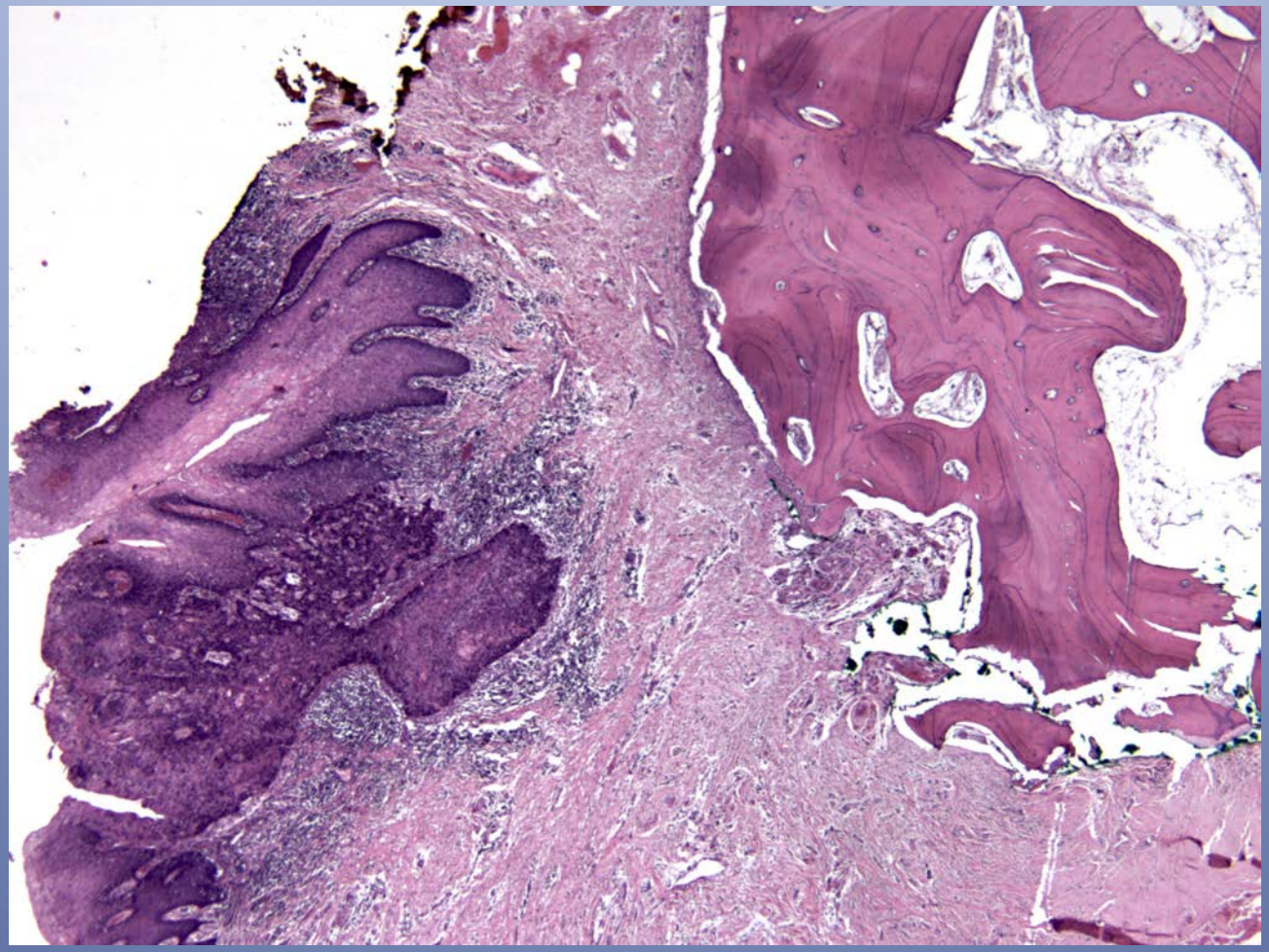

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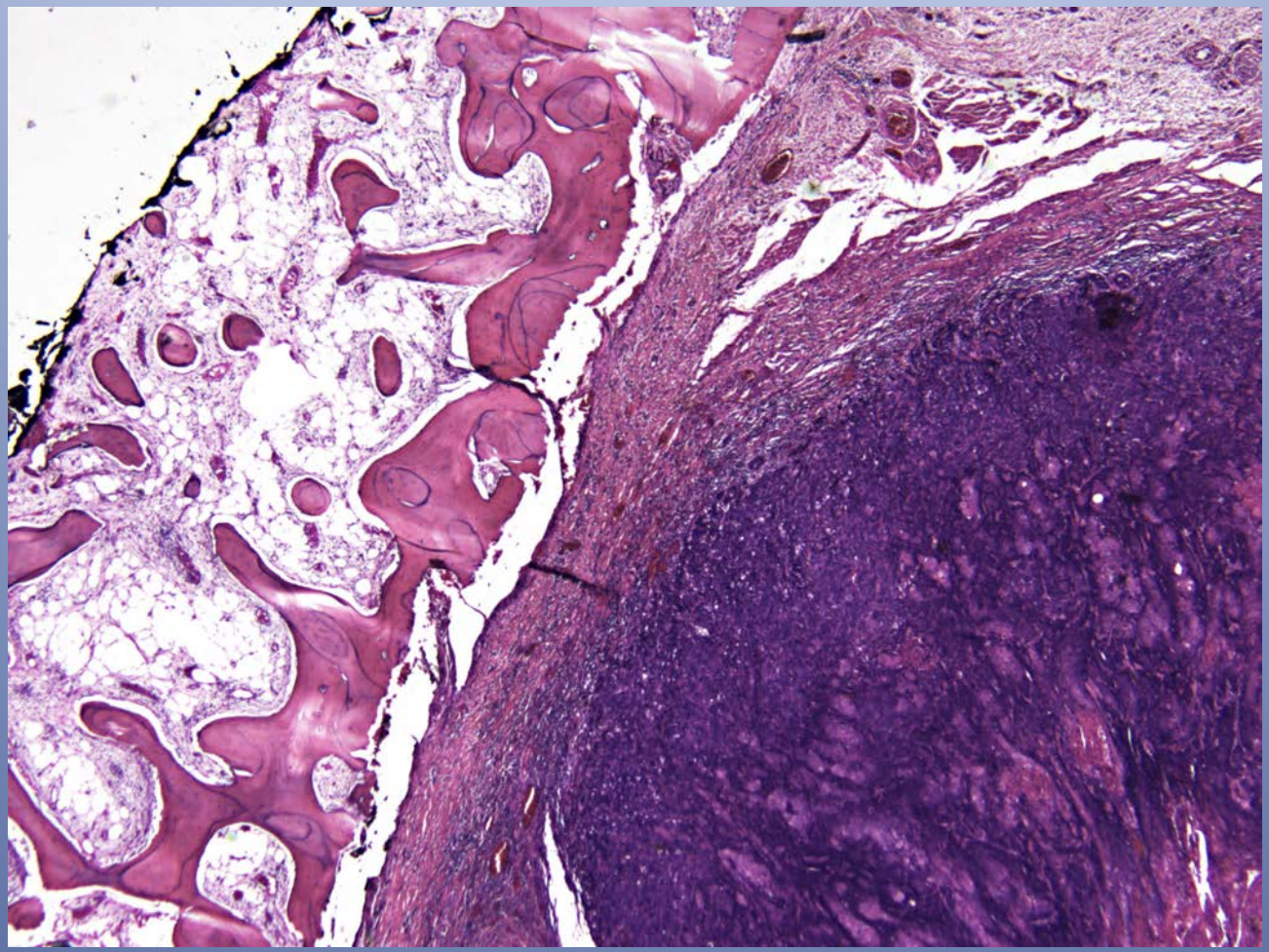

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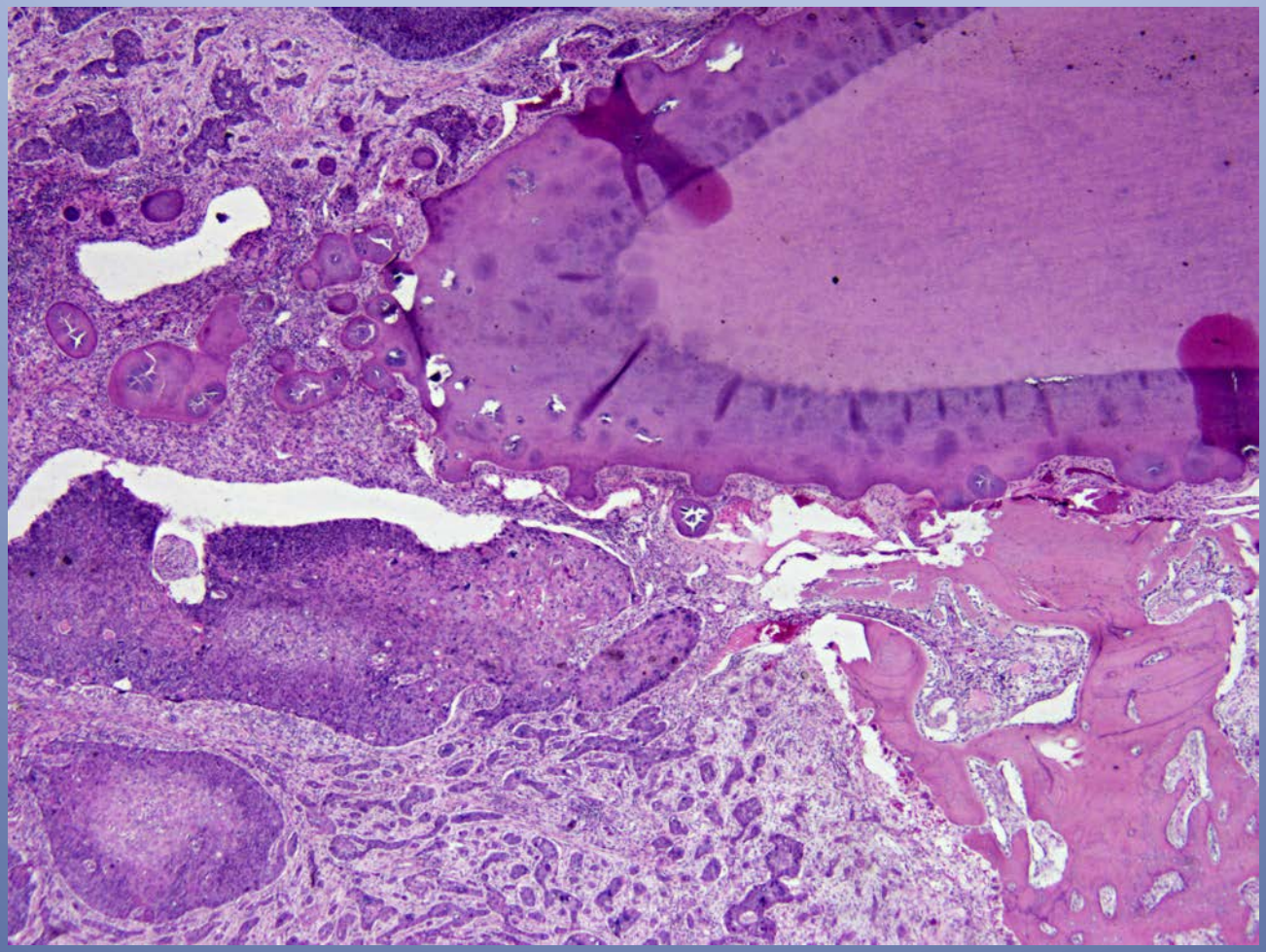
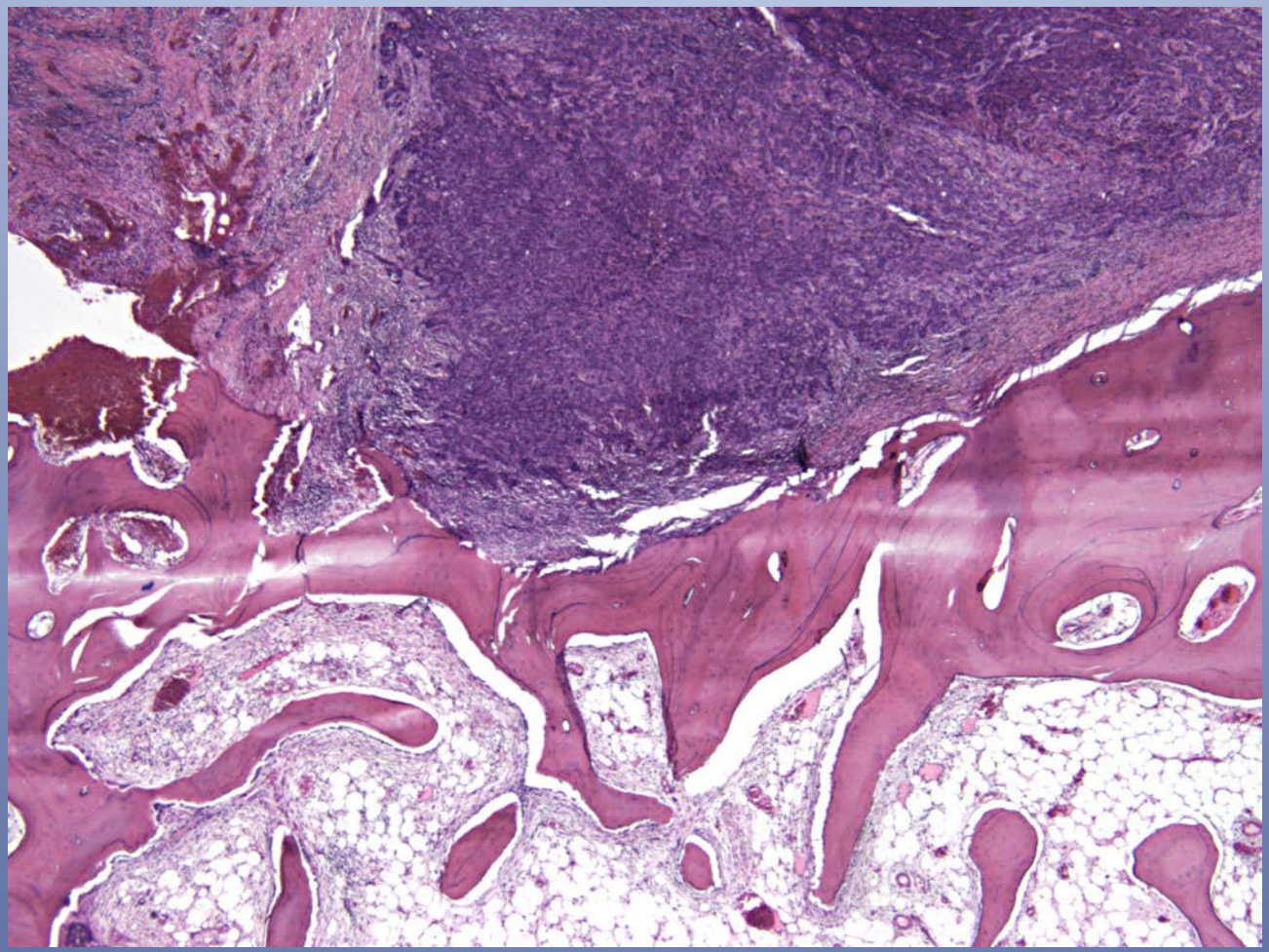
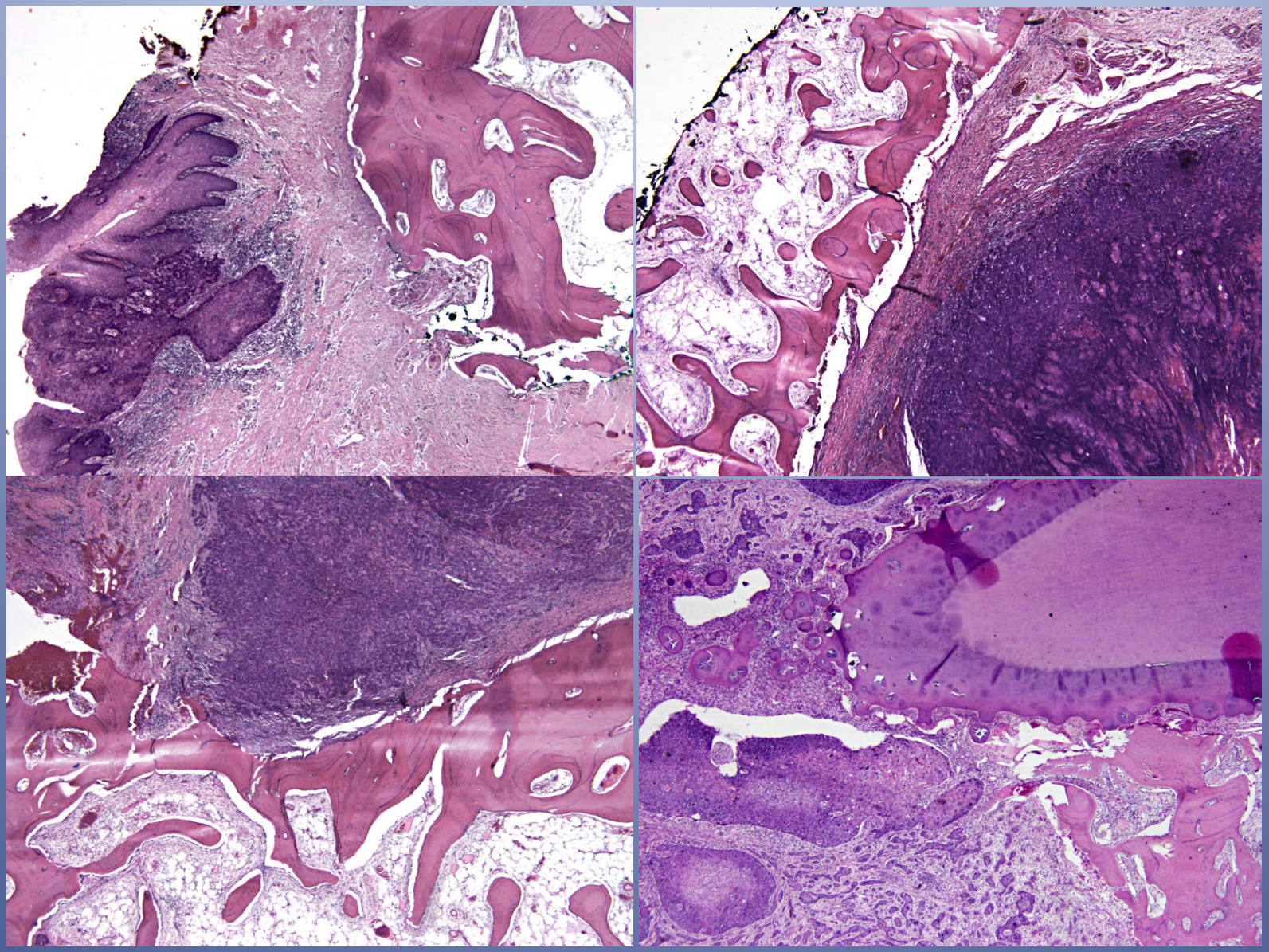


3.1 Treatment planning



3.1 Treatment planning



3.1 Treatment planning

n=55				
H_0 =negative group H_1 H_2 H_3 = positives groups	CT n=46	IRM n=48	CT and/or IRM n=55	CT and IRM n=39
Prevalence of mandibular invasion	58.7%	64.6%	61.8%	61.5%
True Positive, n, (%)	24	27	31	22
True Negative, n, (%)	12	10	13	8
False Positive, n, (%)	7	7	8	7
False Negative, n, (%)	3	4	3	2
Sensitivity (CI 95%)	88.9% (71.9-96.2)	87.1% (71.1-94.9)	91.2 % (77.0-97.0)	91.7 % (74.2 -97.7)
Specificity (CI 95%)	63.2% (41.0-80.9)	58.8% (36.0-78.4)	61.9% (40.9-79.2)	53.3% (30.1-75.2)
Negative predictive value	80%	71.4%	81.2%	80.0%

3.1 Treatment planning

- 3/55 FN caused by:
  - symphysis invasion (2/55)
  - cortical 2mm invasion (1/55)
- Good sensitivity (87.1% - 91.5%)

- All FP are caused by tumor in immediate vicinity (<1mm) from mandibular periost/tooth alveol
- Moderate overall specificity (53-65%) due to:
  - case selection (clinically immediate tumor vicinity to mandible)
  - inflammatory findings due to periodontal disease & tooth extraction

TABLE 3: TNM staging system for cancers of the lips and oral cavity

Primary tumor (T)

TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in situ
T1	Tumor ≤ 2 cm in greatest dimension
T2	Tumor > 2 cm but ≤ 4 cm in greatest dimension
T3	Tumor > 4 cm in greatest dimension
T4	(lip) Tumor invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of face, ie, chin or nose[a]
T4a	Moderately advanced local disease[a] (lip) Tumor invades through the cortical bone, mouth, or skin of the face (ie, chin or nose) (oral cavity) Tumor invades adjacent structures (eg, through cortical bone [mandible or maxilla] into the deep [extrinsic] muscle of the tongue [genioglossus, hyoglossus, palatoglossus, and styloglossus], maxillary sinus, or skin of the face)
T4b	Very advanced local disease Tumor involves masticator space, pterygoid plates, or skull base and/or encases internal carotid artery

Regional lymph nodes (N)

NX	Regional nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, ≤ 3 cm in greatest dimension
N2	Metastasis in a single ipsilateral lymph node, > 3 cm ≤ 6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none > 6 cm in greatest dimension; or in bilateral or contralateral lymph nodes, none > 6 cm in greatest dimension
N2a	Metastasis in a single ipsilateral lymph node, > 3 cm but ≤ 6 cm in greatest dimension
N2b	Metastasis in multiple ipsilateral lymph nodes, none > 6 cm in greatest dimension
N2c	Metastasis in bilateral or contralateral lymph nodes, none > 6 cm in greatest dimension
N3	Metastasis in a lymph node, > 6 cm in greatest dimension

[a] Superficial erosion alone of bone/tooth socket by gingival primary is not sufficient to classify a tumor as T4.

Distant metastases (M)

M0	No distant metastasis
M1	Distant metastasis

Stage grouping

Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T3	N0	M0
	T1	N1	M0
	T2	N1	M0
	T3	N1	M0
Stage IVA	T4a	N0	M0
	T4a	N1	M0
	T1	N2	M0
	T2	N2	M0
	T3	N2	M0
	T4a	N2	M0
Stage IVB	Any T	N3	M0
	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

From Edge SP, Byrd DR, Compton CC, et al (eds): AJCC Cancer Staging Manual, 7th ed. New York, Springer, 2010.

Change	7th Ed. (2010)	8th Ed. (2017) Oral Cavity	8th Ed. (2017) HPV- Oropharynx
T-stage	**T0**: no primary **T1**: size ≤2cm **T2**: size 2-4cm **T3**: size >4cm **T4:** ○ **T4a**: moderately advanced (extrinsic tongue muscle involvement constituted T4a) ○ **T4b**: very advanced	• **T0** deleted • **T1**: size ≤2cm and **DOI ≤5mm** • **T2**: size ≤2cm and **DOI 5-10mm** or size 2-4cm and **DOI ≤10mm** • **T3**: size >4cm or **>10mm DOI** • **T4a** extrinsic tongue muscle infiltration now deleted	• **T0** deleted
	N0: no LN involved **N1**: single ipsi LN ≤3cm in size **N2:** ○ **N2a**: single ipsi LN, 3-6cm in size ○ **N2b**: multiple ipsi LNs, all ≤6cm in size ○ **N2c**: any bi or ctr LNs, all ≤6cm in size **N3**: any LN >6cm in size	**Clinical N-stage** • **N1-N2** is same as previous and **ENE(-)** • **N3** now with subcategories: ○ **N3a** is previous N3 (size >6cm) and **ENE(-)** ○ **N3b** is any **ENE(+)**, either clinical or radiographic **Pathological N-stage** • Microscopically evident ENE(+) LNs results in upstaging	
Stage grouping	Clinical or pathological TNM used for same grouping system	Same as previous	

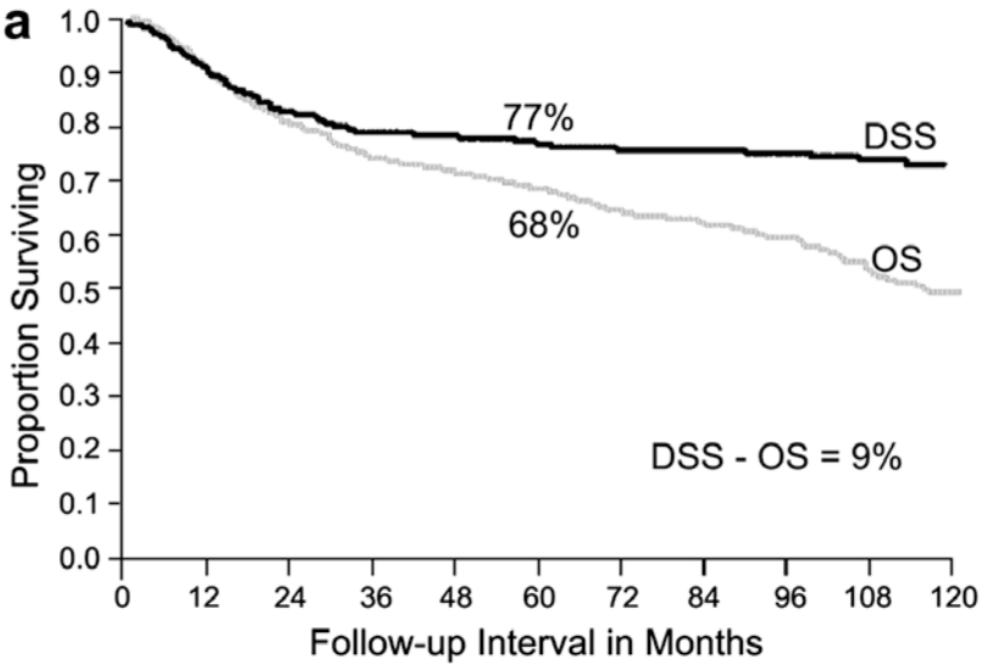
3.1 Treatment planning

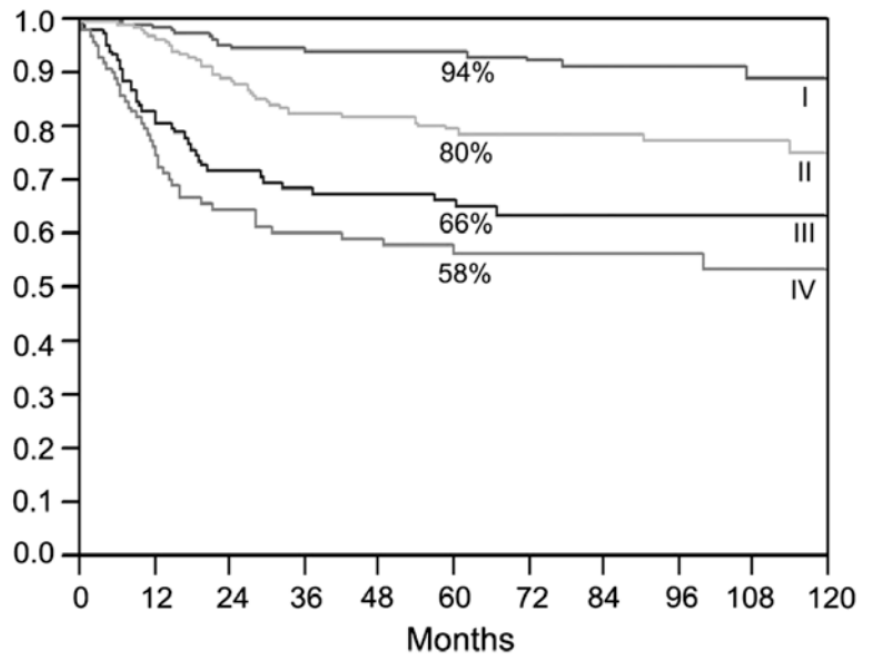
Table 1 General rules of the TNM classification of malignant tumors

Rule number	Synthetic text
1	Microscopic confirmation of malignancy and histopathological type are required
2	Clinical (c) classification is determined before any treatment; pathological (p) classification is determined after tumor resection
3	TNM groupings of similar prognosis are combined in stages
4	When in doubt, opt for the less advanced T, N, M category and stage
5	Multiple tumors are classified by the highest T followed by m or the number of tumors in parenthesis, i.e., T3[m] or T3[2]
6	Telescoping is allowed to better define categories, i.e., T1a, T1b, etc.

TNM, tumor, node and metastasis.

3.1 Treatment planning





Shah JP, Johnson NW, Batsakis JG. Oral Cancer. London: Martin Dunitz; 2003. p. 387–94.

3.1 Treatment planning

- Swallow function before and after major surgery
- Functionnal oral intake score (FOIS)

Predictors of swallowing outcome in patients treated with surgery and radiotherapy for advanced oral and oropharyngeal cancer

A.G. Schache *, O. Lieger, P. Rogers, A. Kelly, L. Newman, N. Kalavrezos

Department of Head and Neck Oncology, University College London Hospital, 250 Euston Road, London NW1 2P, United Kingdom

3.1 Treatment planning

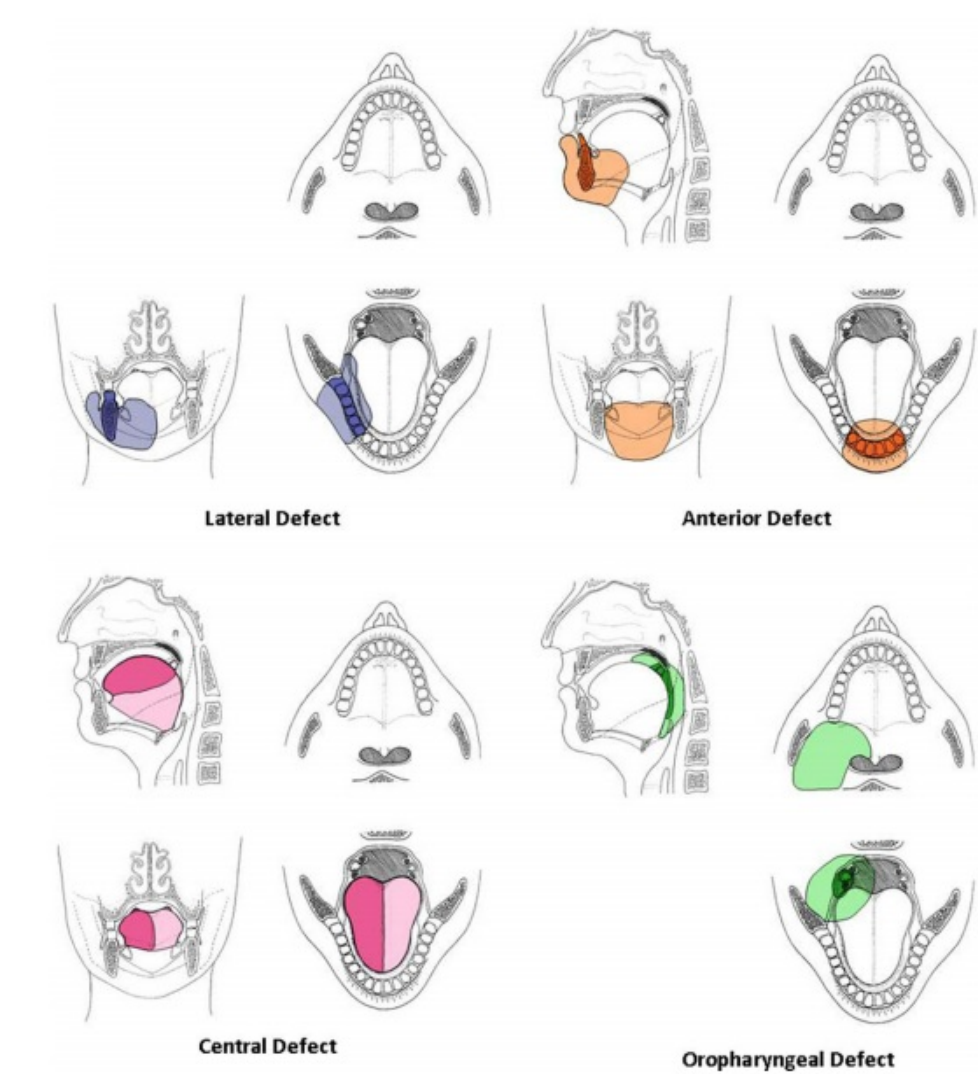


Figure 1 Schematic representation of four classifications for site of disease (modified from Nicoletti [16]).

3.1 Treatment planning

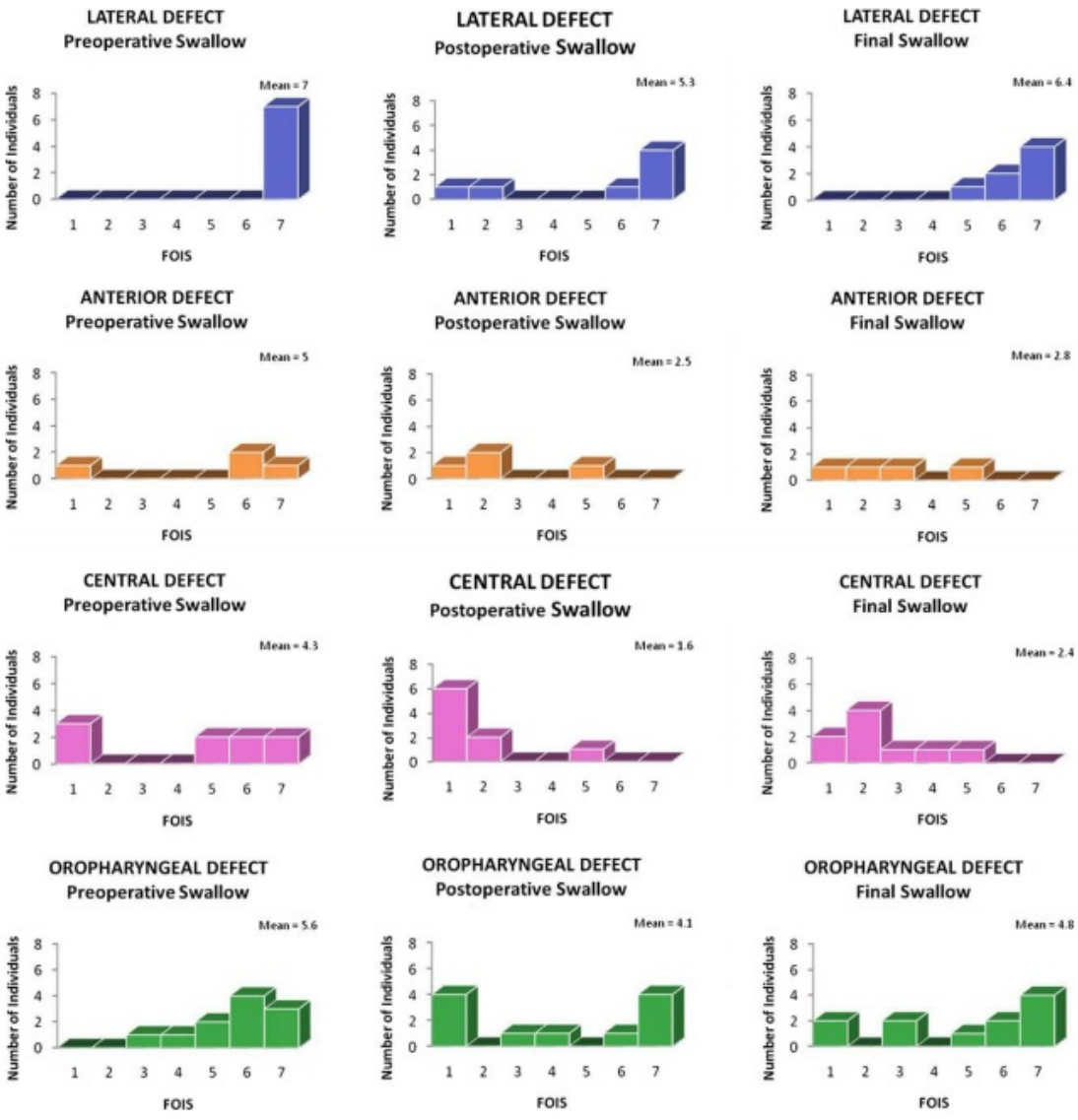


Figure 2 FOIS score by defect site across the treatment period (preoperative, immediate postoperative and final swallow at four months post treatment).

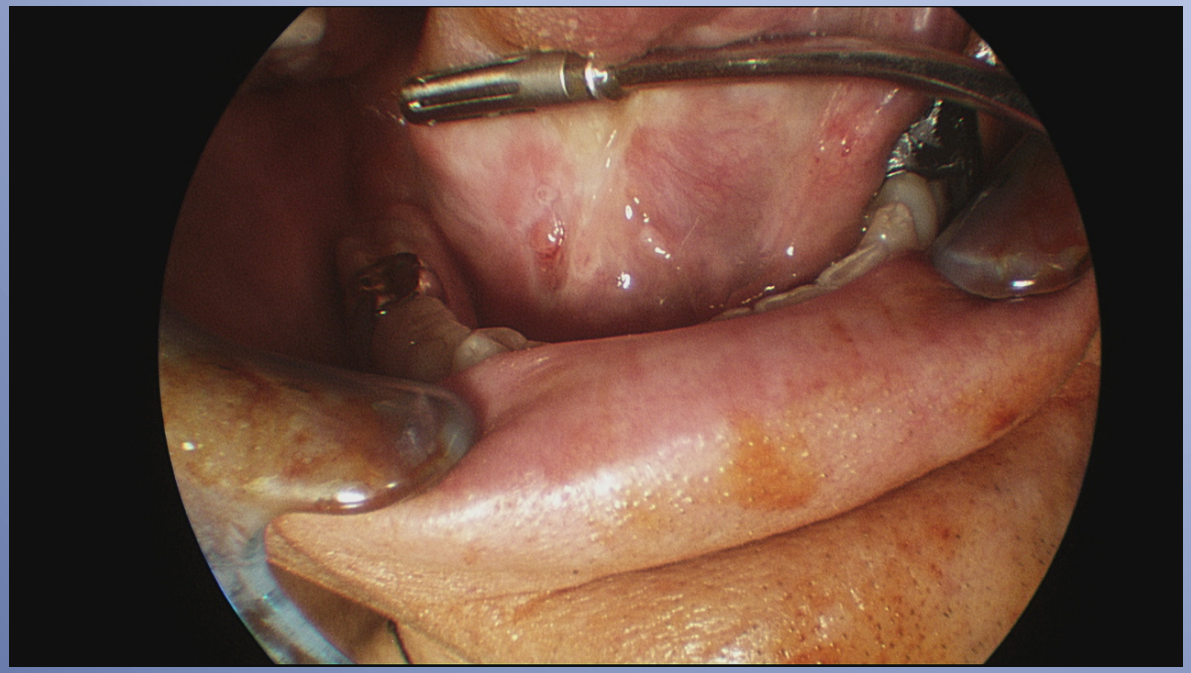
3.2 Trans-oral

- Trans-oral
- Trans-cervico-mandibulo-facial

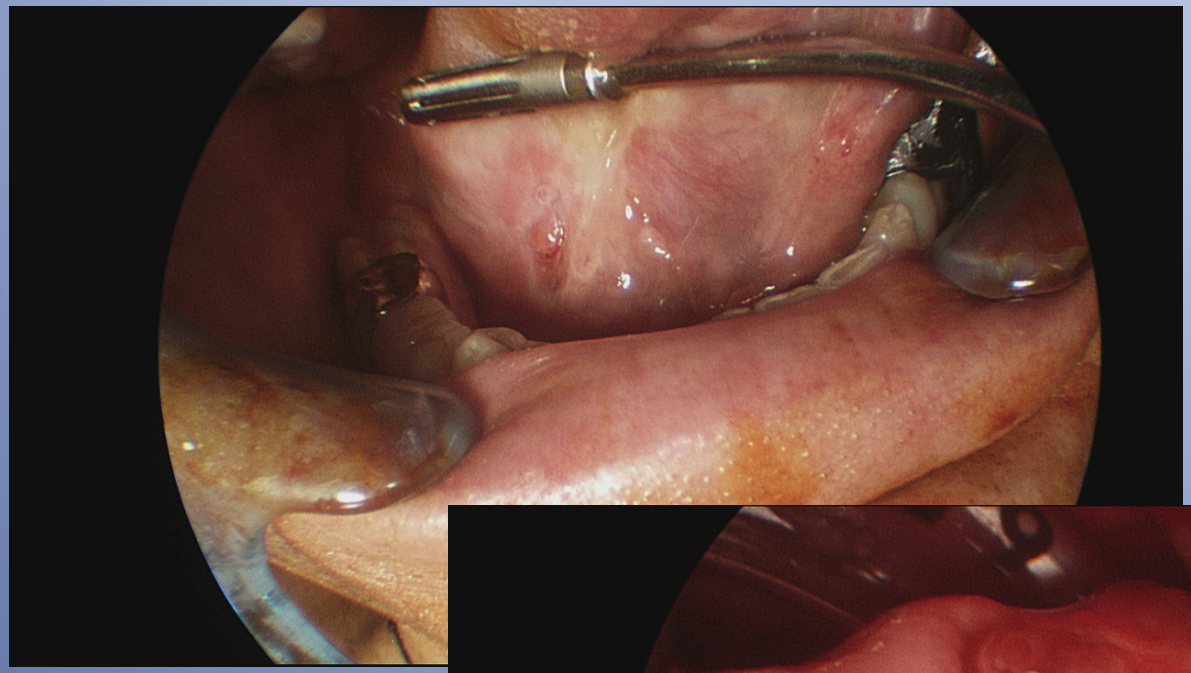
3.2 Trans-oral

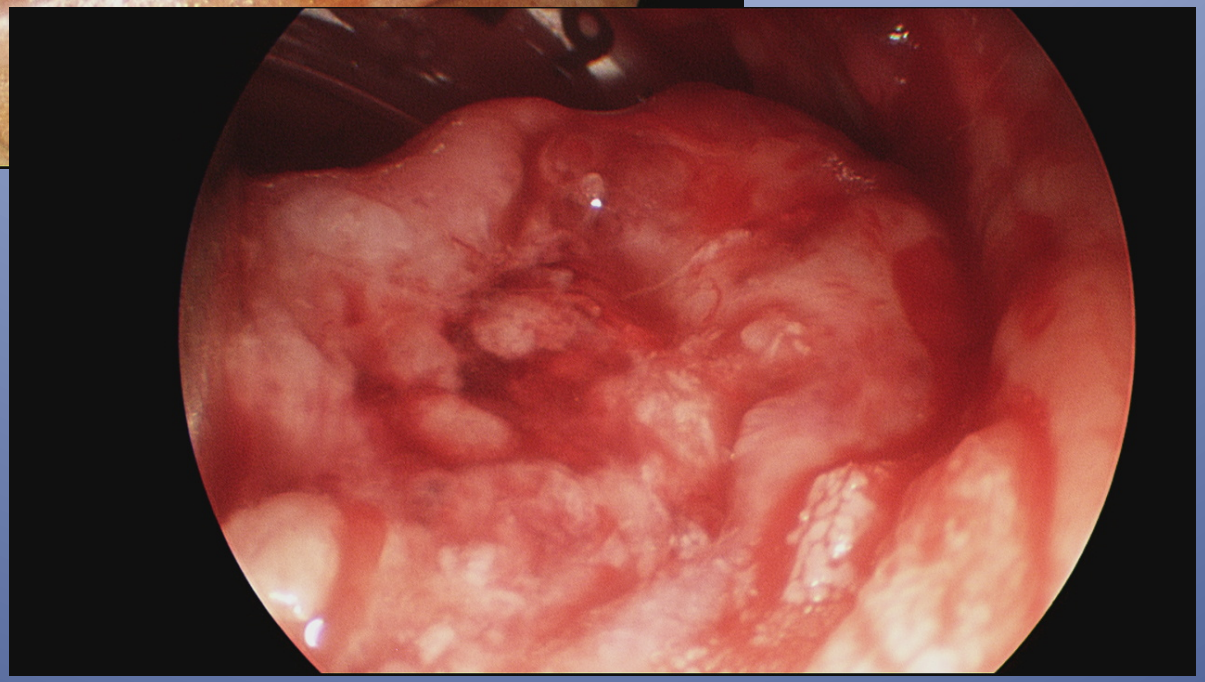
- Requires good exposure (no trismus, Nasal tube, teeth, Light)
- Limited control of the vessels
- Limited field vision
- For cancer surgery, consider the deep margin in your planning
- If mylohyoid or buccinator muscles infiltrated, or mandibular resection, consider a different approach

3.2 Trans-oral



3.2 Trans-oral





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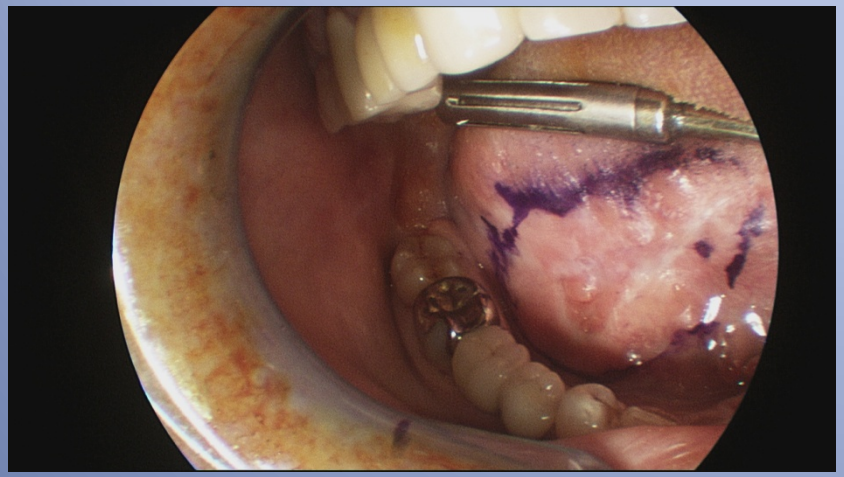

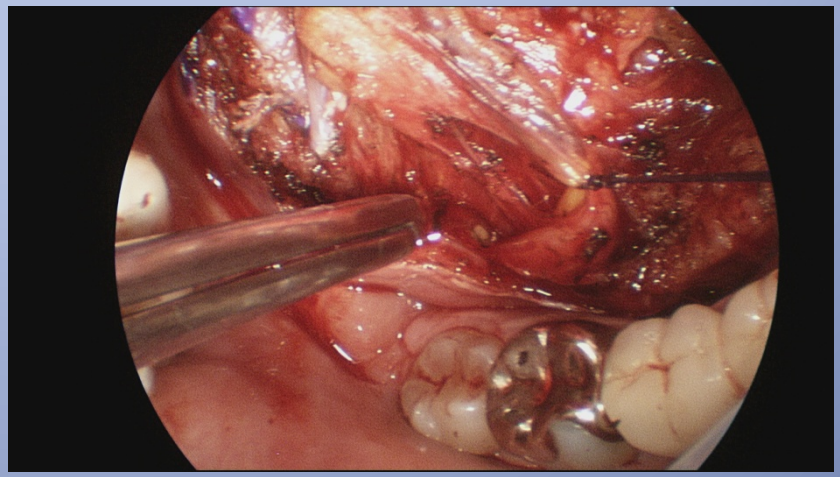

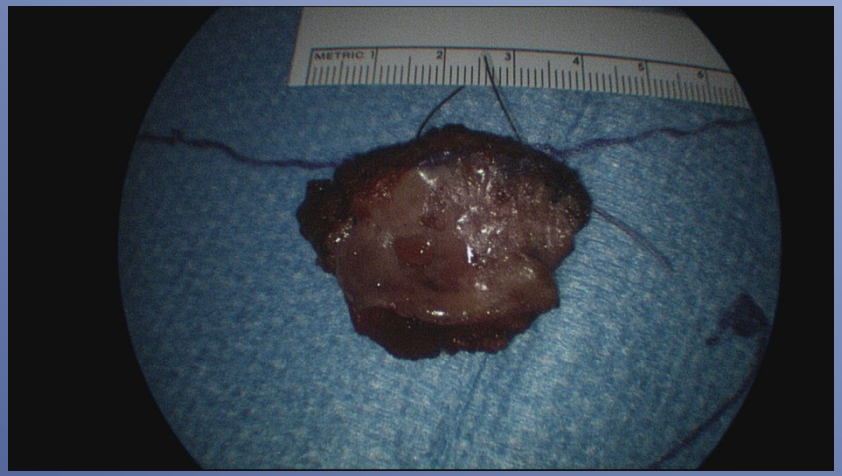

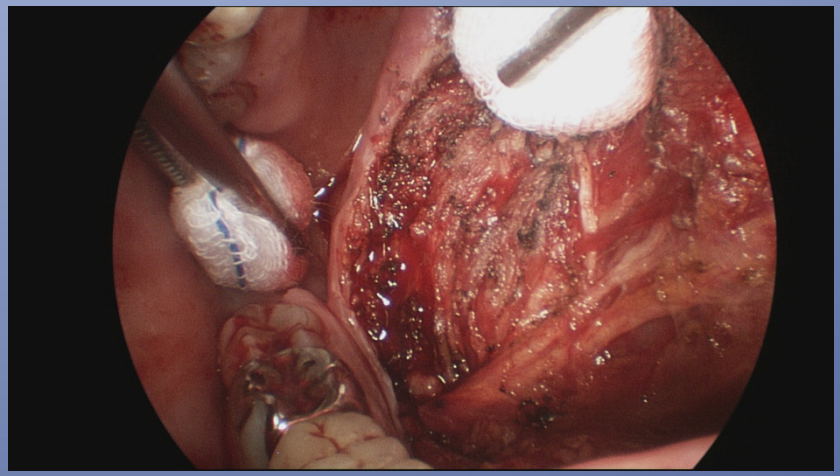

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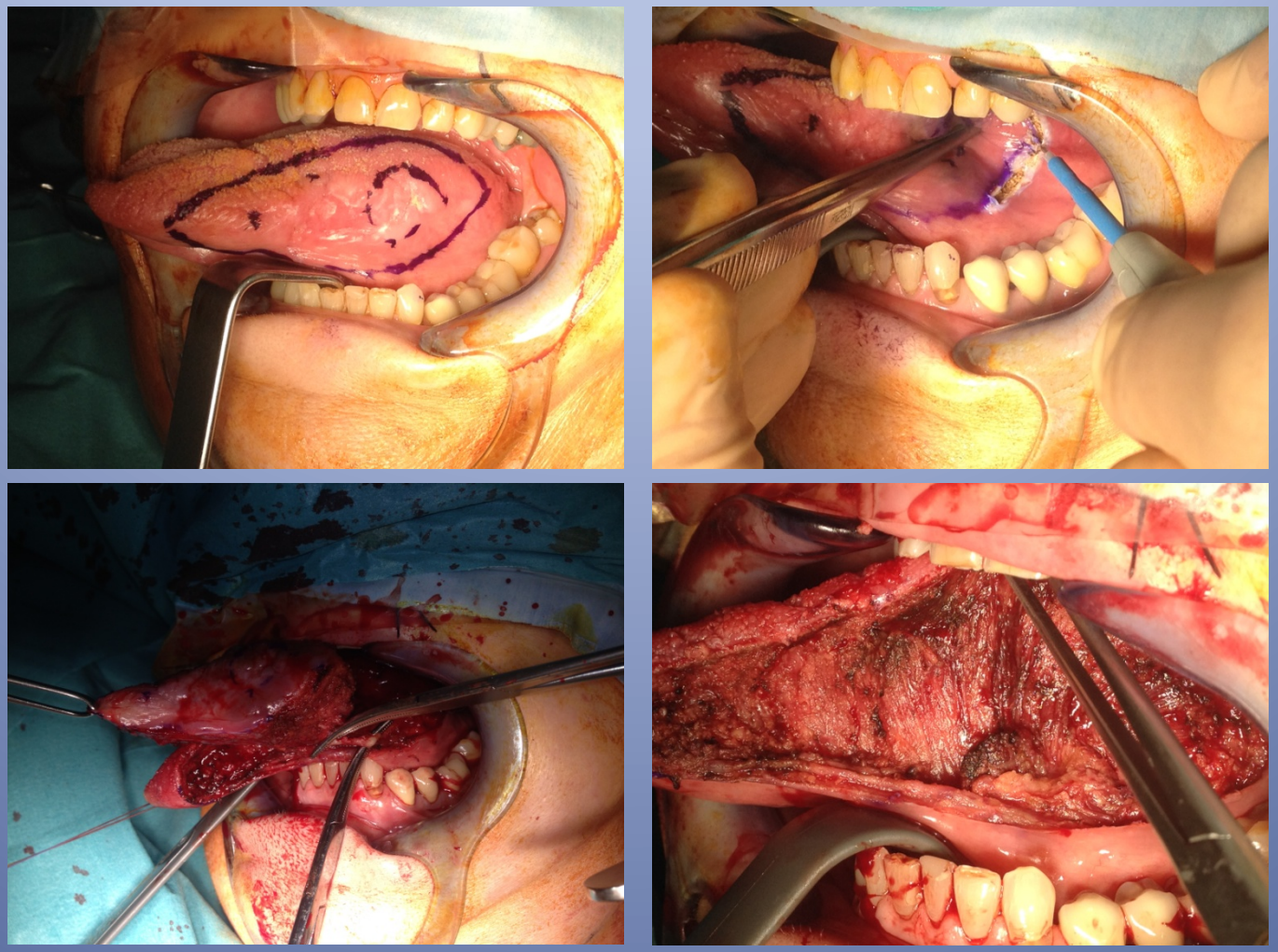

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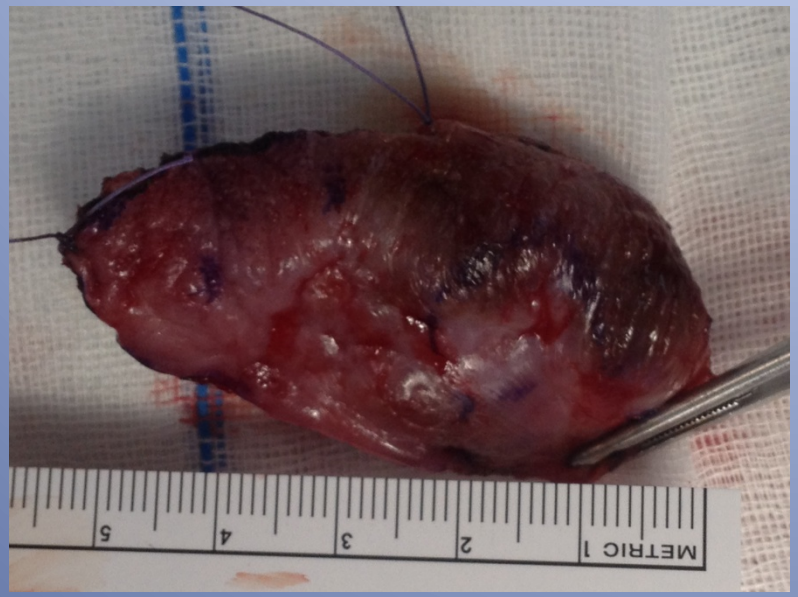
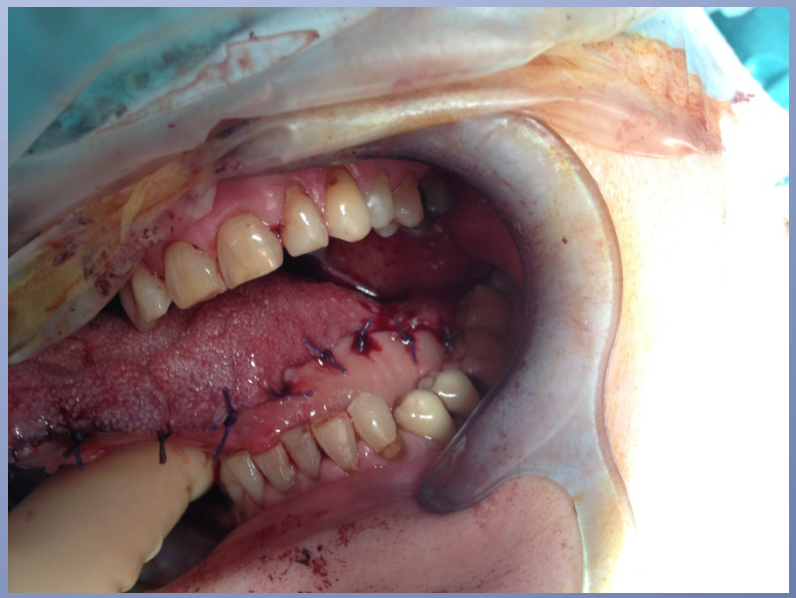


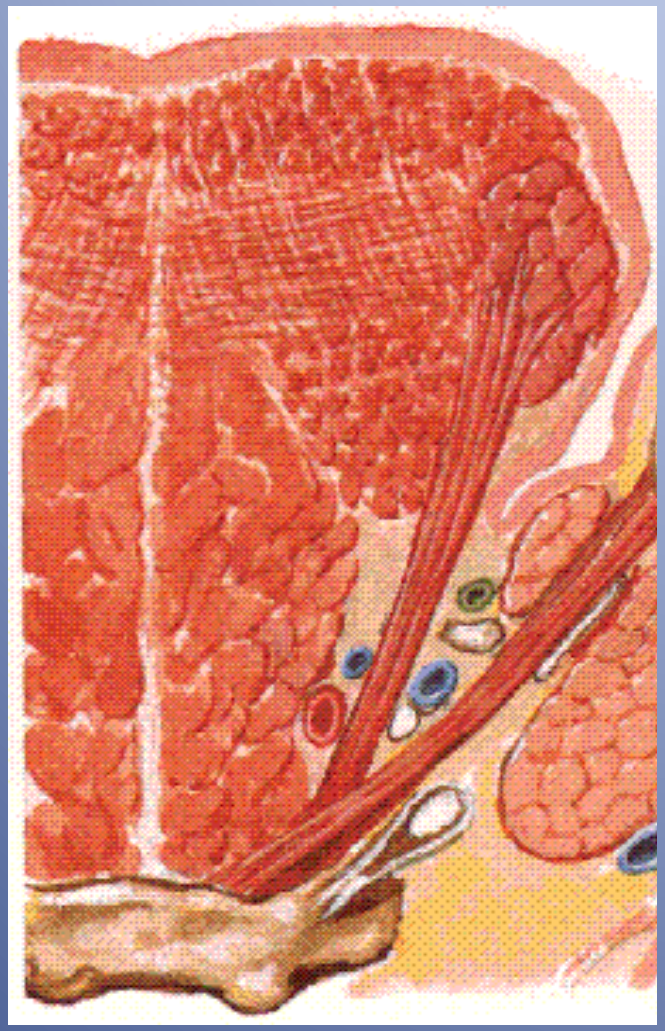


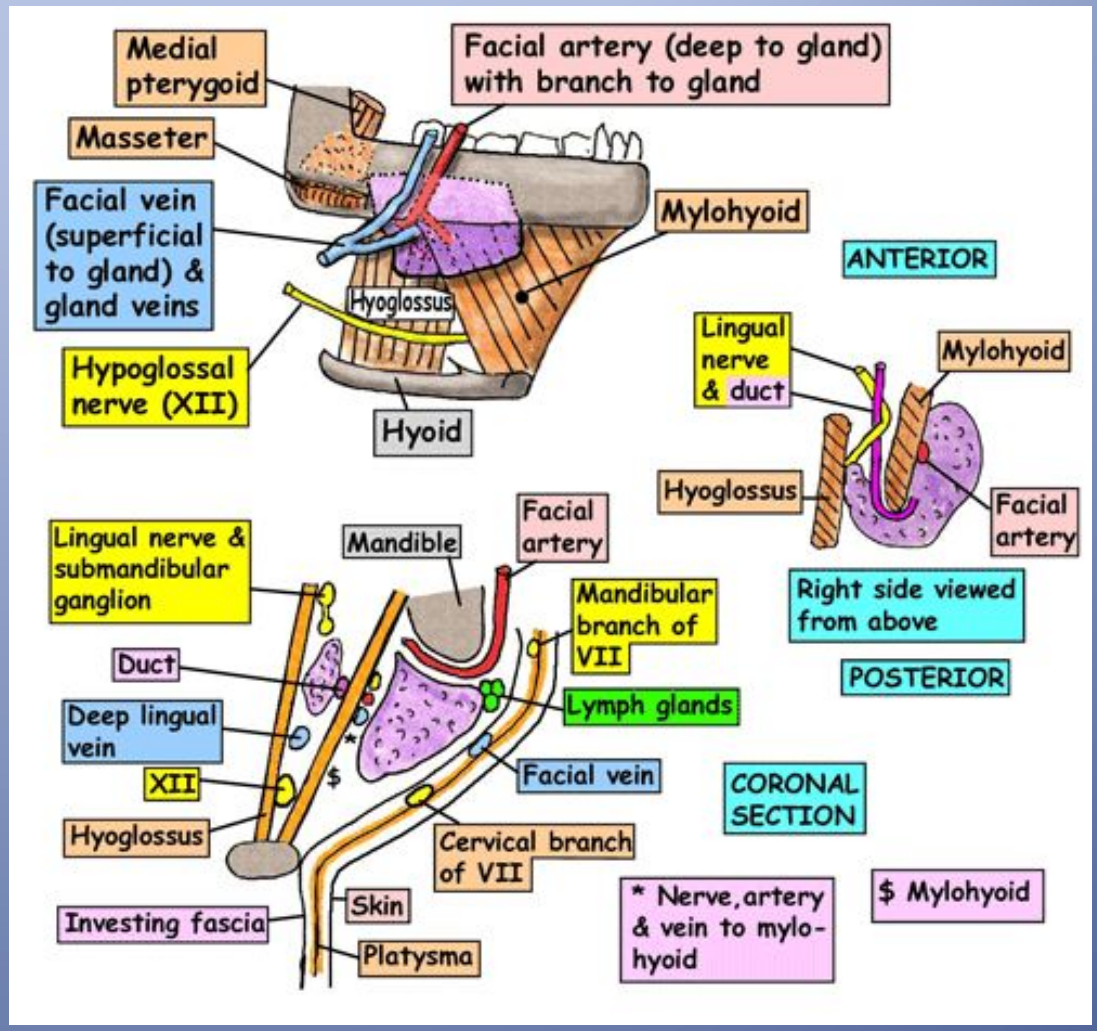
3.2 Trans-oral

– Danger Zones

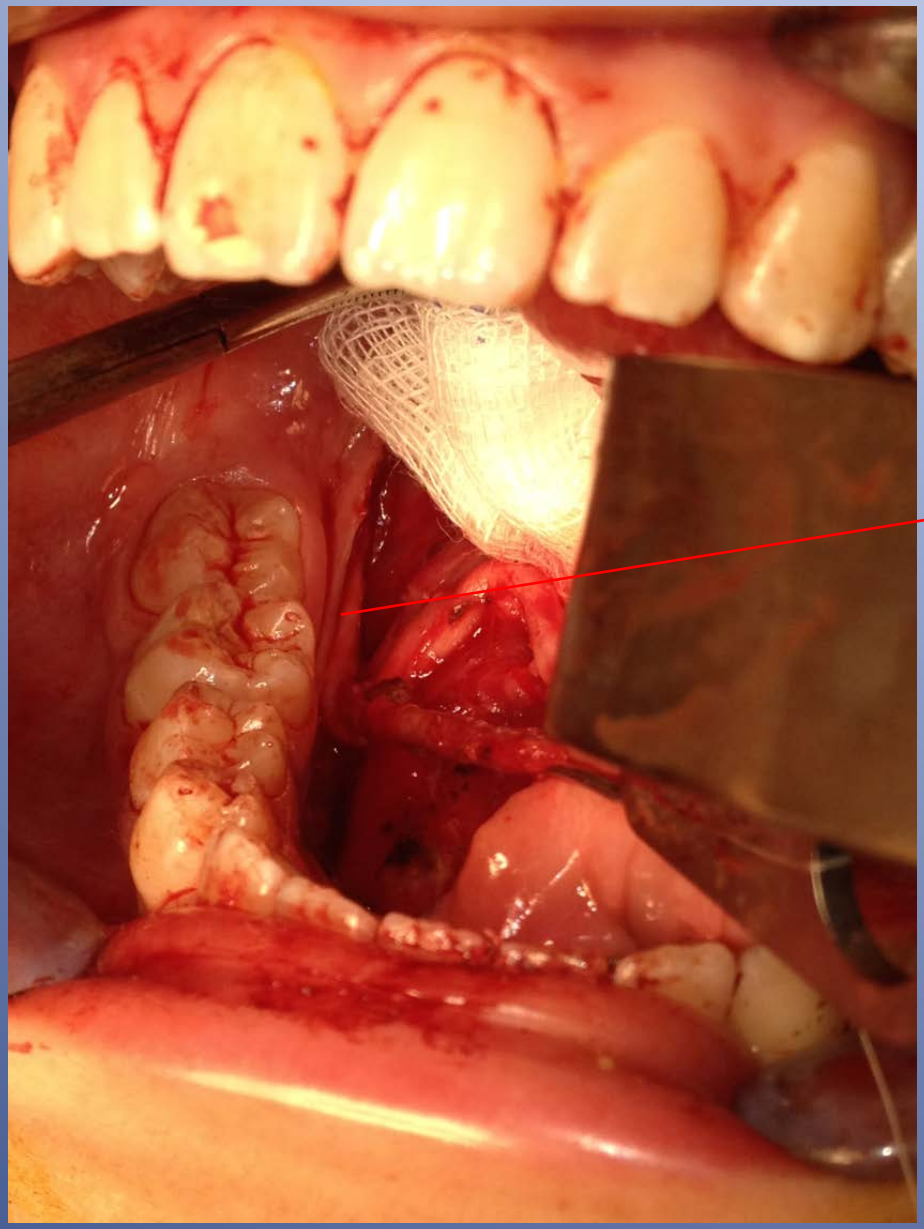
- Floor of mouth (lingual nerve, wharton's duct)
- Lateral cheek (stensen's duct, facial nerve beyond buccinator muscle)
- Posterior tongue (Vascular pedicle deep to hyoglossus muscle)
- Inferior buccal vestibule (mental nerve)

3.2 Trans-oral





3.2 Trans-oral

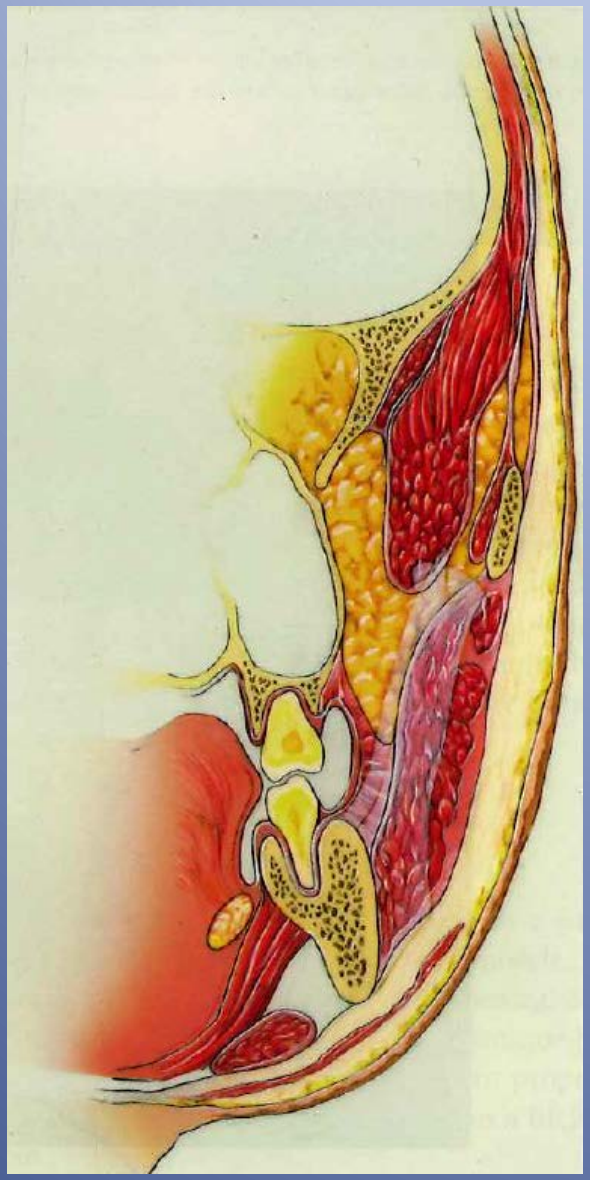


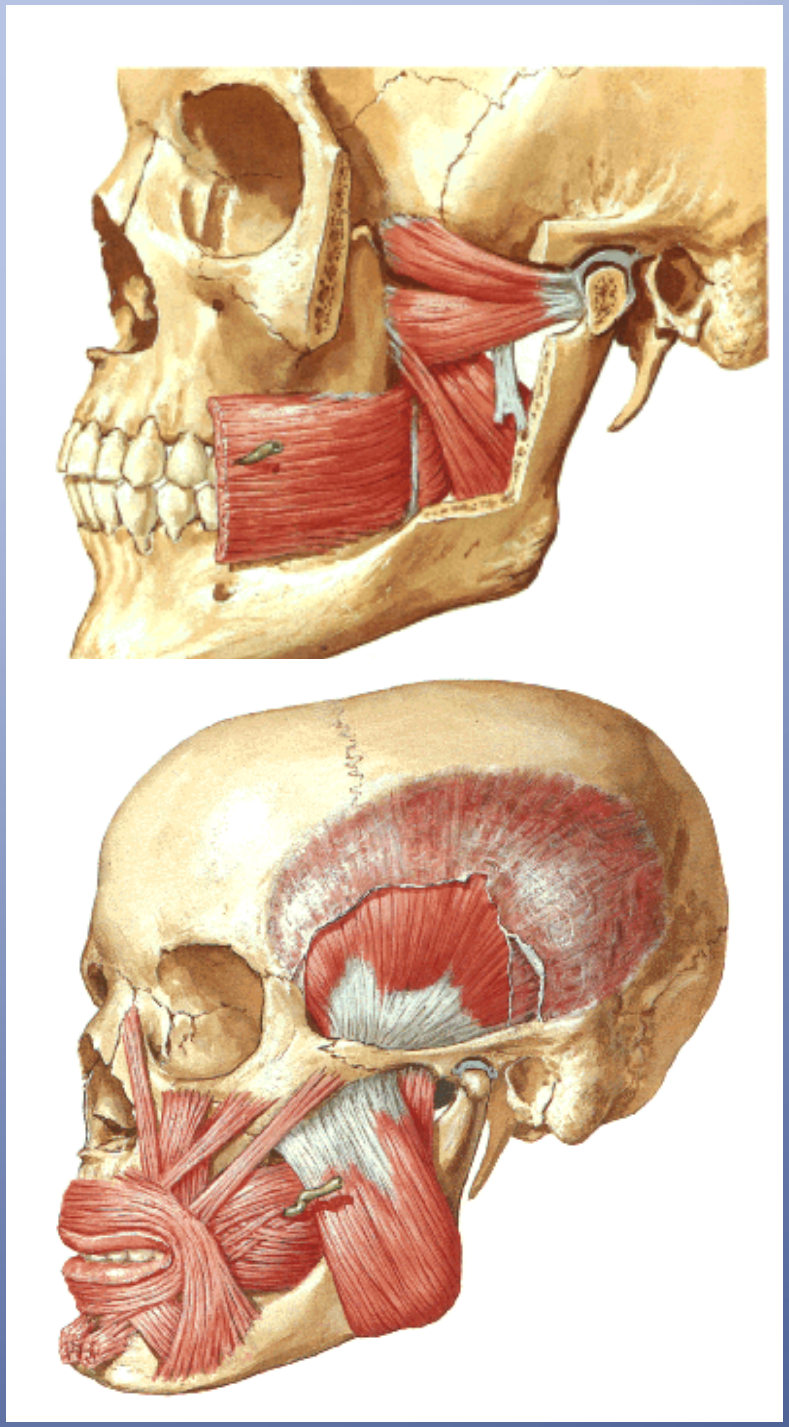
Lingual nerve

Wharton duct

Nerve is superificial posteriorly

3.2 Trans-oral





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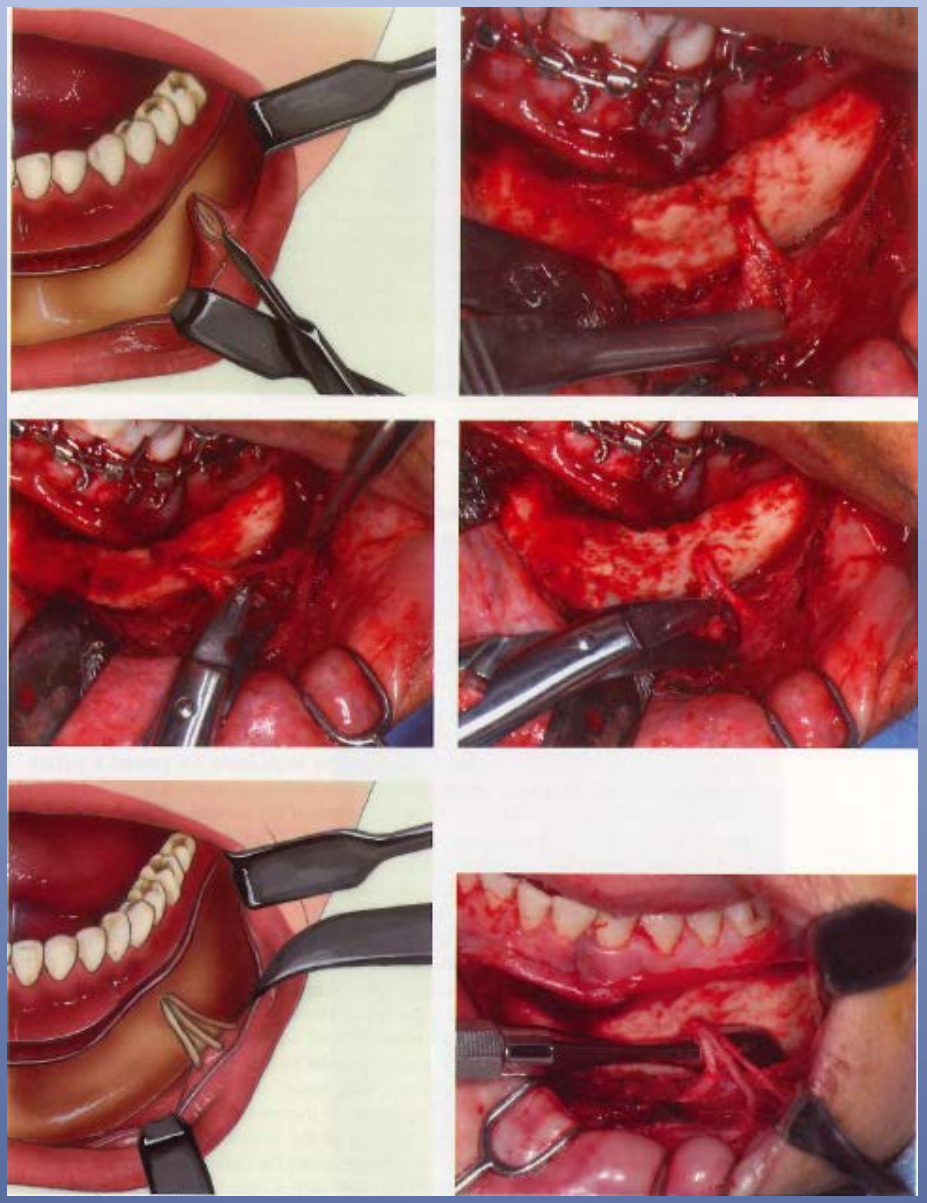

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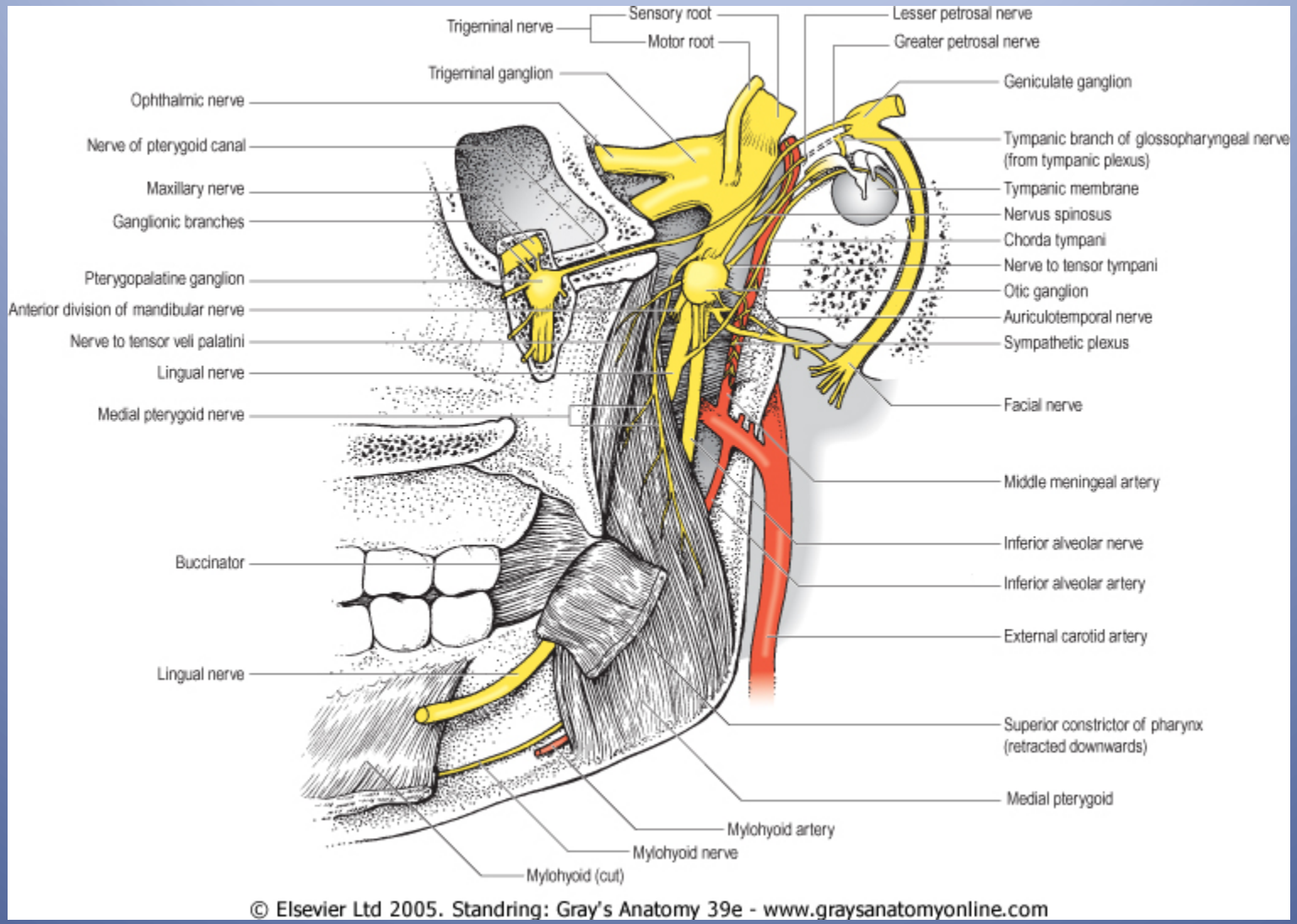
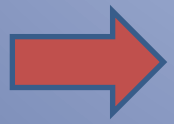


3.2 Trans-oral

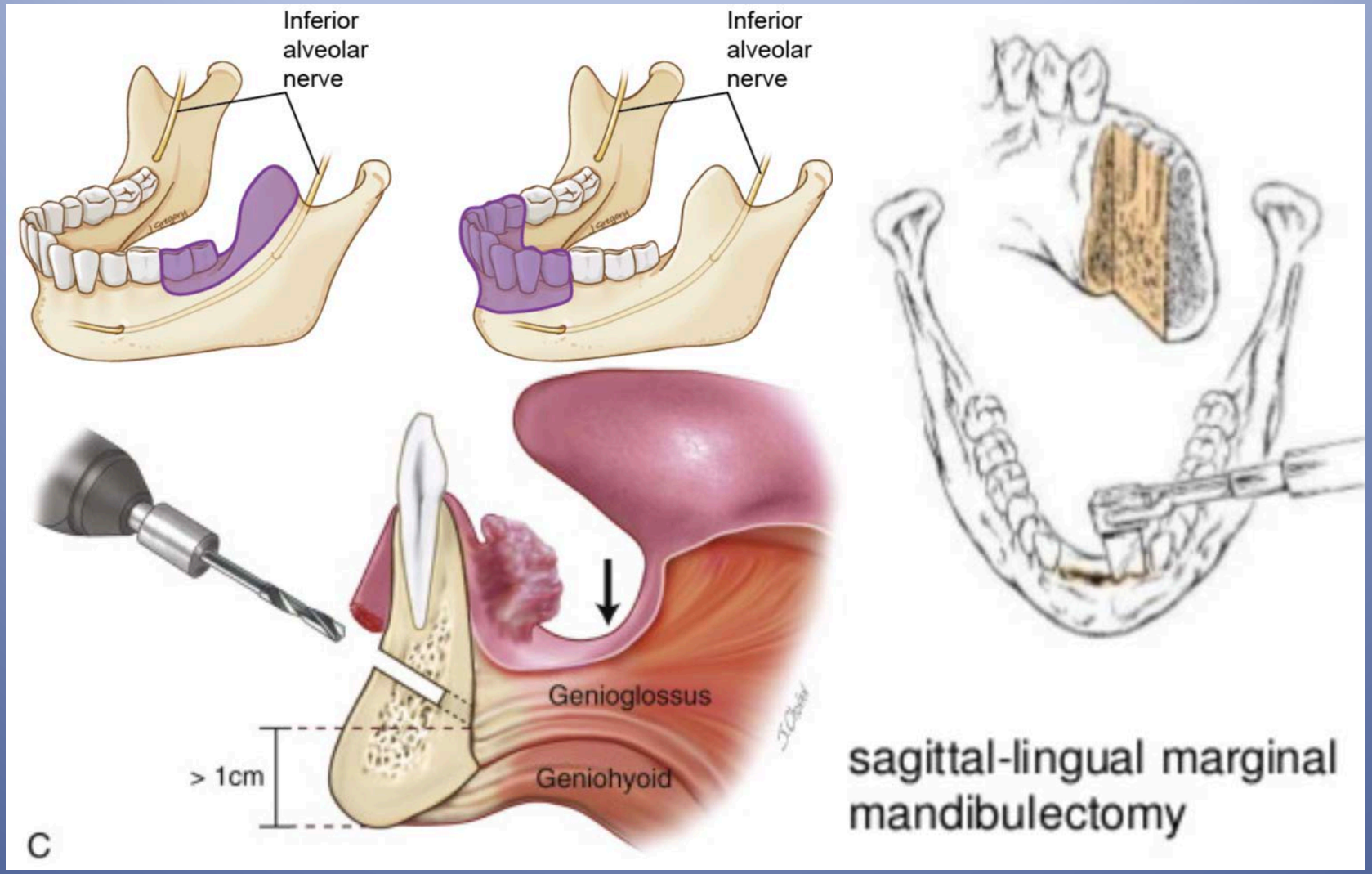
- Close vicinity to mandible
- Limited cortico-alveolar invasion



Bone Margin

- Marginal resection

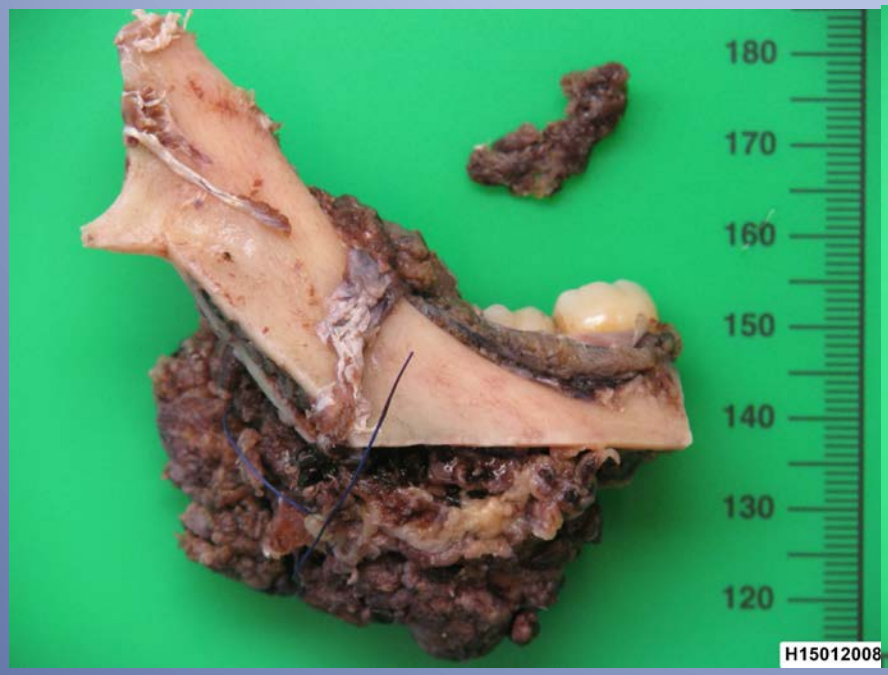
3.2 Trans-oral

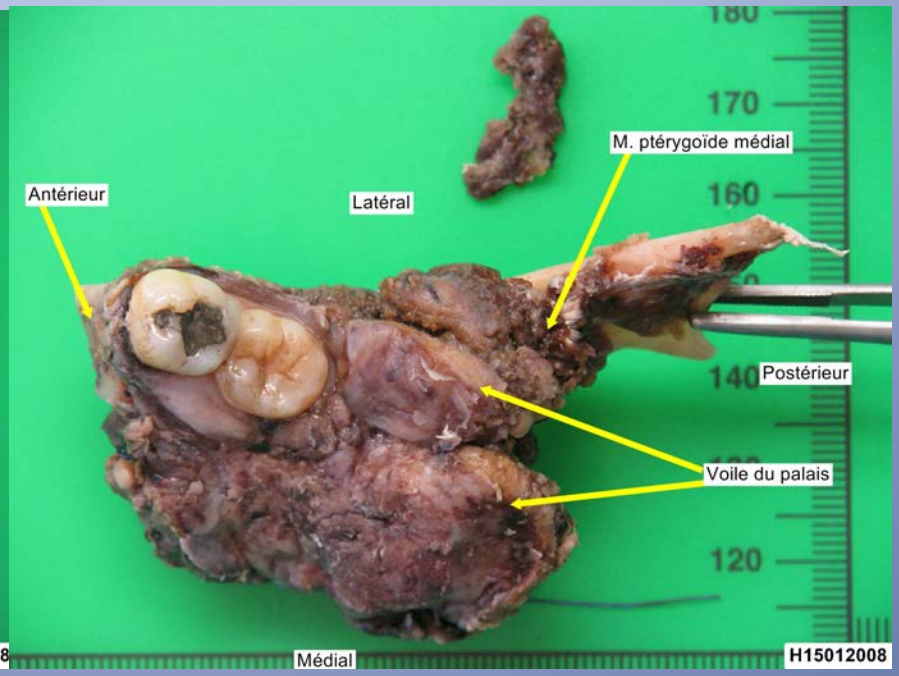


3.2 Trans-oral

- Contra-indication to marginal mandibulectomy:
  - Bulky tumour.
  - Surrounding of the mandible over >180° by tumour (high risk of R+)
  - Unsufficient height for plating placement

3.2 Trans-oral

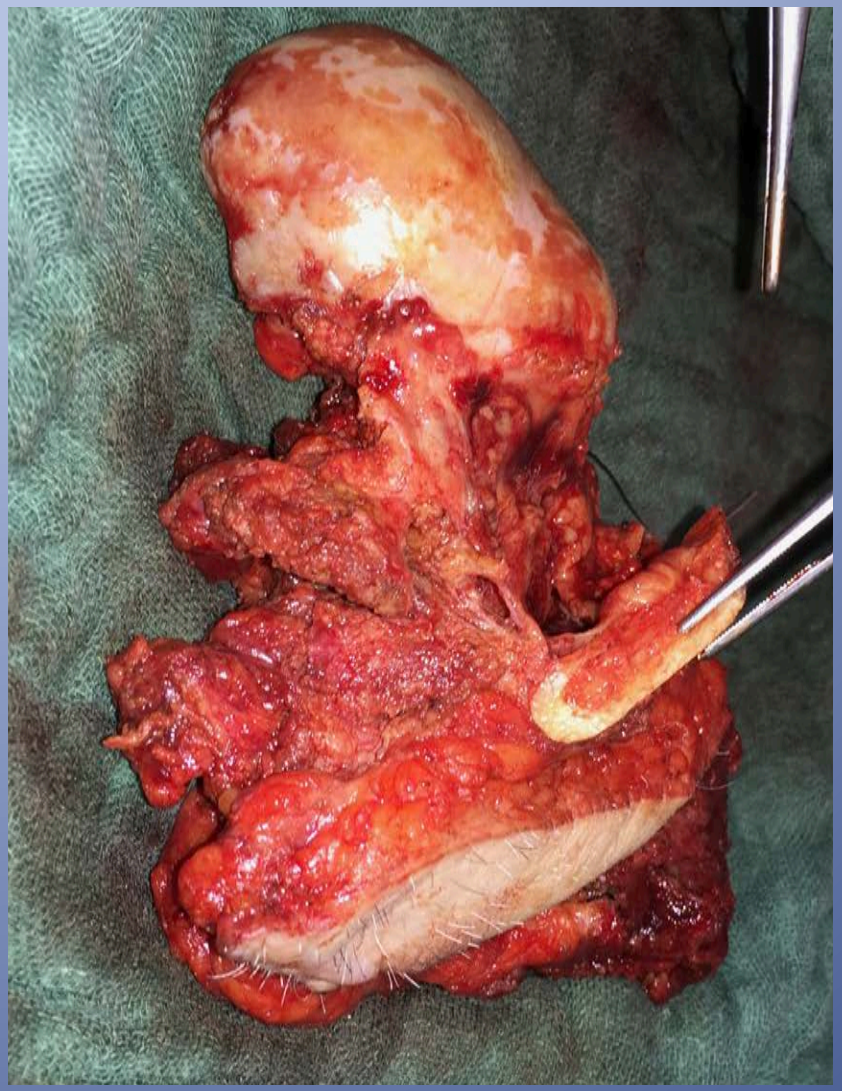




- Limited tumour. Wide dissection to place the bony cut
- R0

3.2 Trans-oral

- Second primary
- Bulky disease
- R+
- Mistake
- Immunotherapy



3.3 Trans-cervico-mandibulo-facial

- Surgical access:
  - Trans-cervical
  - Trans-mandibular
  - Trans-cervico-facial

3.3 Trans-cervico-mandibulo-facial

- Neck dissection
- Tracheotomy
- Feeding tube
- +/- mandibulectomy

3.3 Trans-cervico-mandibulo-facial

a) Trans-cervical: Visor flap, lingual-release access, pull-through

b) Trans cervico-mandibular, commando (if segmental mandibulectomy associated)

c) Trans-cervico-mandibulo-facial:

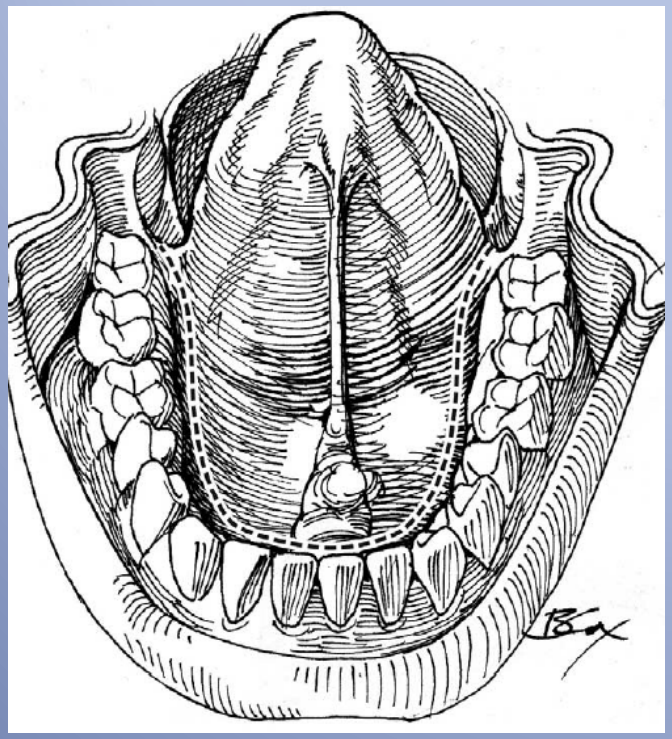
for access

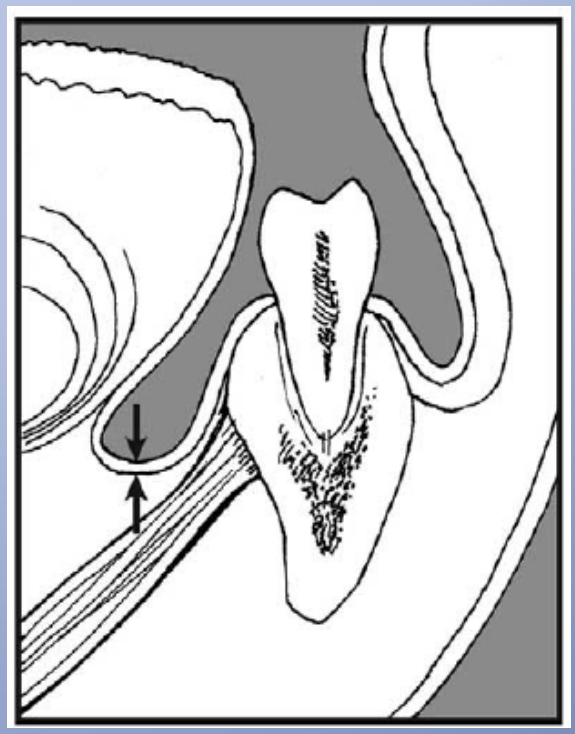
for resection Dargent (transmandibular pharyngectomy 1954)

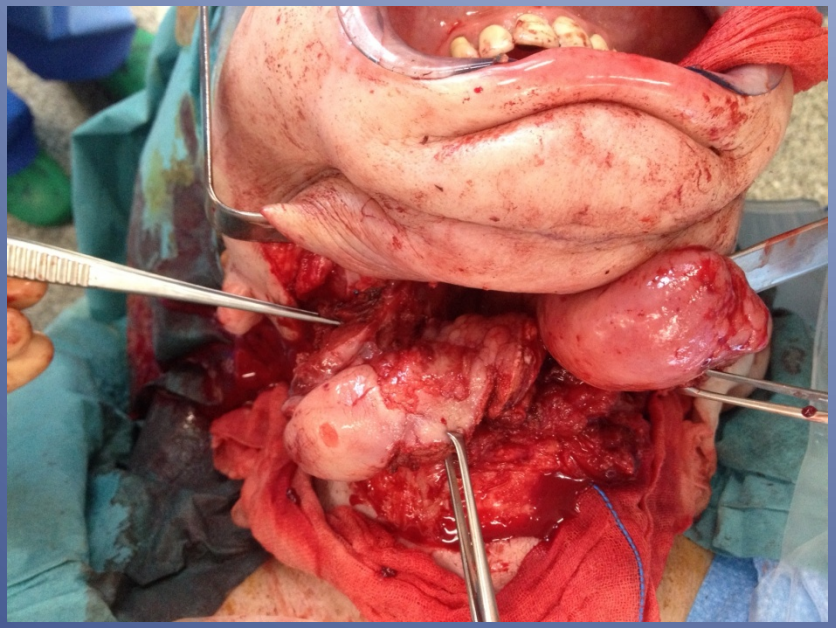
3.3 Trans-cervical (lingual-release access)

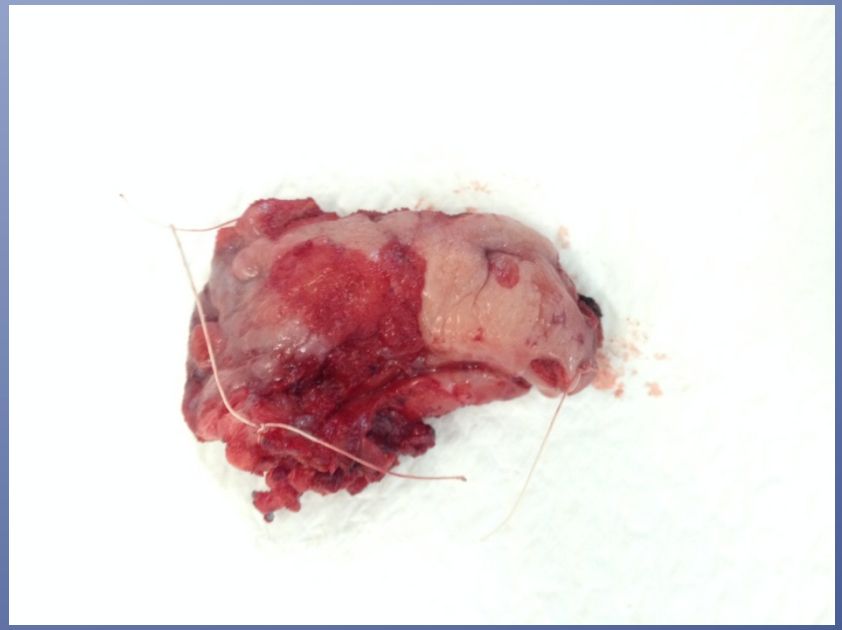
- Neck incision until inferior mandible border
- Lingual-release access up to lingual nerve
- Mental nerve preserved

- Flap
- Re-suture FOM muscles





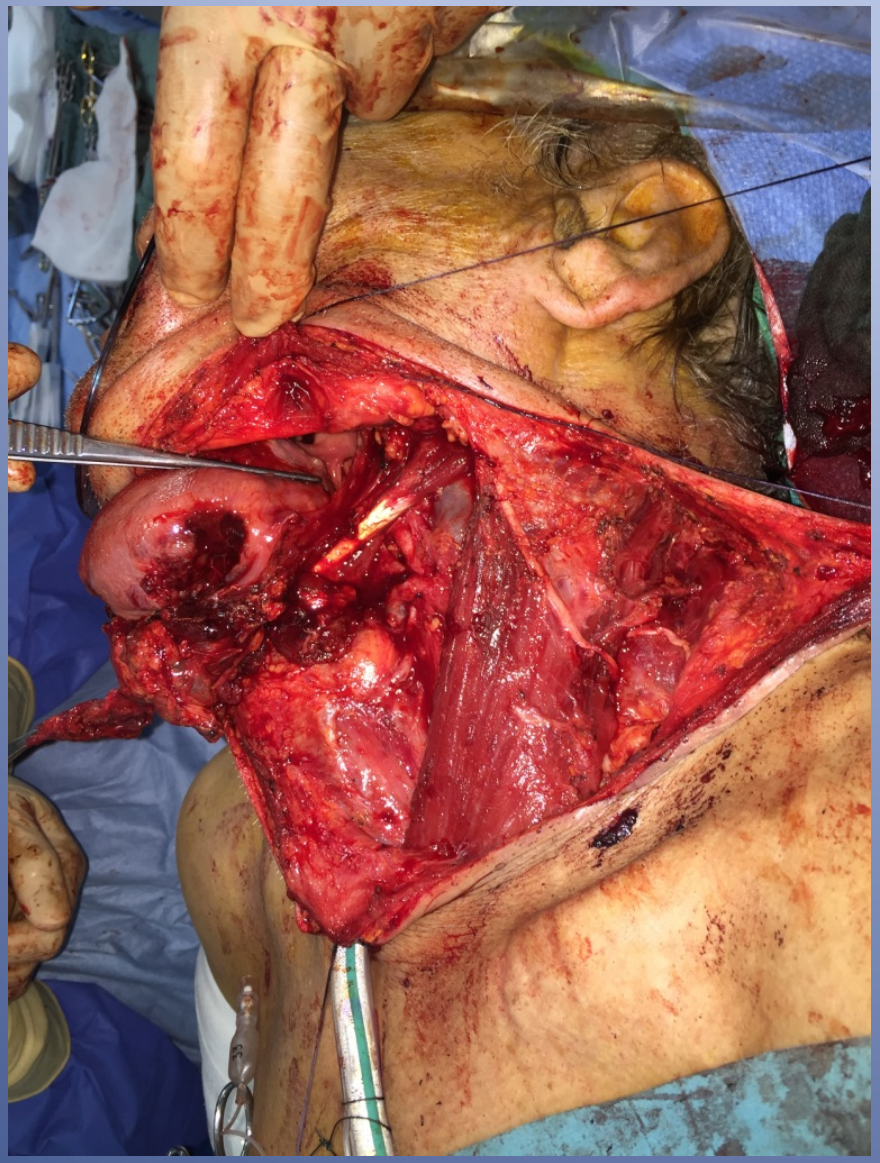


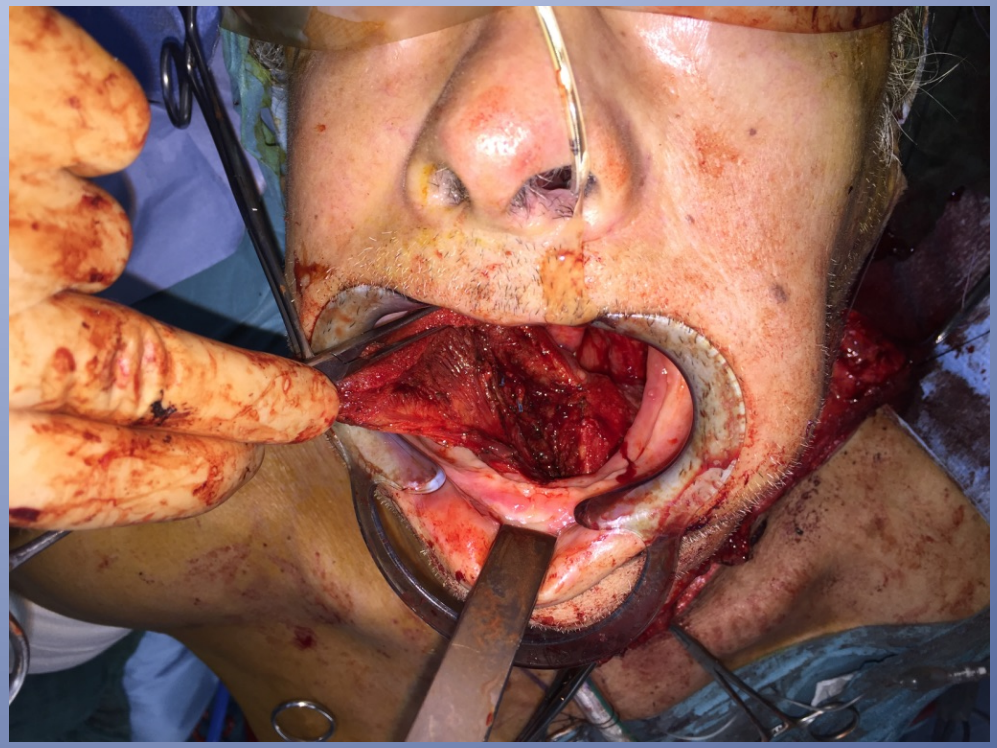


3.3 Trans-cervical

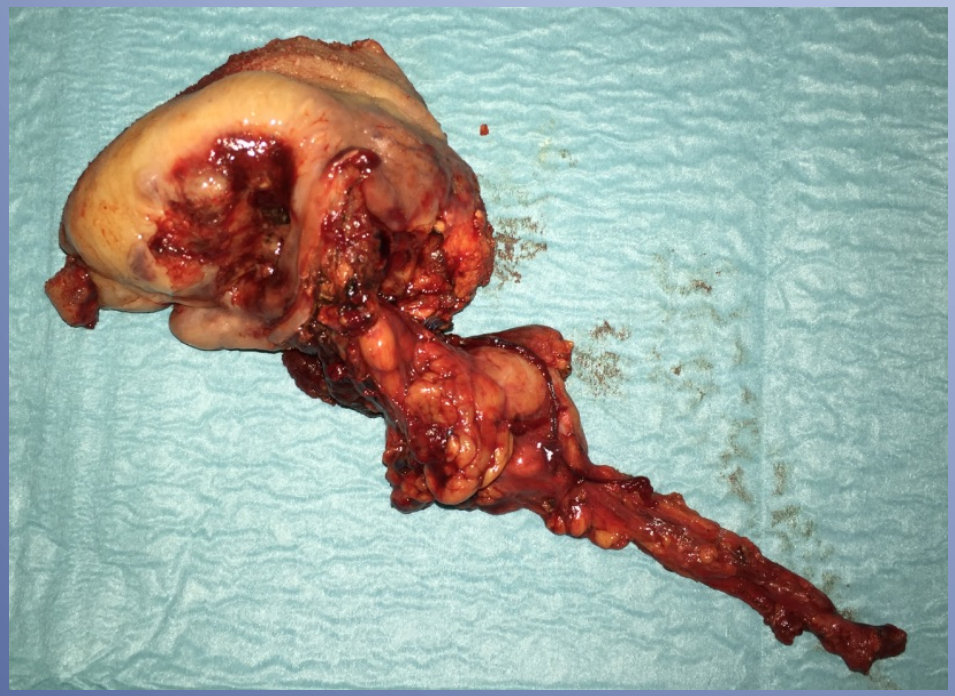
- Imply « en-bloc » resection.
- Ventral tongue tumour
- Floor of mouth tumour
- Difficult if marginal mandibulectomy. Wide dissection, limited to lingual marginal mandibulectomy

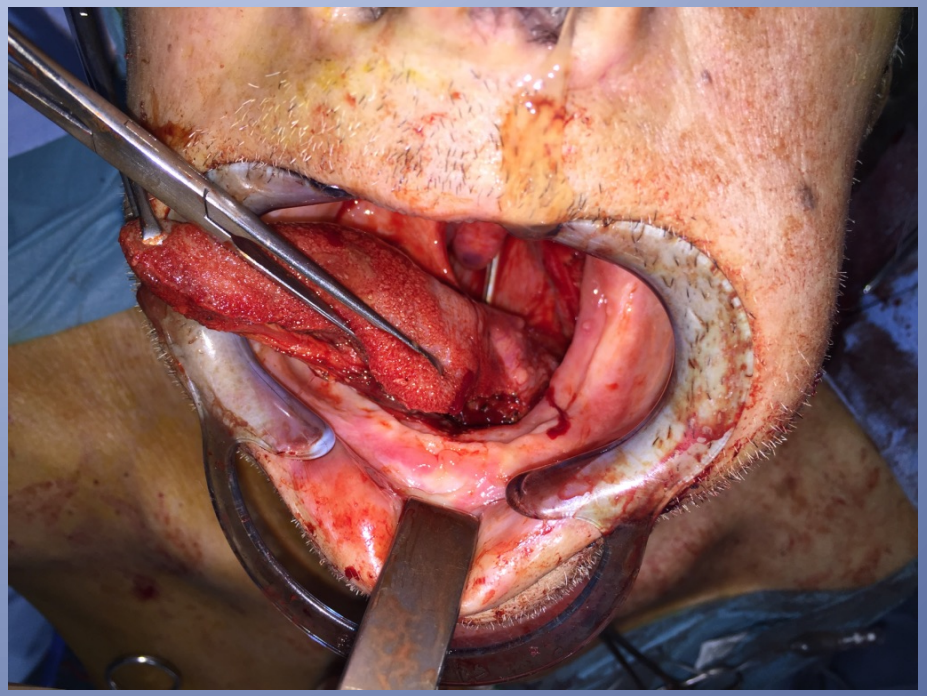
3.3 Trans-cervical



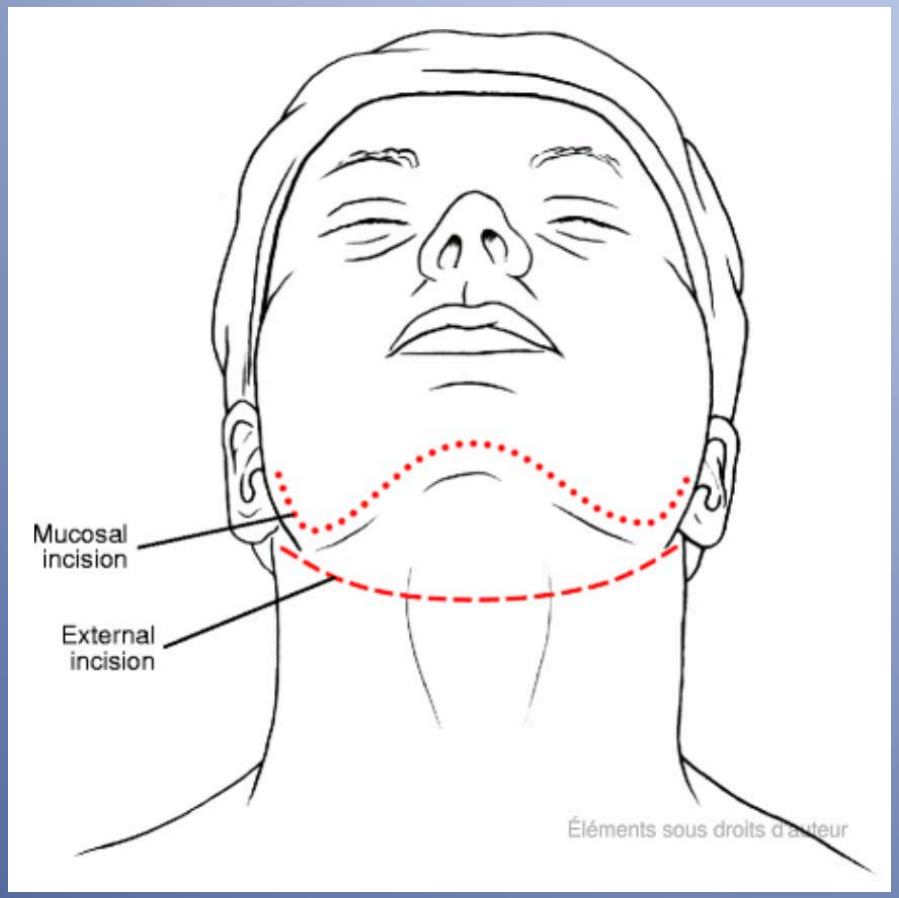


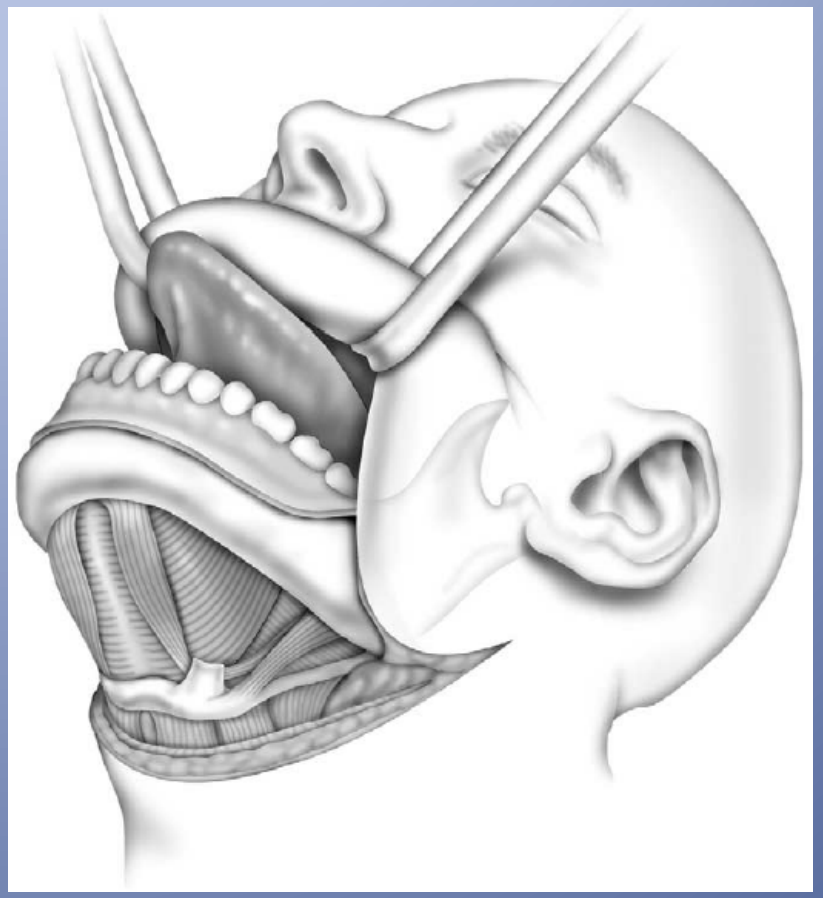
3.3 Trans-cervical





3.3 Trans-cervical (visor flap)





3.3 Trans-cervical (visor flap)

- Bilateral mental nerve severed
- Bilateral buccal sulcus incision
- Reinsert FOM muscles

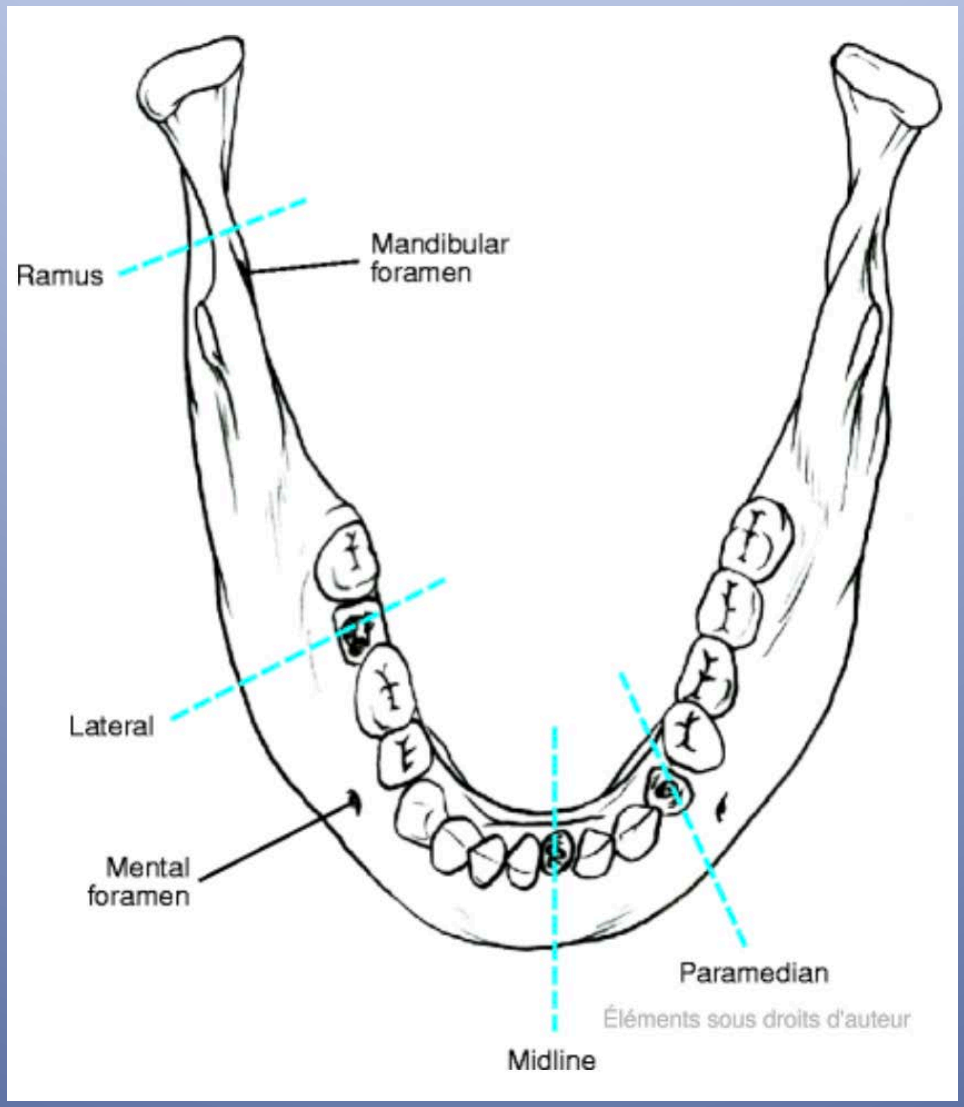
3.3 Trans-cervical (visor flap)

- Better for marginal mandibulectomy
- Better for plating symphysis and para-symphisis

3.3 Trans-cervico-mandibular

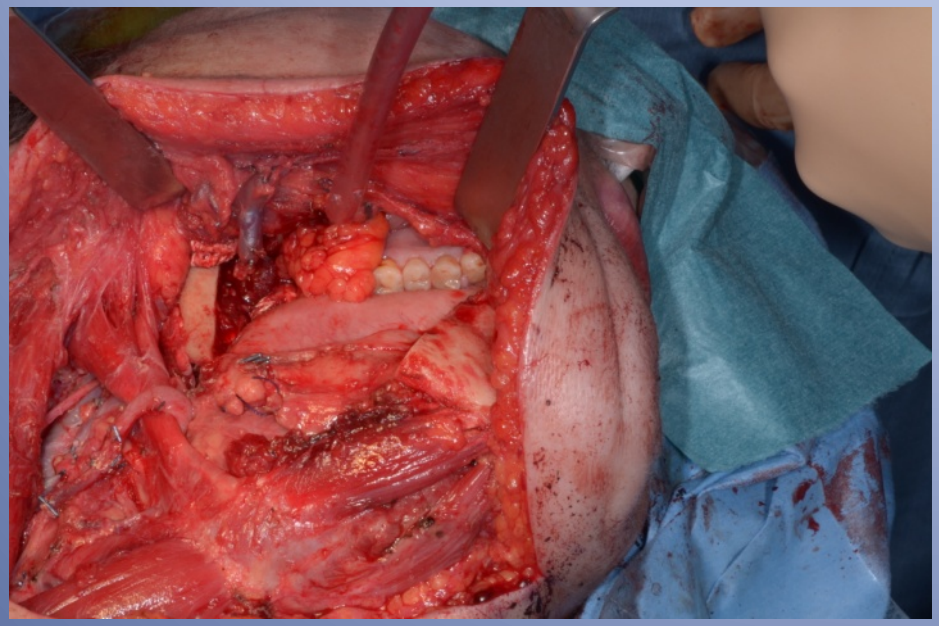
- Visor flap + segmental mandibulectomy
- Unilateral visor + segmental mandibulectomy
- Requires composite reconstruction
- Requires osteosynthesis

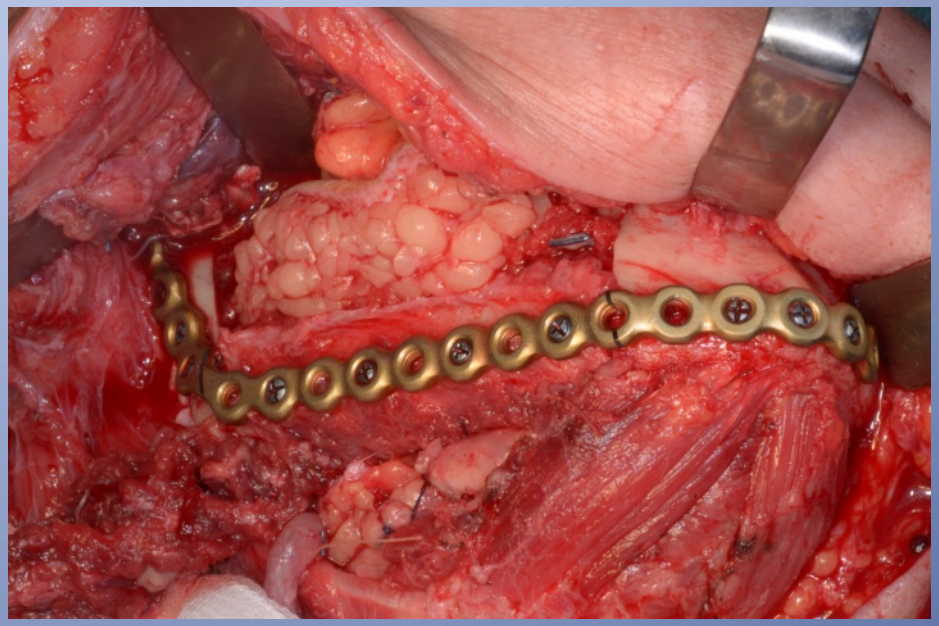
3.3 Trans-cervico-mandibular

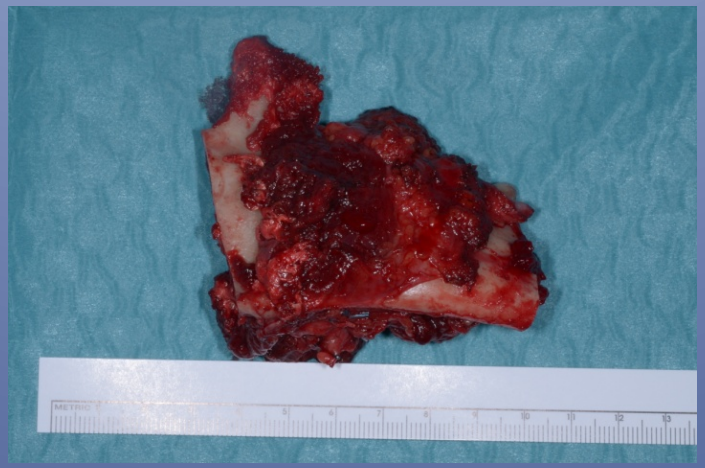


3.3 Trans-cervico-mandibular

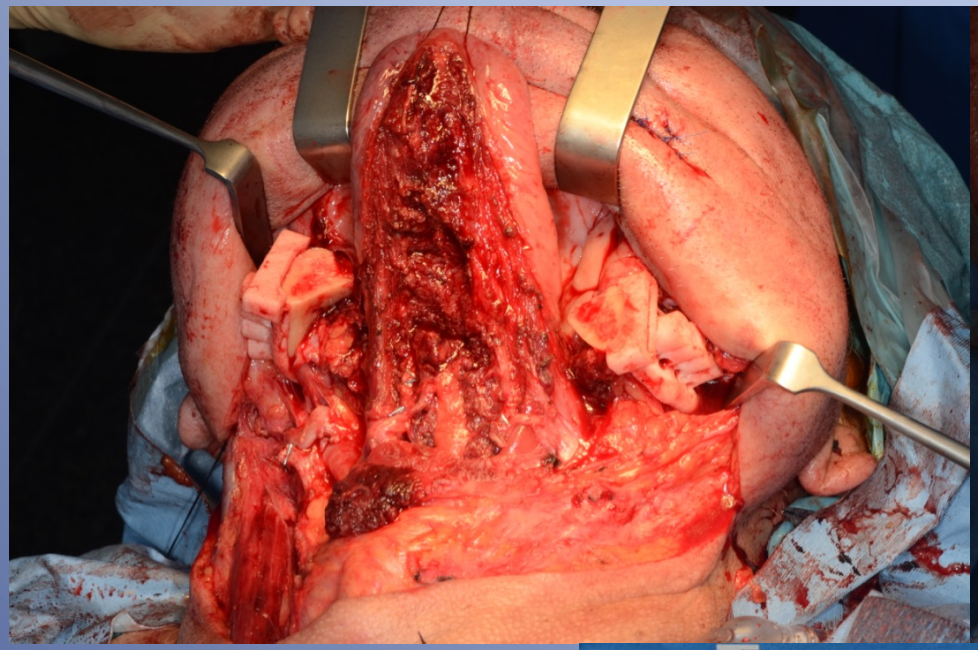
LATERAL

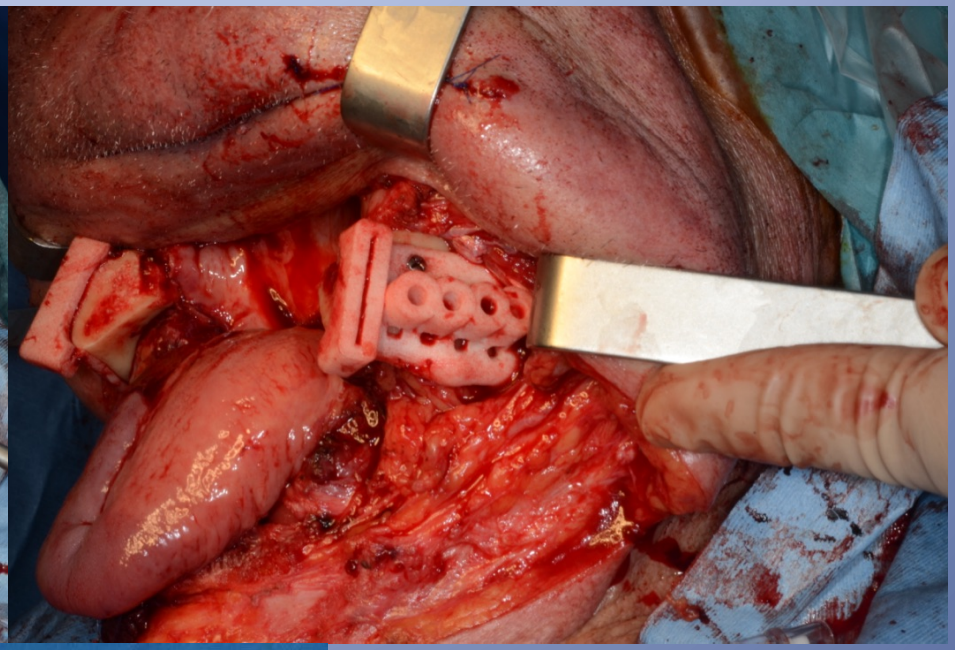


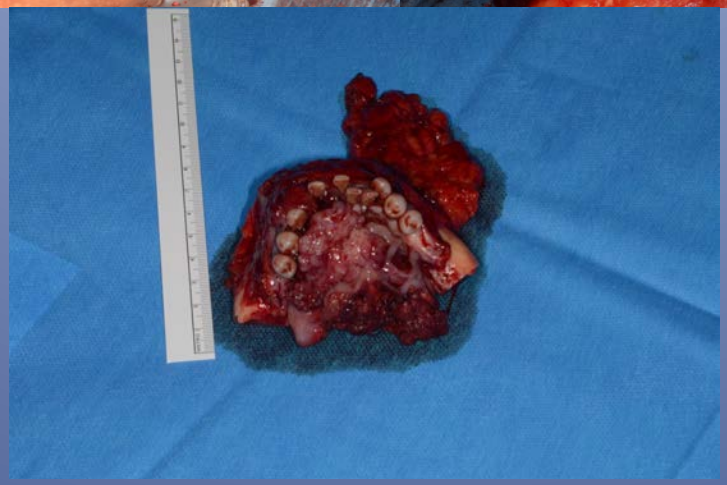




3.3 Trans-cervico-mandibular CENTRAL







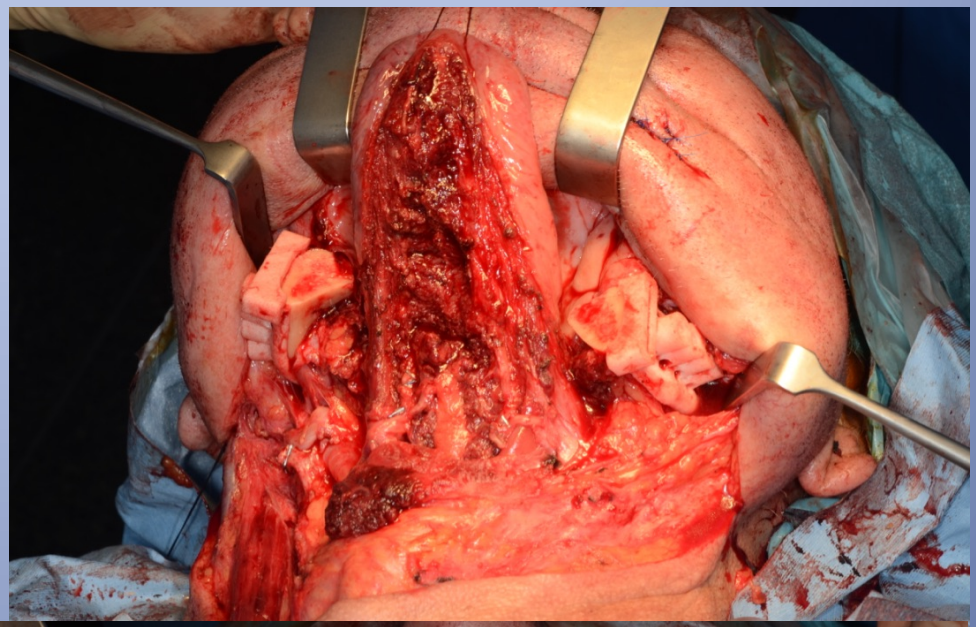
3.3 Trans-cervico-mandibular

- Restore the mandibular contour by bending a 2.0 Unilock plate per-op
- Or pre-op on stereolithographic model (time saving)

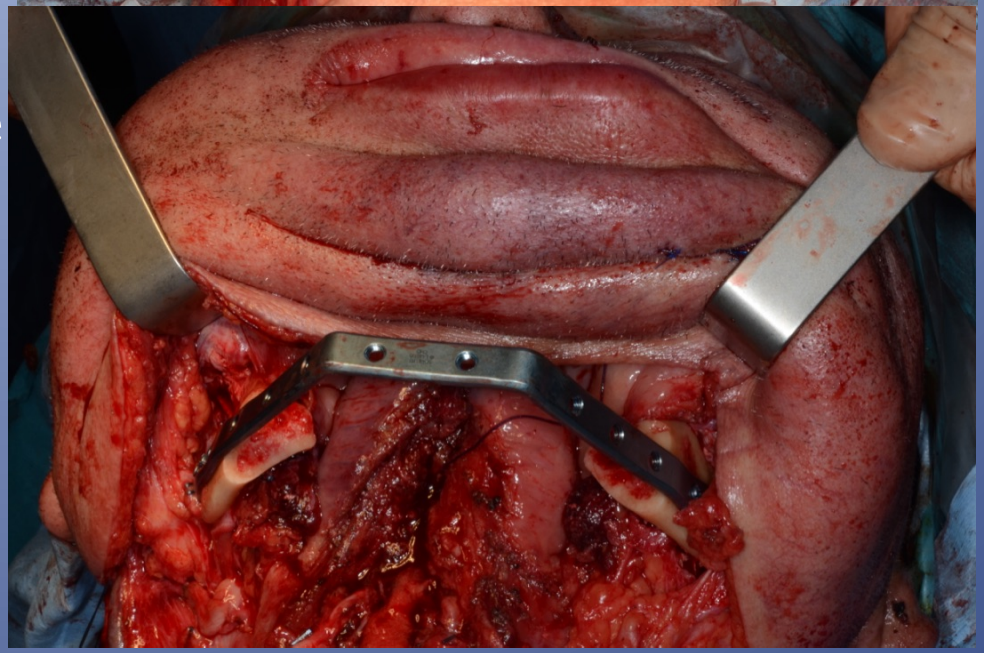
- Impossible if lingual cortex damaged
- Need for pre-op modelisation of the plate

3.3 Trans-cervico-mandibular

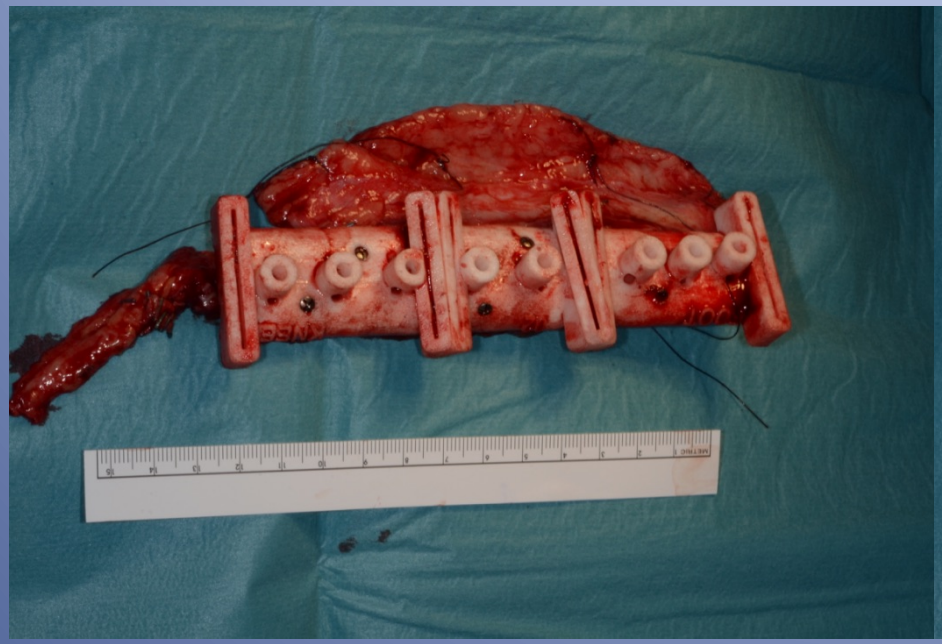
- Cutting guide
- Holes guide

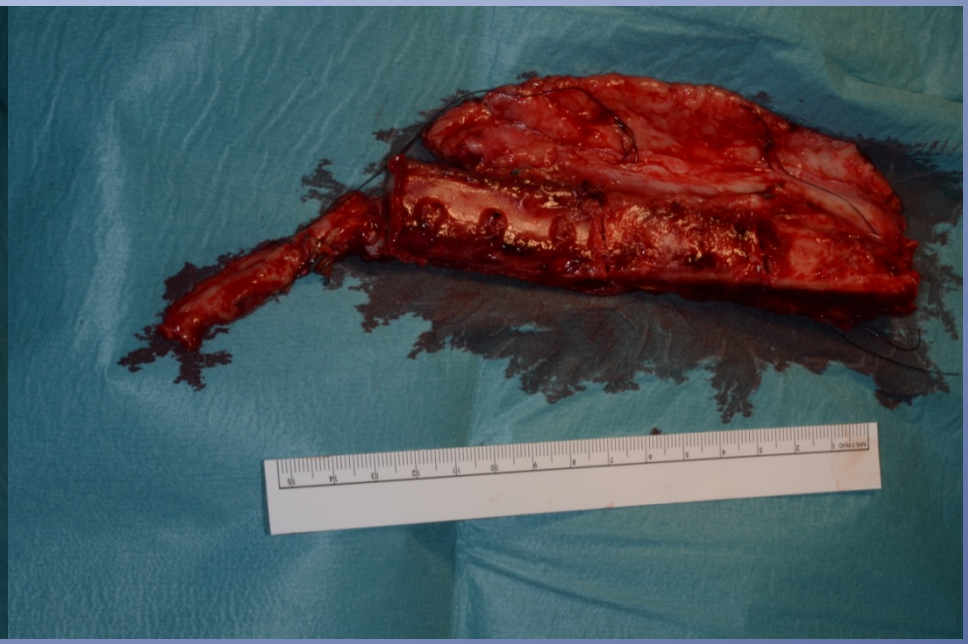


- Pre-bended plate

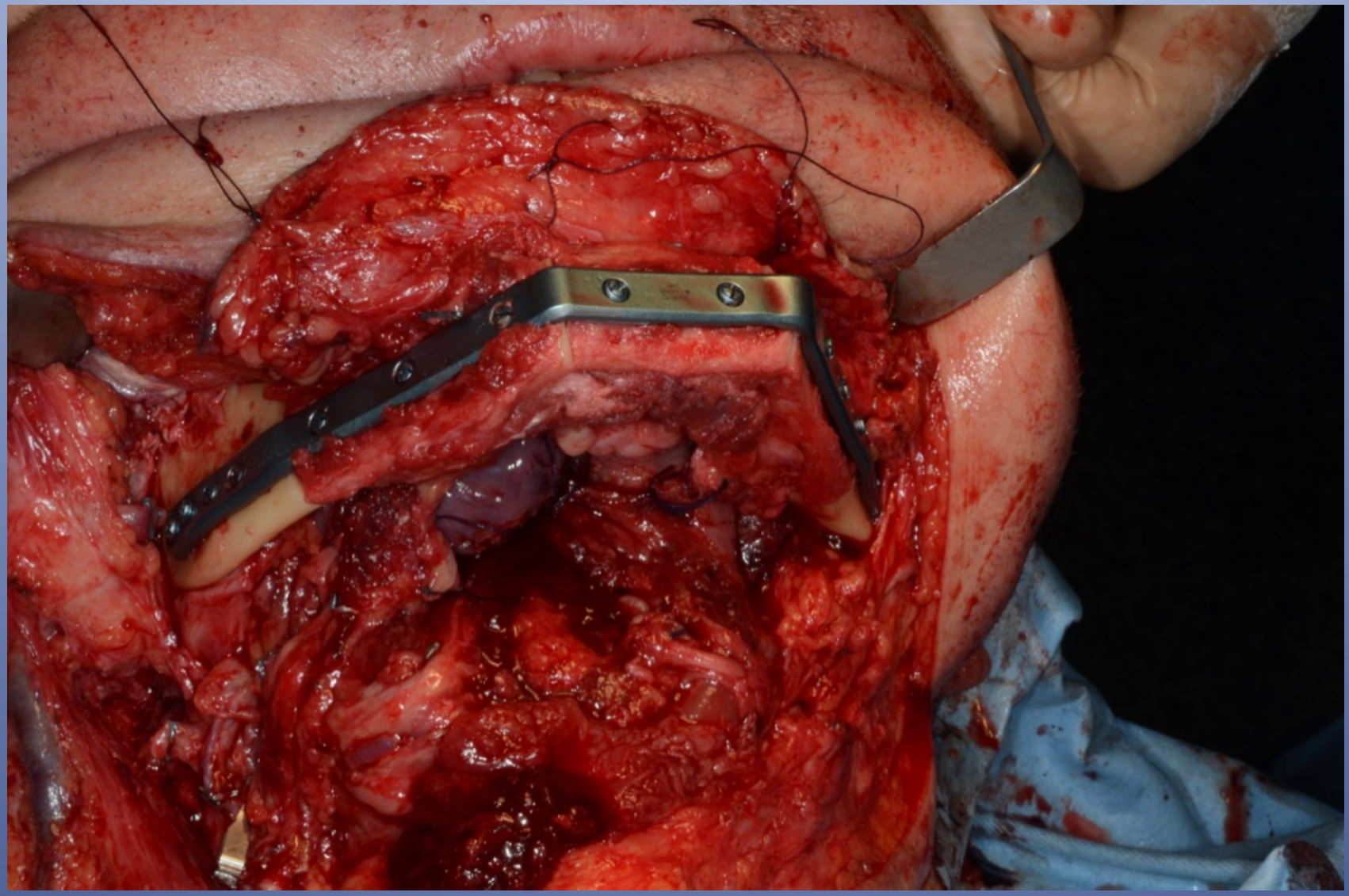


3.3 Trans-cervico-mandibular





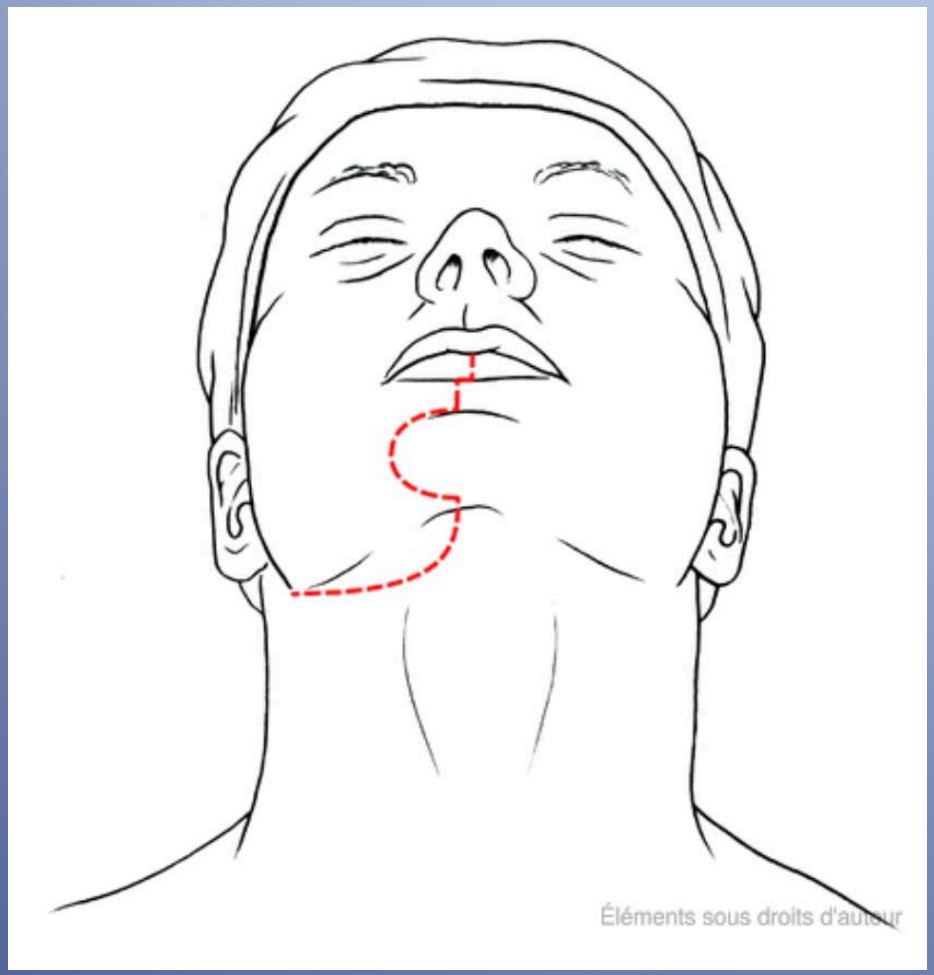
3.3 Trans-cervico-mandibular

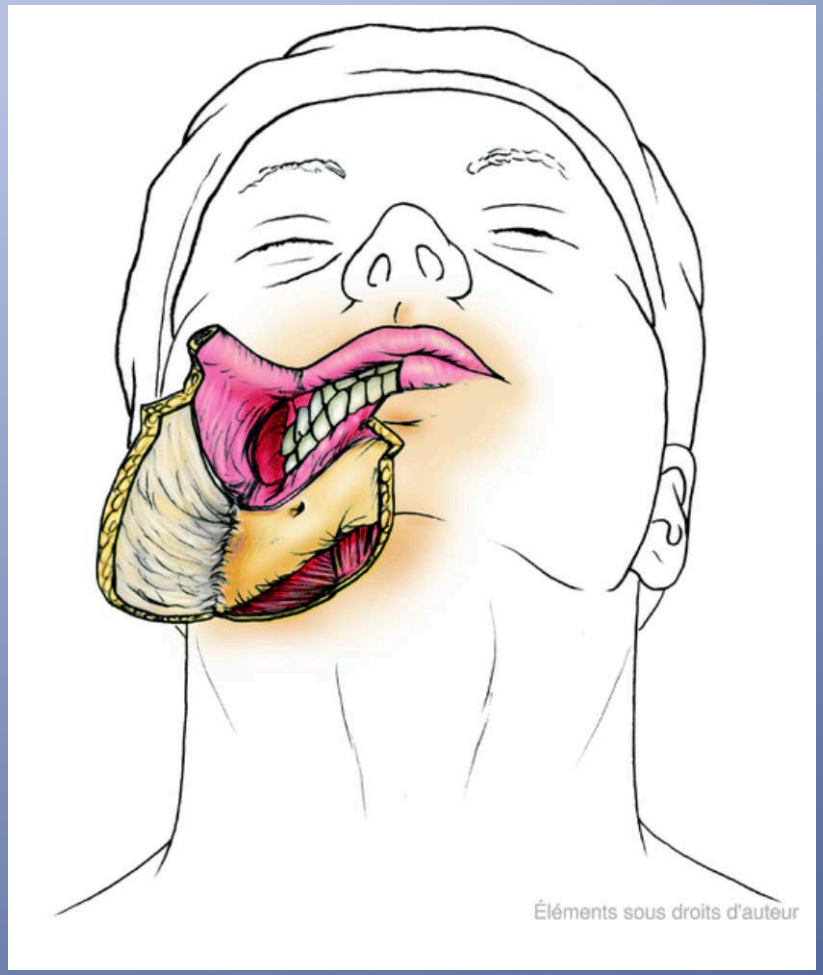


3.3 Trans-cervico-mandibulo-facial

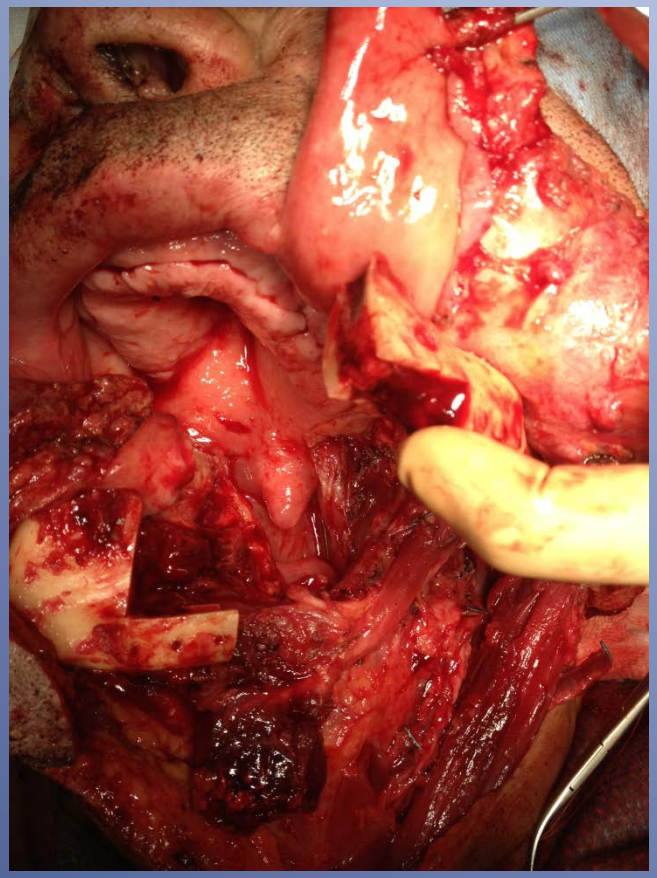
- For access (mandibular swing)
- Midline lip incision
- Buccal sulcus incision until 4-5th quadrant teeth
- Tooth extraction or between dental roots
- Adaptation of recon plate and bi-cortical screws
- Removal of the plate
- Step mandibulotomy medial to mental nerve

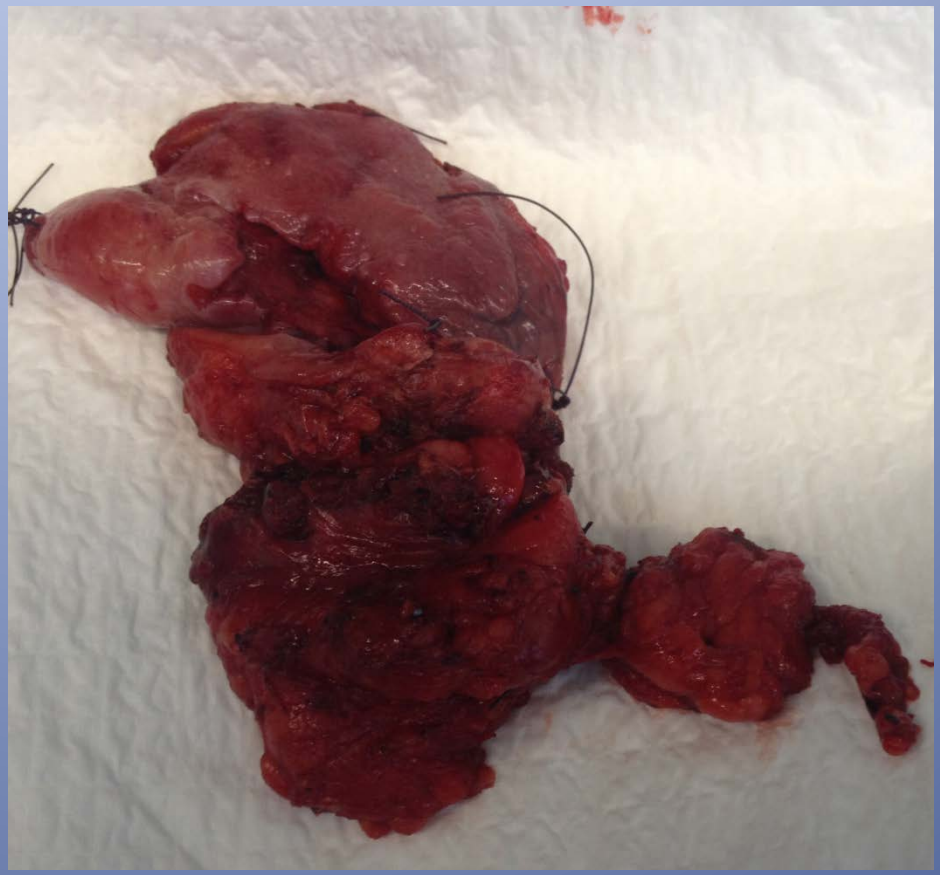
3.3 Trans-cervico-mandibulo-facial





3.3 Trans-cervico-mandibulo-facial

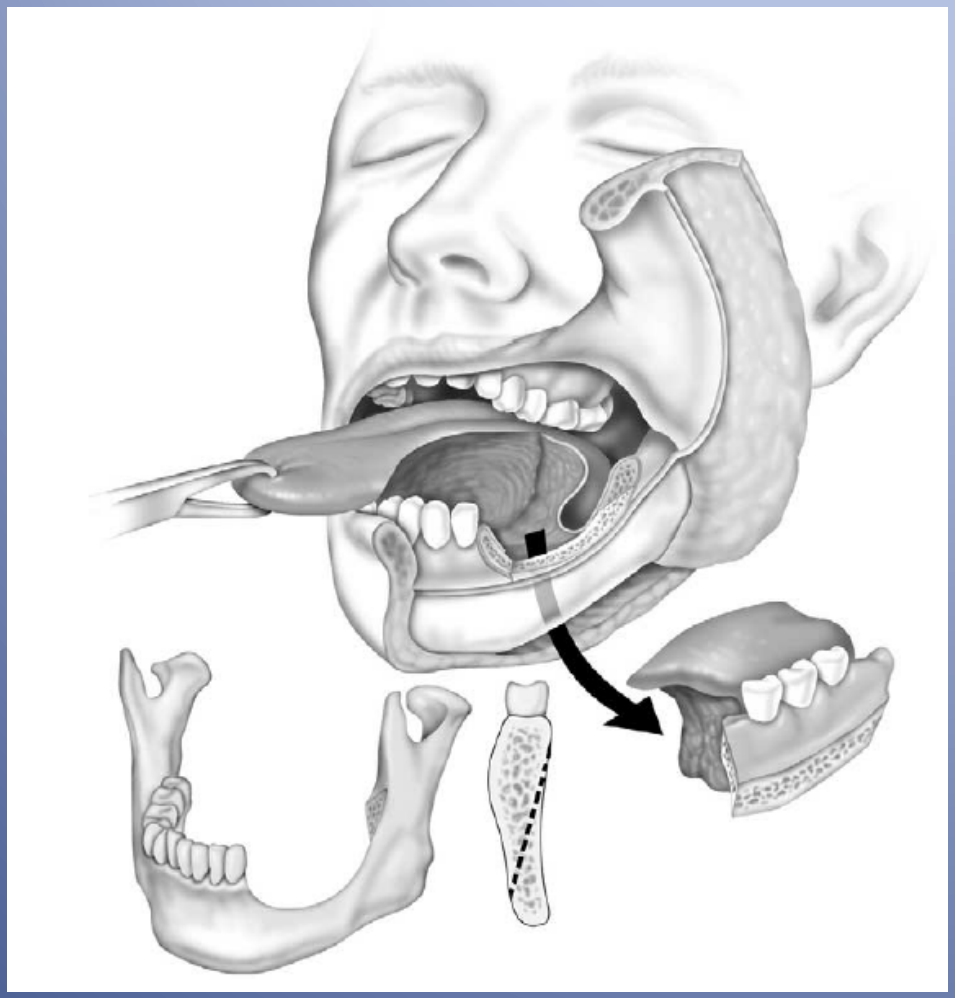


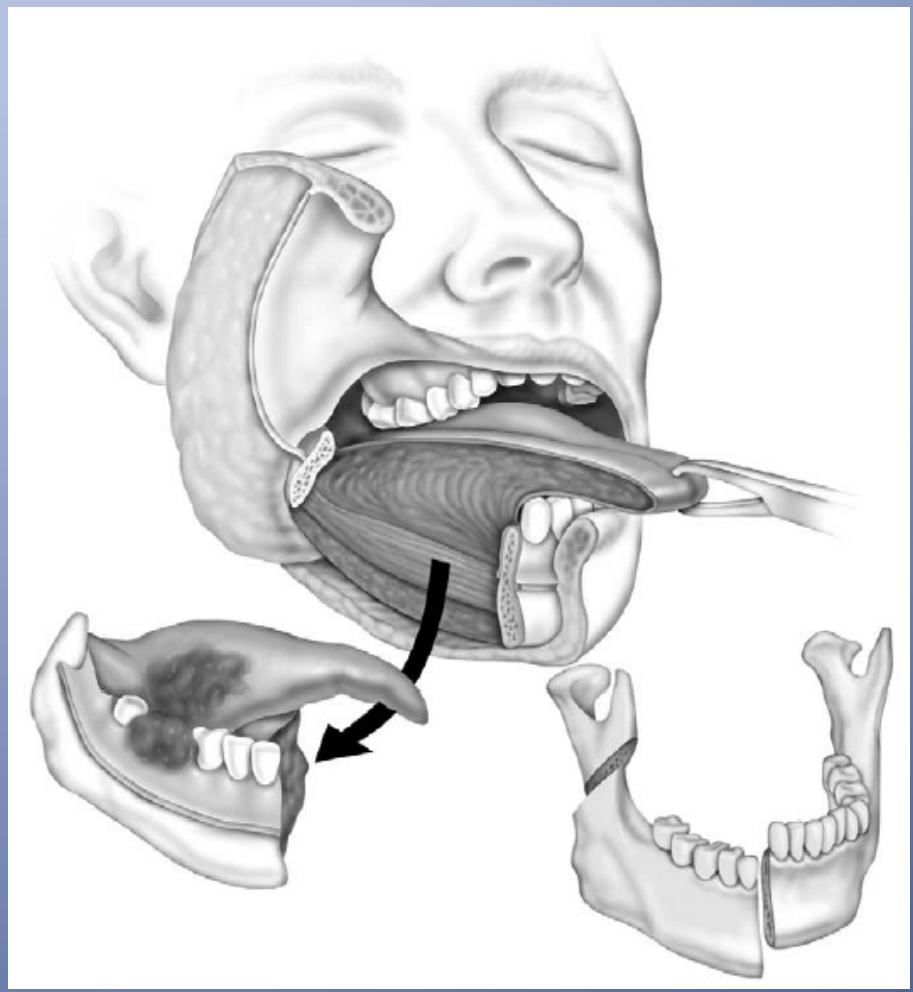


3.3 Trans-cervico-mandibulo-facial

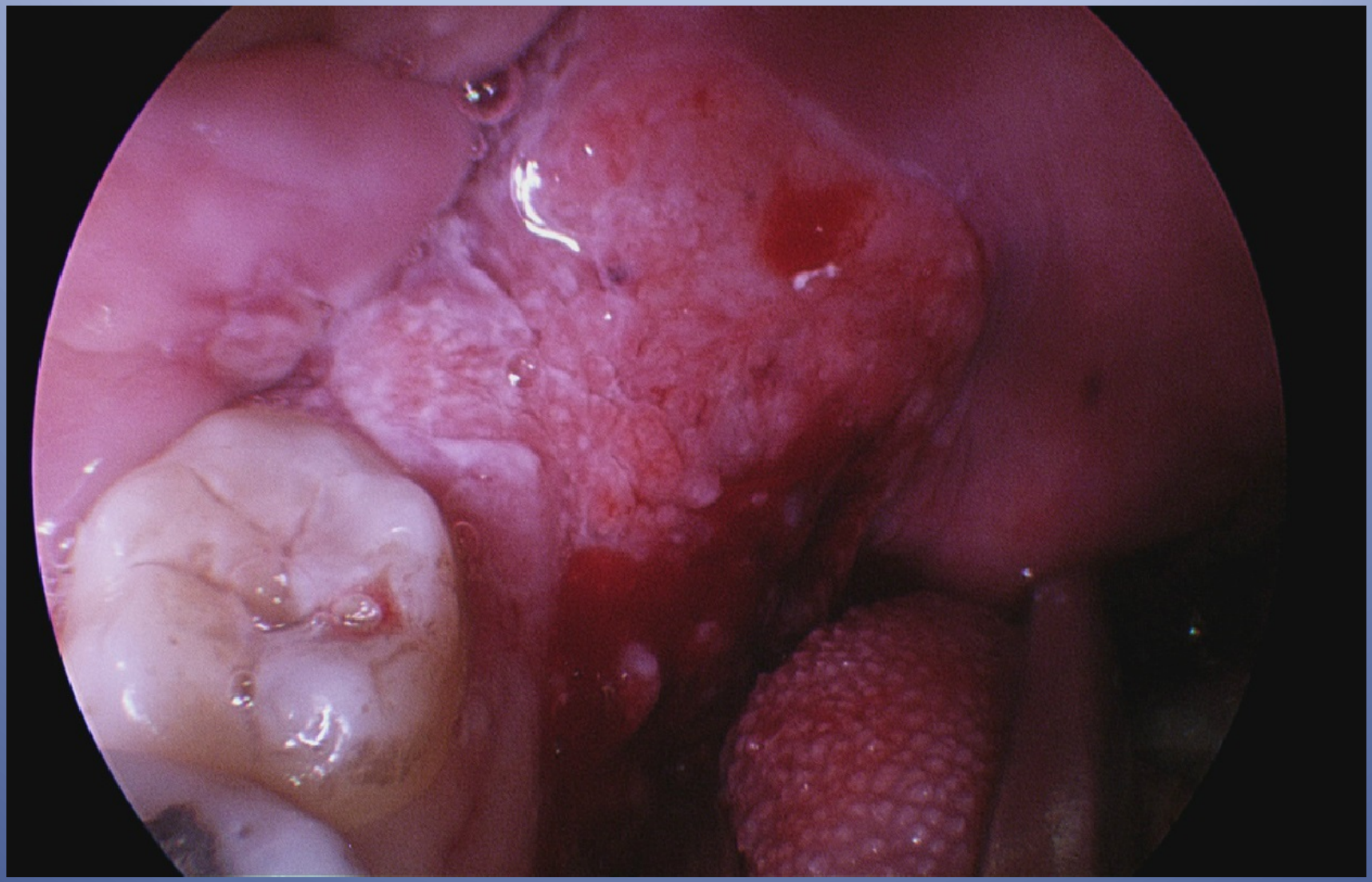
- Good access for posterior tongue
- If trismus present
- Complications: exposed plate, delayed healing
- Try to avoid

3.3 Trans-cervico-mandibulo-facial

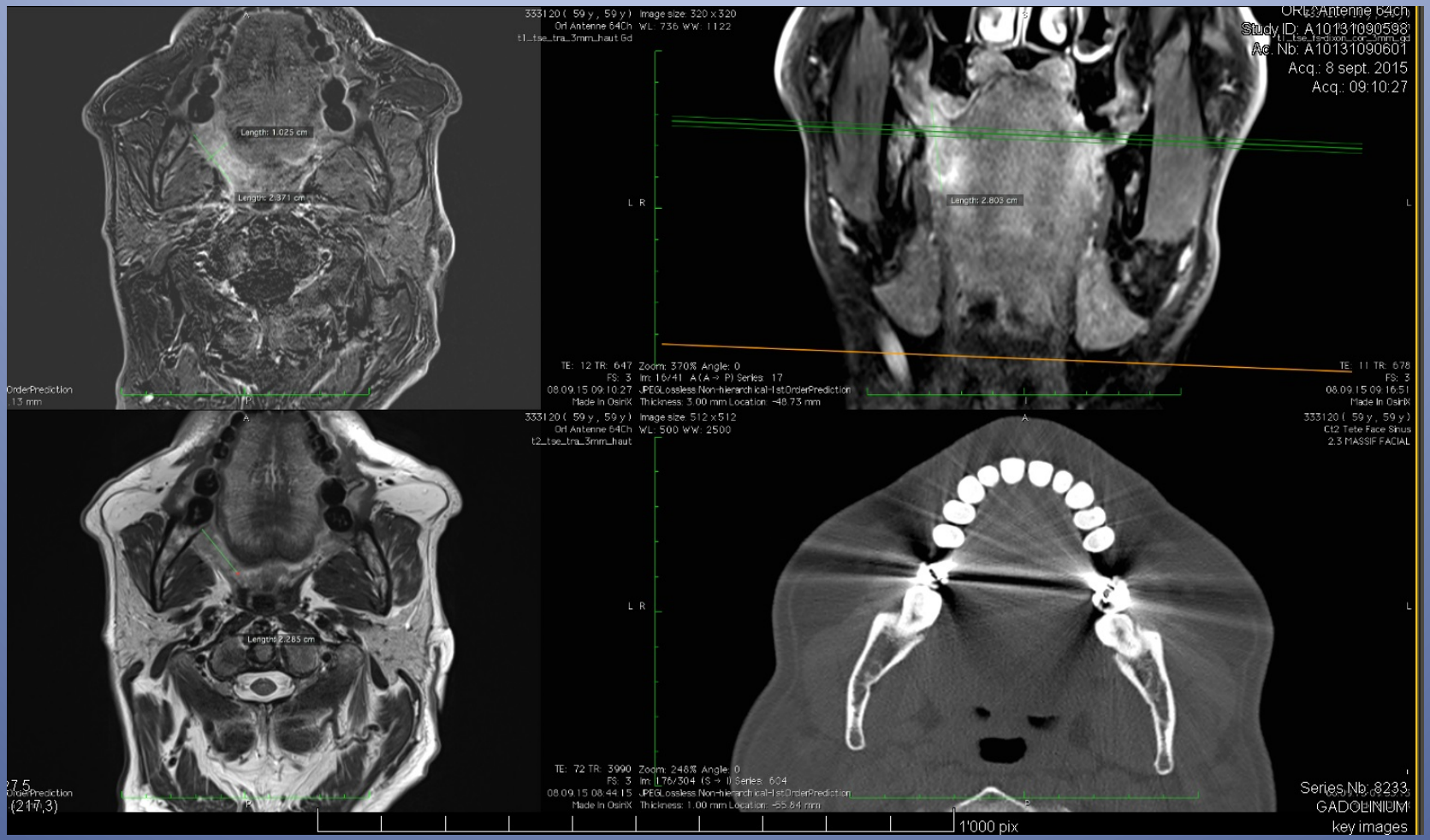




4 Case 1



4 Case 1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Length: 2.803 cm
Length: 2.285 cm
ORL:Antenne 64ch
Study ID: A10131090598
Ac. Nb: A10131090601
Acq.: 8 sept. 2015
Acq.: 09:10:27
Series Nb: 8233
GADOLINIUM
key images
1'000 pix

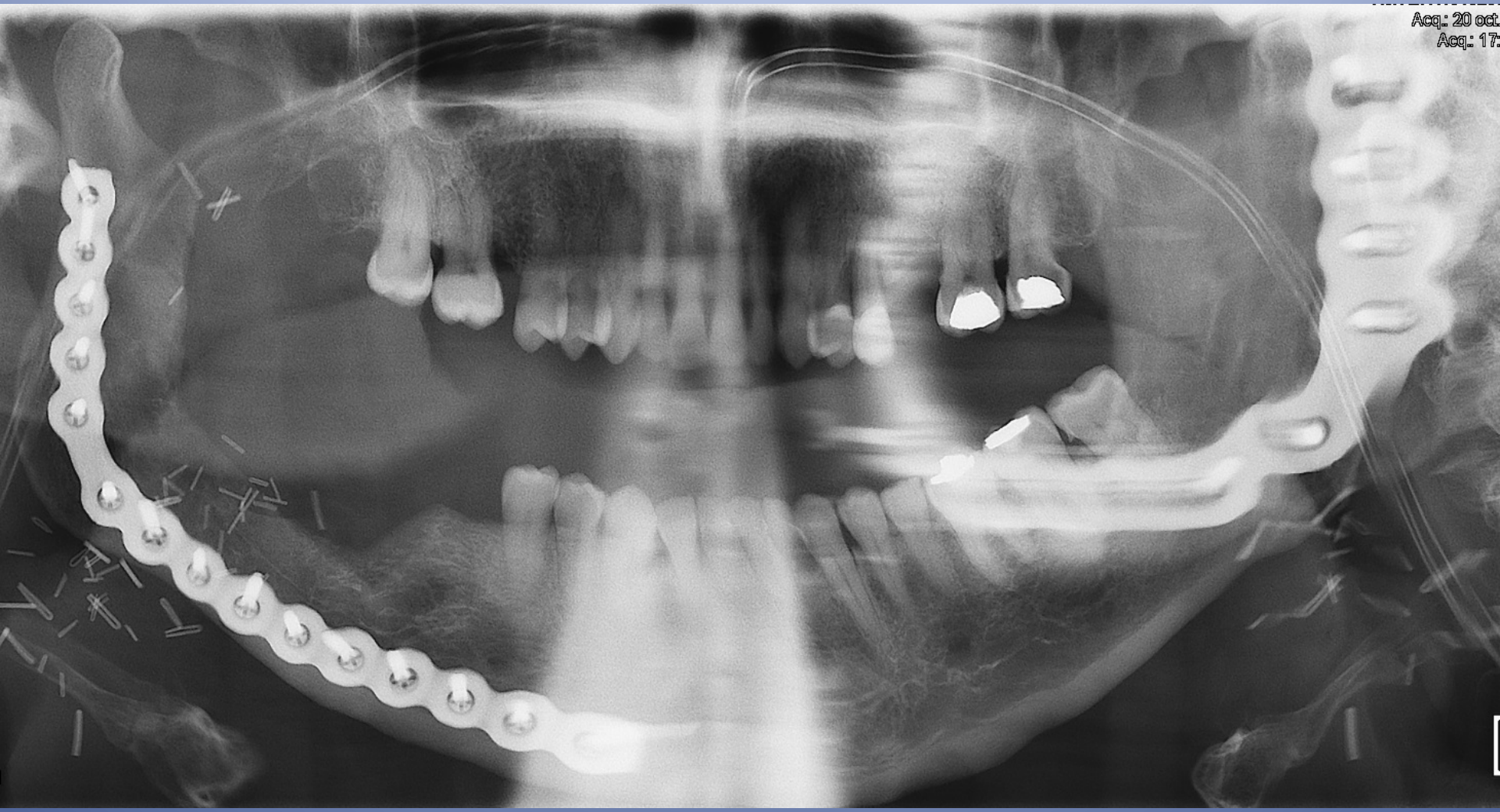
4 Case 1

- SCC G2 cT4acN0Mx

4 Case 1

- Neck dissection, tracheotomy, Freka
- Modified visor unilateral visor flap (V3 preserved)
- Intra-oral dissection combined with trans-cervical access for mandibular marginal resection
- Recon plate
- ALT flap

4 Case 1

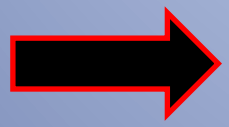


4 Case 1

Pièce principale (I) :

- Carcinome épidermoïde invasif, moyennement différencié, en partie kératinisant et ulcéré, mesurant 3,6 cm de grand axe, infiltrant le chorion sur une profondeur maximale de 0,7 cm.
- Infiltration tumorale de la musculature striée squelettique (cf commentaire) et du tissu salivaire.
- Développé en terrain de carcinome épidermoïde in situ :
  - le carcinome épidermoïde in situ est situé à >0,2 cm des différentes tranches de section muqueuses.
- Tranche de section (TS) : le carcinome invasif est situé :
  - à <0,1 cm de la TS antérieure ;
  - à 0,1 cm de la TS médiale ;
  - à 0,3 cm de la TS muqueuse gingivale latréale ;
  - à 0,4 cm de la TS profonde ;
  - à >0,5 cm de la TS postérieure ;
  - à >1 cm de la TS latérale.
- Tumeur invasive située au plus près à 0,1 cm de la mandibule et des dents, sans infiltration de ces derniers.
- Muscle du voile du palais et muscle ptérygoïde médial, sans tumeur.
- P16 négatif et MIB évalué à 30%.
- Absence d'invasion lymphovasculaire.

4 Case 1

 pT2pN0 (0/74) R1 (closed margins)

- Adjuvant ChRxT
- Alive 2 years after ttt