

OS-OM combined meeting

報告者: 高郁勳 陳靜怡

指導醫師: 黃逸岳醫師 陳玉昆醫師
王文岑醫師

報告日期: 95/12/21

General data

- Name : 林XX
- Sex : 男
- Age : 17 y/o
- Occupation: student
- Native : 高雄縣
- Attending V.S. :
黃逸岳醫師
- First visit :95/09/19

Chief Complaint

- Painless swelling over upper left gingiva for more than one week



Present Illness

- The 17 y/o male patient didn't have uncomfortable experience of oral cavity before. On 95/09/16, his aunt found that a mass occupied on his upper left gingiva. The mass didn't make him painful or uncomfortable. Then he was brought to XX内兒科診所 for help. After clinical examination, the doctor referred him to our OPD for further treatment.

Past History

■ Past Medical History

- Enuresis with medication at our Urological department for 5 years
- Depressive disorder with medication at our Psychological department for 2 years
- Denied any other systemic disease
- Denied any drug or food allergy

■ Past Dental History

- OD, Endo
- Experience to dental treatment: fair

Personal History

- Personal hobbies:

–Alcohol : (-) Betel quid : (-) Cigarette : (-)

- Occupation: student

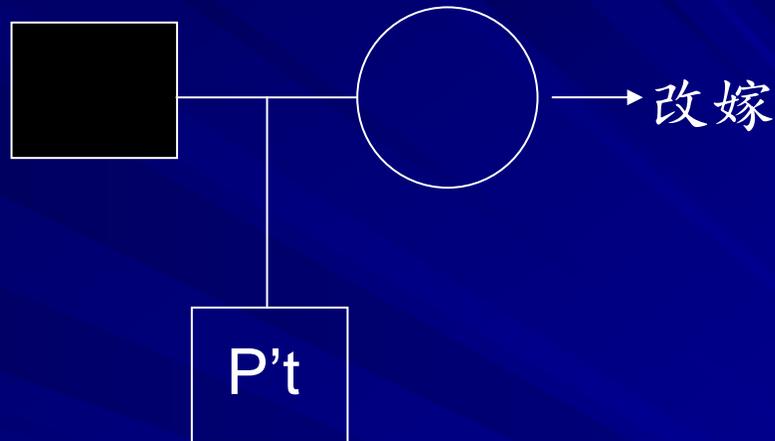
- Education: 高二

- Marital status: (-)

- Economic state: 尚可

- Psychic status: cooperative

Family history



■ Family support:

- 自89年起就住在兒童之家
- 姑姑平時也會照顧日常生活

■ Contributory to the problem: unknown

Review of Systems

- 嘴巴：牙齦流血(刷牙)
- 呼吸道：咳嗽, 痰
- 腸胃道：胃口不好(不愛吃肉)
- 泌尿道：夜尿
- No significant finding in other systemic review

Physical Examination

■ Conscious: Clear

■ Vital sign:

– Pulse: 73/min

Temp. : 36.4°C

Resp. Rate: 18/min

B.P. : 104/61 mm/Hg

■ General appearance:

– B.H. :171.5cm ; B.W. :49.5kg

■ Head and face: symmetric appearance

Physical Examination

■ Eye:

- Conjunctiva: not pale
- Sclera: not icteric
- EOM: normal

■ Ear: no hearing impairment

■ Nose: patent

■ Throat: no discharge

■ Neck: LAP(-) ; JVE(-) ; supple; free extension

Physical Examination

■ Chest:

- Symmetric expansion
- H.S. : no murmur, RHB
- B.S. : clear

■ Abdomen:

- Soft, no palpable mass
- Normal active bowel sound

■ Extremities: free extension, no pitting edema

■ Cranial nerve: N.P.

Physical Examination

■ Mouth:

- Teeth:

- Missing: 23

- Retained primary tooth: 63

- O.D.: 16, 24, 26, 46

- Vitality test:

- 21, 24, 25: positive response

- 22: negative

– Occlusion:

- Class I molar relation

- Overbite: 2 mm ; overjet: 2 mm

– MMO: 51 mm (from 11 to 41)

– No masticatory muscle tenderness

Physical Examination

- A swelling mass over left side of maxilla opposed to teeth 21~25:
 - Buccal gingiva, vestibule and palatal gingiva
 - Mucosa is intact, pink in color
 - No discharge from gingiva sulcus
 - Pain(-), Tenderness(-)
 - Firm in consistency
 - No percussion pain of teeth 21 to 25



Image finding – Skull PA and Lateral (95/10/05)

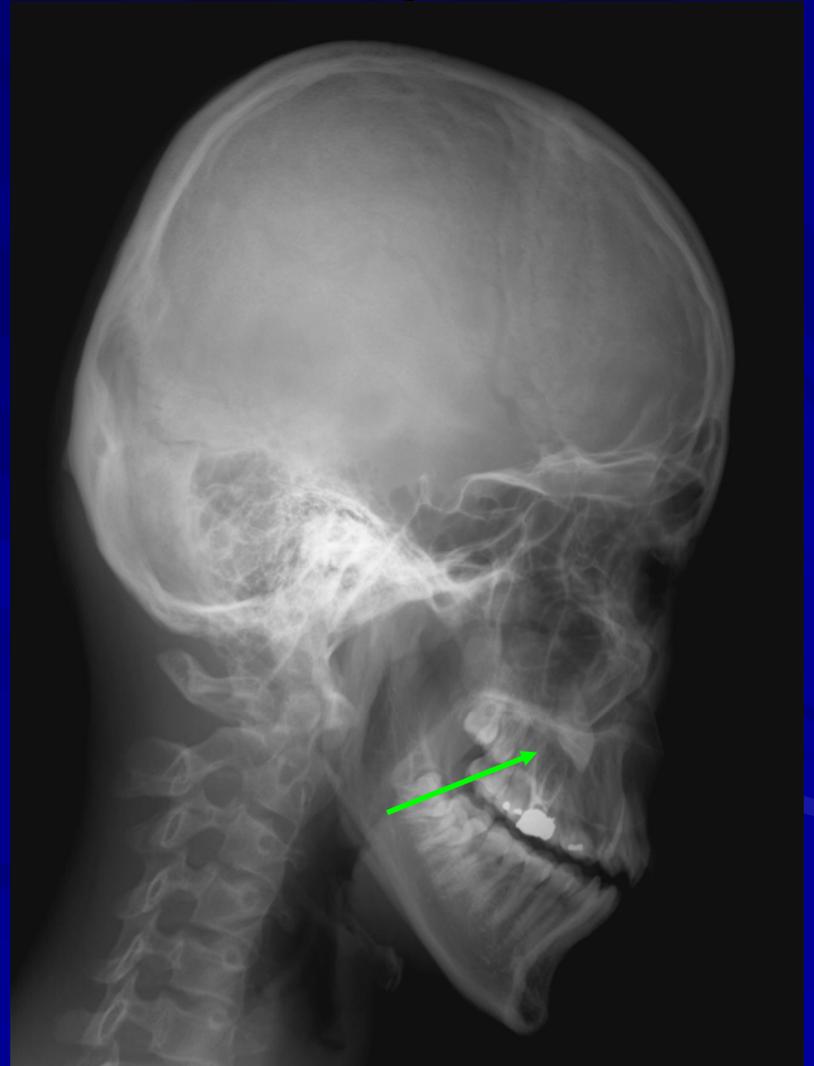


Image finding – Skull PA and Lateral (95/10/05)



Image finding – Water's view (95/10/05)

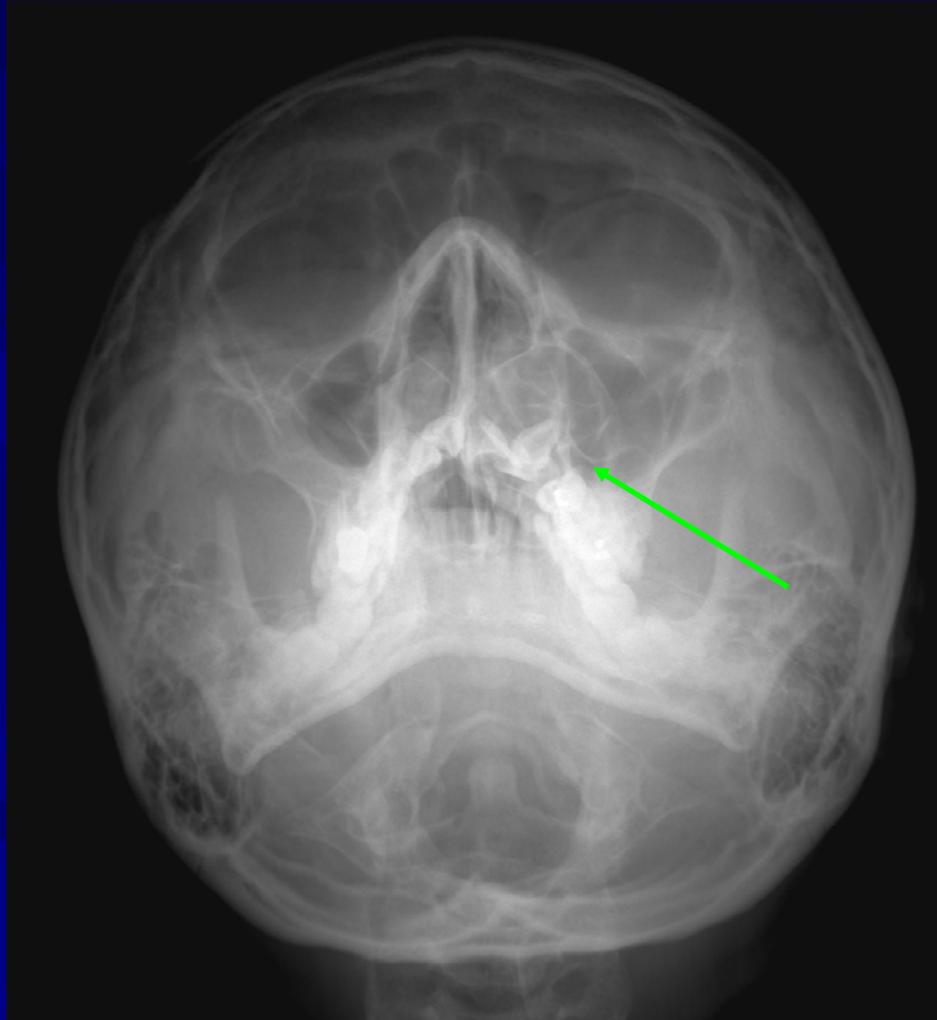


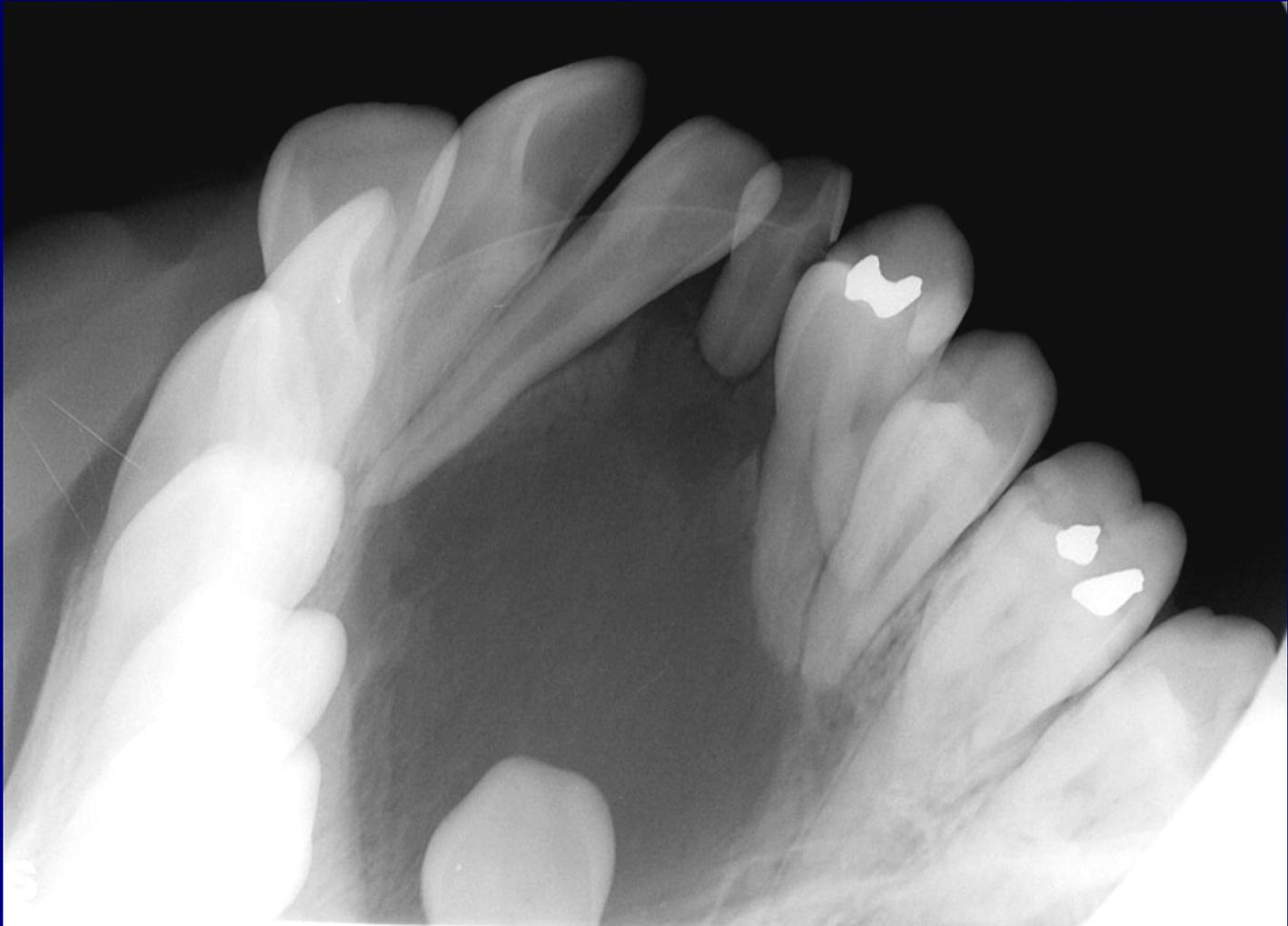
Image finding – Water's view (95/10/05)



Image finding – Panorex (95/09/19)



Image finding – Occlusal film (95/09/19)



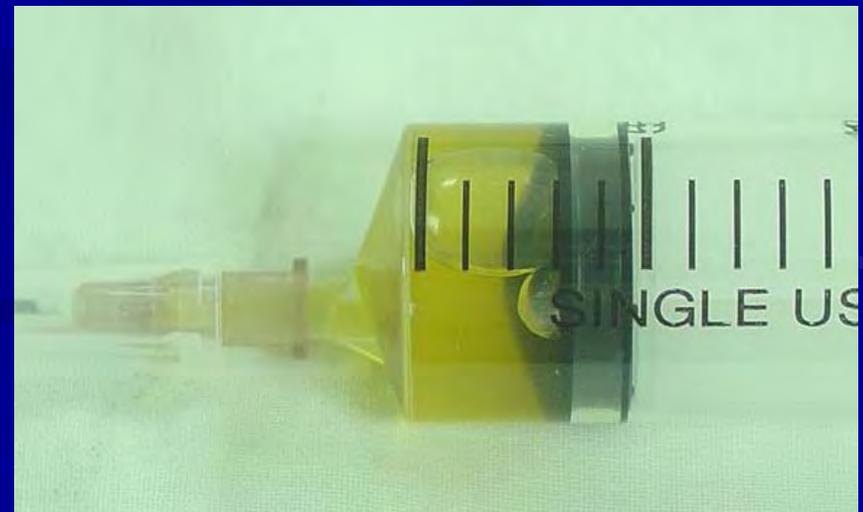
Impression

- Dentigerous cyst
- Adenomatoid odontogenic tumor
- Keratocyst
- Calcifying odontogenic tumor
- Unicystic ameloblastoma

Incisional biopsy



- Aspiration: yellowish in color



Incisional Biopsy

- **No: KMUOP-06-1864**
- **Date: 2006.09.19**

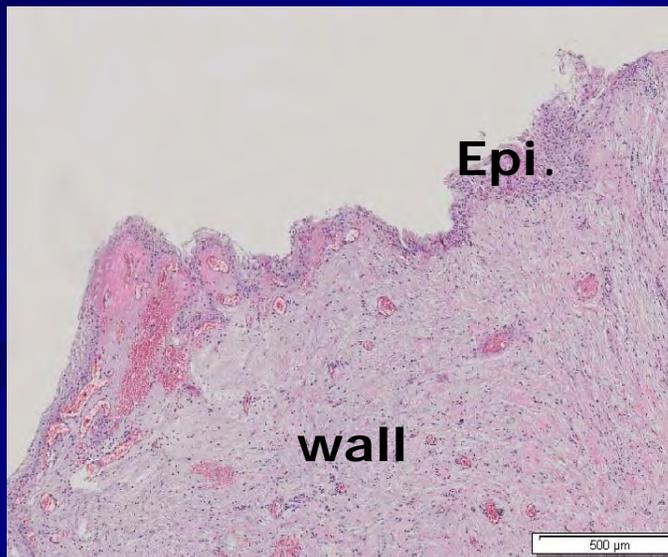
- **Specimen: 2 soft tissue fragments**
- **Size: 1.0 x 0.7 x 0.3 cm**
- **Color: Brownish**
- **Consistency: soft**

HP Report -- Incisional

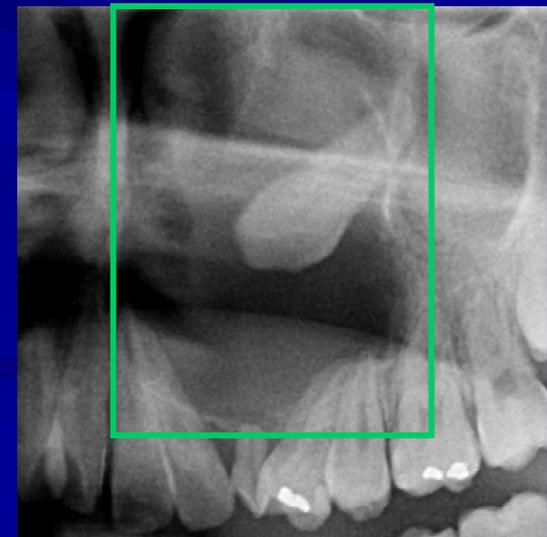
■ Dentigerous cyst

Bone, Maxilla, Impacted 23, Incision

Histopathology



Radiography



Diagnosis

- Dentigerous cyst over left side of maxilla and impaction of tooth 23
- Enuresis with medication control
- Depressive disorder with medication control

Oral and Maxillofacial Surgical Condition

- MMO: 51mm (from 11 to 41)
- Airway: patent, no discharge
- Neck: Free extension, supple
- No teeth loosening
 - Retained primary tooth 23
- Systemic problems:
 - Enuresis
 - Depressive disorder

Treatment Plan

■ Pre-operation:

- Arrange endodontic treatment of tooth 22

■ Operation plans:

1. Decompression:

- Self care of decompression device
- Frequency of OPD follow up

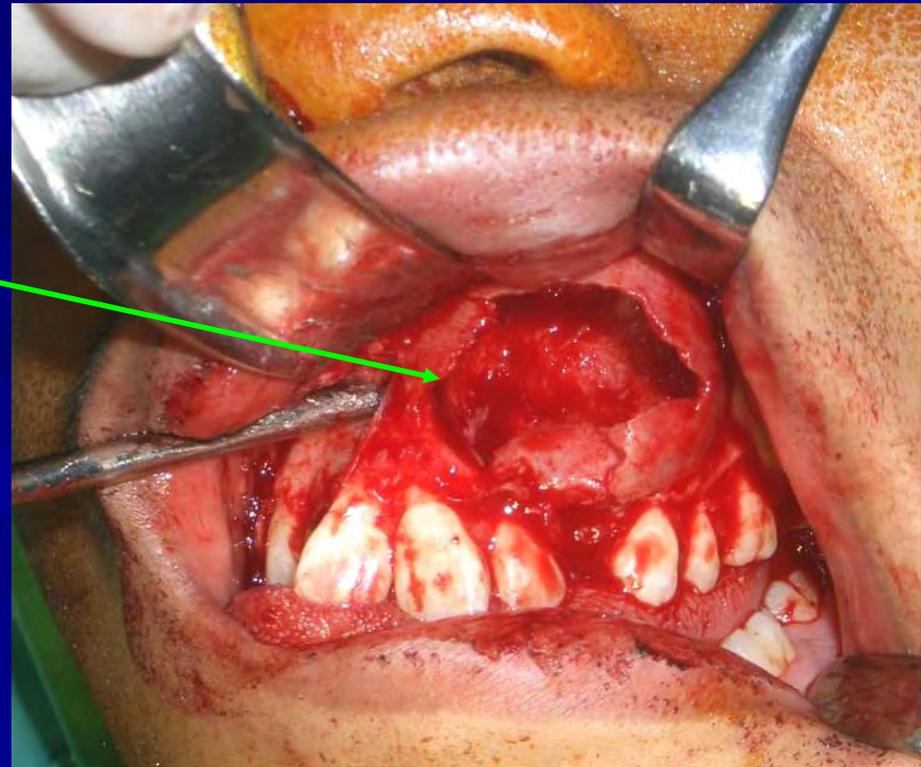
2. Enucleation + extraction of teeth 23 63 + bone graft

■ Post operation:

- Wound care
- Regular OPD follow up

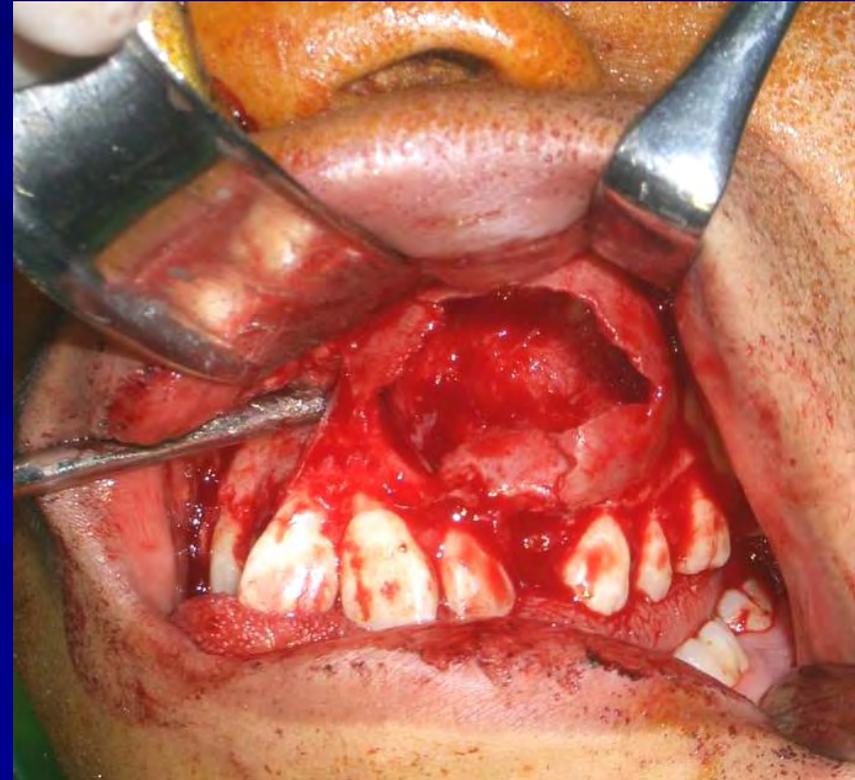
Treatment course

- Operation on 95/10/12:
 - Mucoperiosteal flap reflection
 - Bony perforation over 21 apical region (previous biopsy site)
 - Labial cortical bone was similar with eggshell in thickness
 - Increased the size of window (opposed to 22 and 63)



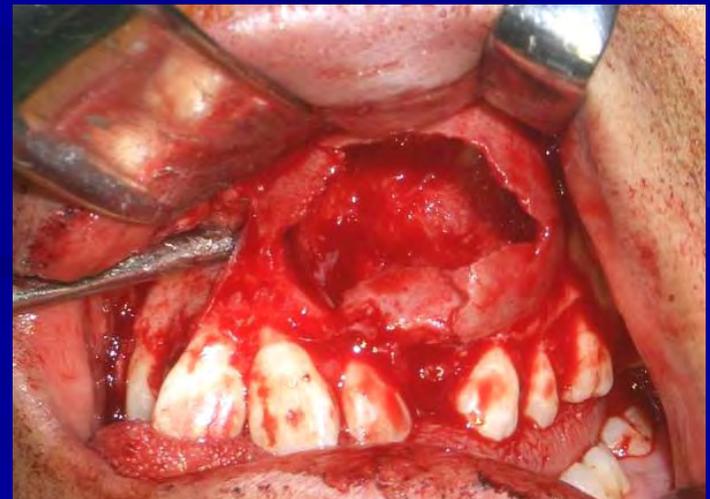
Treatment course

- Incision the roof of the lesion → sent for H-P exam
- Chemical cauterization via soft tissue window
 - 4% phenol (2 minutes/time, 3 times), then N/S irrigation
 - 95% alcohol (2 minutes/time, 2 times), then N/S irrigation
- Extraction of 63



Treatment course

- Enucleated the main lesion and impacted 23
 - No evidence of oro-nasal and oro-antral communication
 - Palatal mucosa was intact
- Placed Triosite (artificial bone graft, 2ml/bottle, 4 bottles) over the defect
- Suture the wound



Post-operation panorex (95/10/14)



Post-operation panorex (95/10/14)



Treatment course

- Post operation:
 - Wound condition:
 - No evidence of oozing
 - No evidence of discharge from nostril
 - Mild to moderate swelling of left face
 - Discharge from our ward on 10/17 (post-op 5th day)

Treatment course

■ OPD follow up:

- On 95/11/20 (post operation 6 weeks) :
 - Little discharge from 21 22 labial gingiva → suspect rejection of bone graft
 - N/S irrigation to wash the infected bone graft
- No progress of graft rejection during later F/U



Excisional Biopsy

■ No.: KMUOP-06-2044

■ Date: 2006.10.12

■ Specimen

1. 1 Main lesion with tooth 23
2. 1 Soft tissue fragment
-- labeled as “tissue before phenol treated”

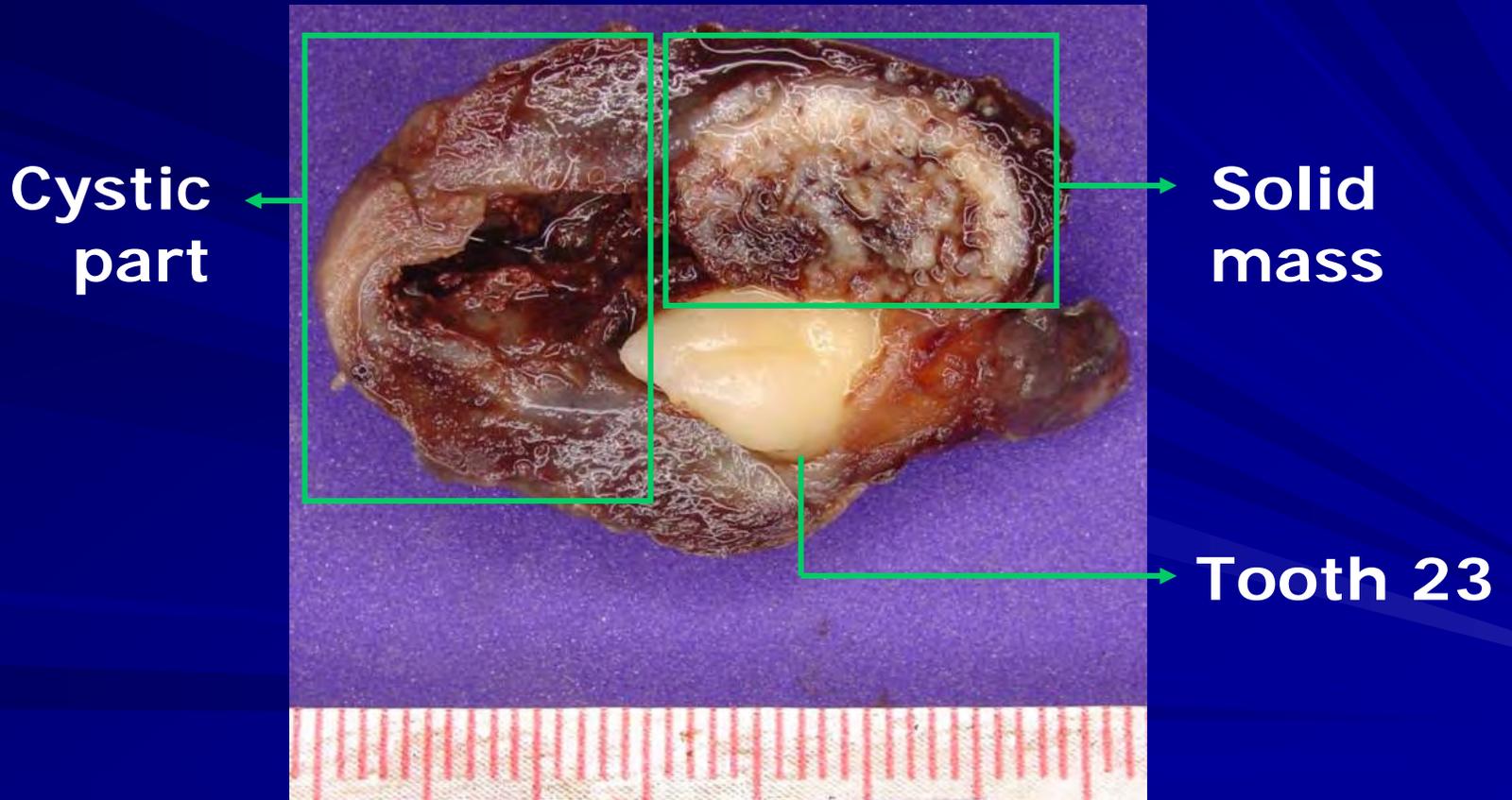
Gross – Main Lesion

- **Size** (Excluding tooth):
 - 3.4x2.4x1.7 cm
- **Color**
 - Brownish
- **Consistency**
 - Rubbery

Crown of tooth 23
-- surrounded by the lesion



Gross – Hemisection⁽¹⁾



Gross – Hemisection⁽²⁾

■ Cystic part

1.Dimension

– 2.0x1.8 cm

2.Color – Brownish

3.Consistency – Rubbery

4.Content – a little brownish fluid

■ Solid part

1.Dimension

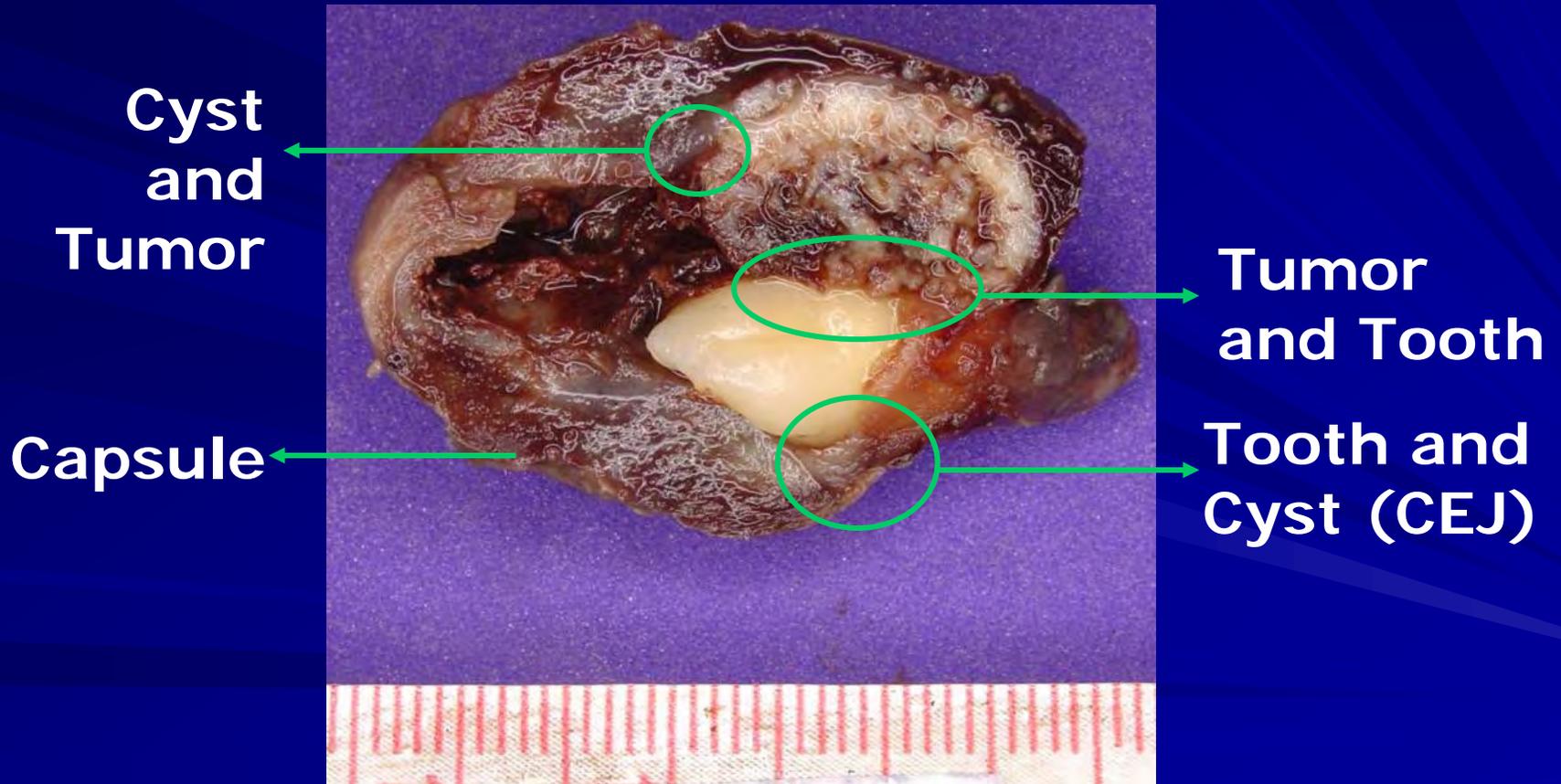
– 1.5x1.0 cm

2.Color – White

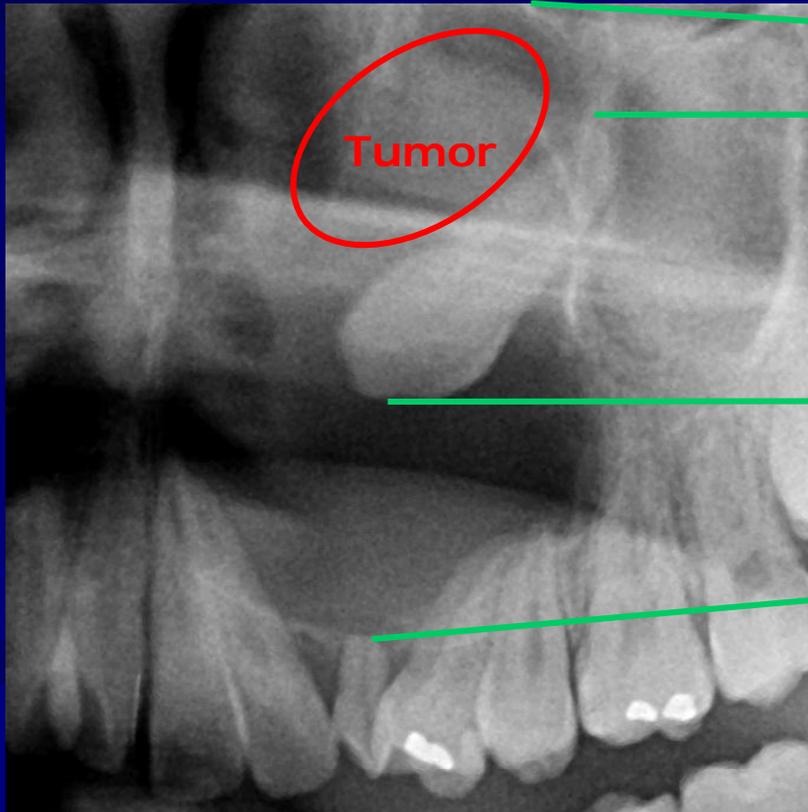
3.Consistency – Firm



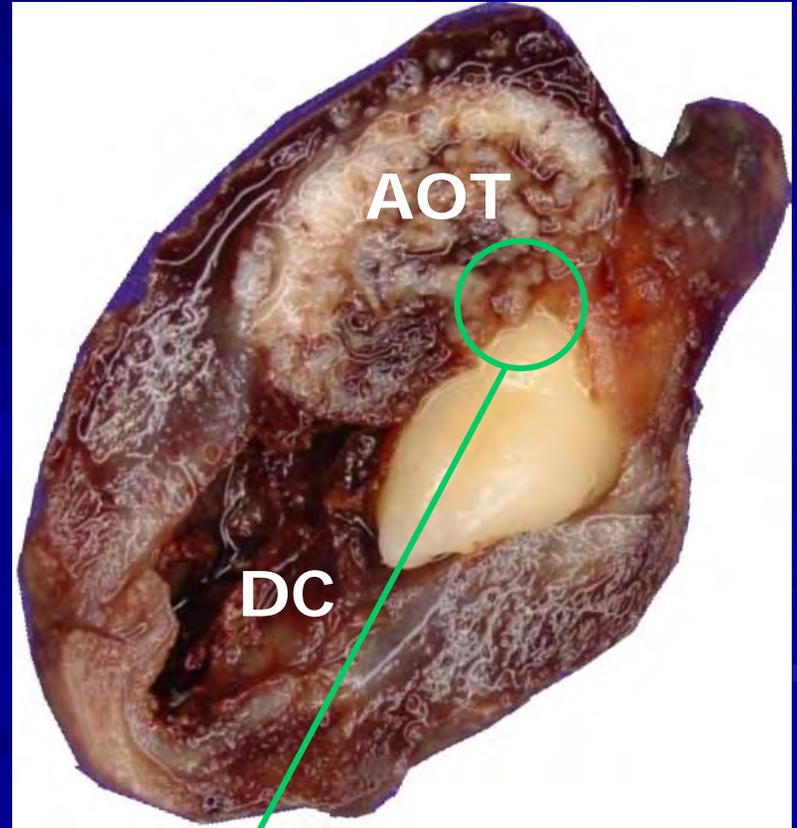
Gross – 交界點



Radiograph -- Gross

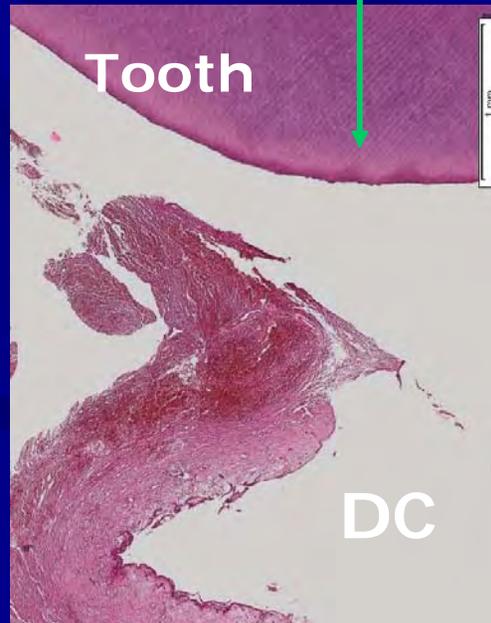
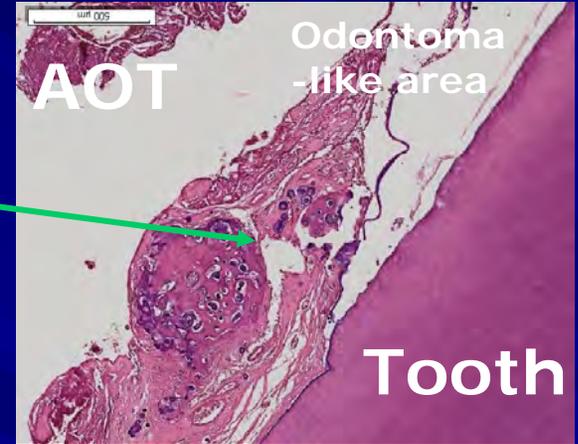
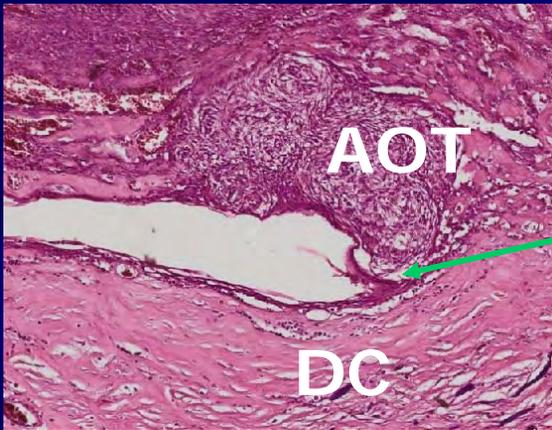


Slide -- Gross



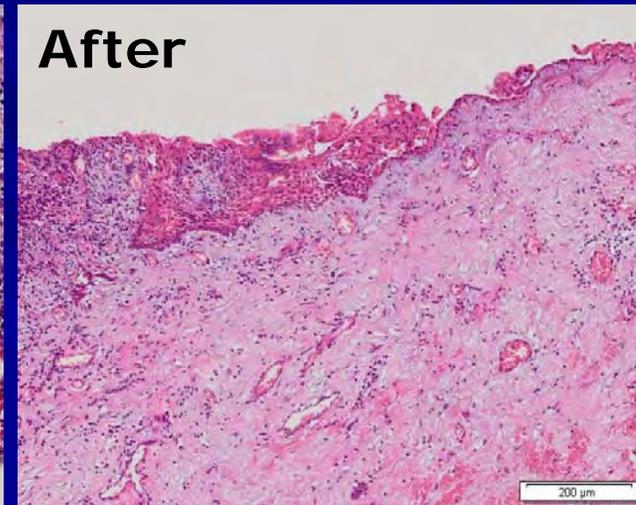
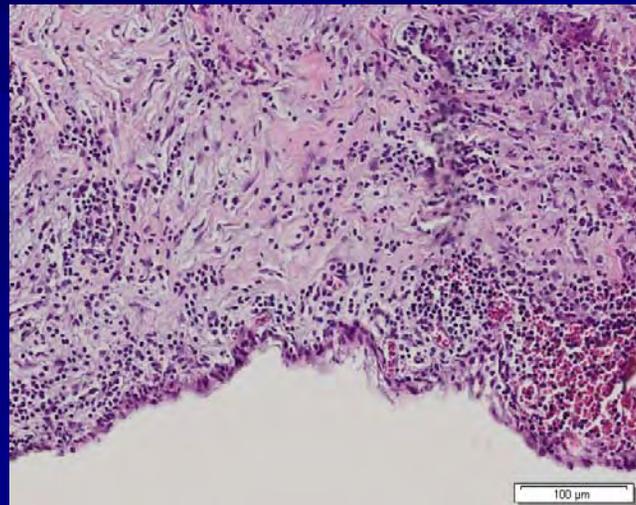
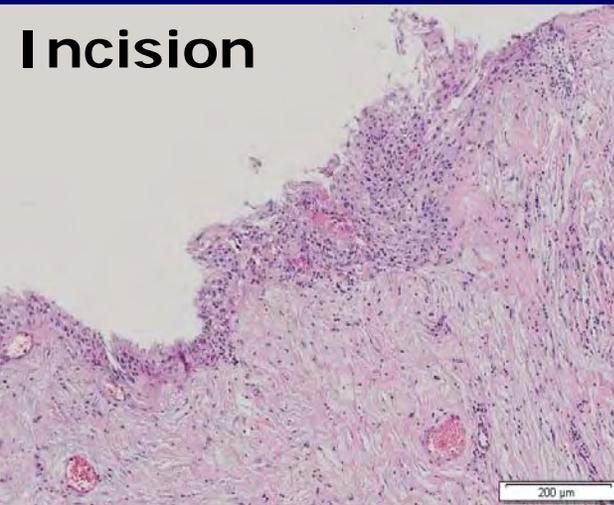
Odontoma - like area

Microscope – 交界點



Possible Effect of Phenol

- No significant difference in microscopic morphology



Final Diagnosis

- Adenomatoid odontogenic tumor arising from dentigerous cyst

(AOT ex DC)

Bone, Maxilla, Impacted 23,
Enucleation



Discussion

- Treatment methods of dentigerous cyst:
 - Enucleation and removal of associated tooth
 - Curettage
 - Marsupialization // Decompression
 - Possibility of eruption of associated tooth
- Rare recurrence



Discussion

- Management of surgical defect :
 - Bone graft
 - Packing with iodoform gauze
 - Hemostasis
 - Decrease dead space

Discussion

- **Cauterization agent:**
 - Local fixation of tissue
 - Ensures hemostasis
 - Carnoy's solution:
 - First suggested by Cutler and Zollinger in 1933
 - Made up of:
 - Chloroform 3 ml
 - Absolute alcohol 6 ml
 - Glacial acetic acid 1 ml
 - Ferric chloride 1 gm

Discussion

■ Conventional method of using cauterization agent:

- Usually treat the bony defect of cystic lesion ***after*** enucleation // excision
- Penetrate the cancellous bone to a depth of 1.5mm
 - 1.54mm after 5 minutes
 - 1.81mm after 1 hour
- May impede bone healing and damage the vital structure (neurovascular bundle, sinus membrane)
- *Before enucleation, tends to damage the epithelial lining → affect to H-P diagnosis*

Discussion

■ The present case:

- Cauterization agent: 4% phenol

- Before enucleation:

- Destroy lining epithelium of cystic lesion

- Decrease possibility of recurrence

- Fibrous change of cyst wall → become dense in consistence

- Easily excise the cystic lesion from the adjacent soft tissue (sinus membrane, site of cystic perforation, neurovascular bundle)

- No harm to the bony surface and neurovascular bundle (mandible)

Clinical Features

	DC	AOT	This case
Incidence	20% (jaw cyst)	3~7% (odontogenic tumor)	X
Age	10-30 (wide range)	10-19 (69%)	17
Gender	Male (slight)	Female (F:M=2:1)	Male
Site	Md 8, Mx 3	Mx ant. (3)	Tooth 23
Symptom	Asymptomatic	Asymptomatic	Asymptomatic
X-ray	Unilocular R/L Surrounding Unerupted tooth	Unilocular R/L Unerupted tooth, 75% Calcification, 33%~66%	Unilocular R/L Impacted 23

DC: dentigerous cyst; AOT: adenomatoid odontogenic tumor; R/L: radiolucency

Dentigerous Cyst

■ Pathogenesis

-- uncertain, fluid accumulation
between **REE** and tooth crown

■ Transformation of odontogenic epithelial lining

-- genesis: unknown

-- incidence: rare

Lesions Arising From Dentigerous cyst

- **Non-aggressive benign tumor**

- AOT

- **Aggressive benign tumor**

- Mural ameloblastoma

- **Malignant tumor**

- Squamous cell carcinoma

- Mucoepidermoid carcinoma** (from mucus cells in the lining of DC)

AOT Ex DC in Literatures

- Total 6 cases

Vallejo et al, 1998: 12 y/o male; Warter et al, 1990: 8 y/o male
Tajima et al, 1992; 1988, J Philipp Dent Assoc.

	Bravo et al, 2005	Takahashi et al, 2001	This case
Age	14	22	17
Gender	M	M	M
Site	Mx, 23	Mx, 28	Mx, 23
Symptom	Swelling with sharp pain	Painless swelling, nasal obstruction	Painless swelling
X-ray	Unilocular R/L, 23 crown surrounded	Unilocular R/L , 28 surrounded	Unilocular R/L, 23 crown surrounded
Other	Expanding to sinus	Expanding to sinus	/

Other Lesions Associated with AOT

	COC: 2 cases	CEOT: 24 cases
Case	Zeitoun et al, 1996	Miyake et al, 1996
Age	35	16
Gender	M	F
Site	Md ant.	Mx, 21
Duration	2 months	/
Symptom	Painless swelling with sharp pain	Painless swelling, nasal obstruction
X-ray	Unilocular R/L with B/L bony expansion and areas of calcification	Unilocular R/L , 28 surrounded

Pathogenesis of AOT

■ Origin

1. Remnants of Dental lamina or epithelial rests
2. Enamel organ epithelium(REE)

■ Nature

1. An odontogenic tumor (Neville, text book)
2. A benign, non-invasive hamartoma, not a true neoplasm (Philisen et al, 1998)

WHO Classification

- **A mixed odontogenic neoplasm**
 - an epithelial tumor with an inductive effect on the odontogenic ectomesenchyme
- **AOT infrequently produce dentinoid material and rarely enamel matrix**

Classification of AOT

■ Central – 96%

1. Follicular

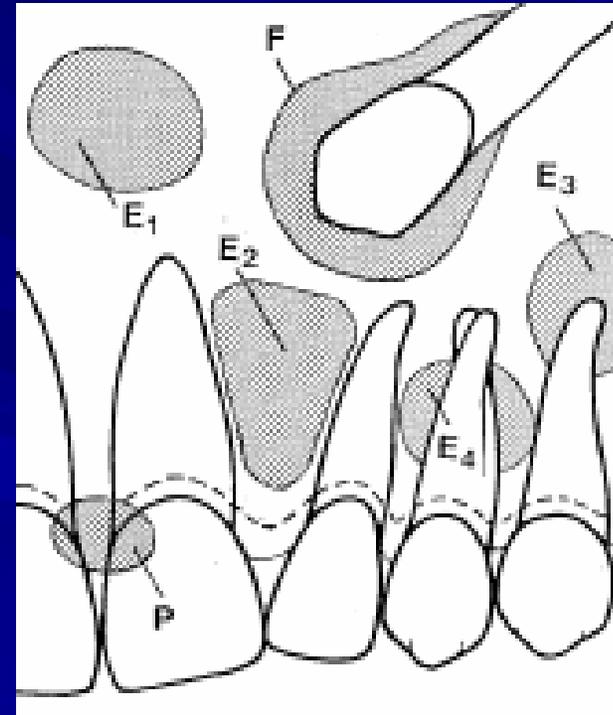
(F) 73%

-- This case

2. Extrafollicular (E)

■ Peripheral (P) – 4%

Gingiva

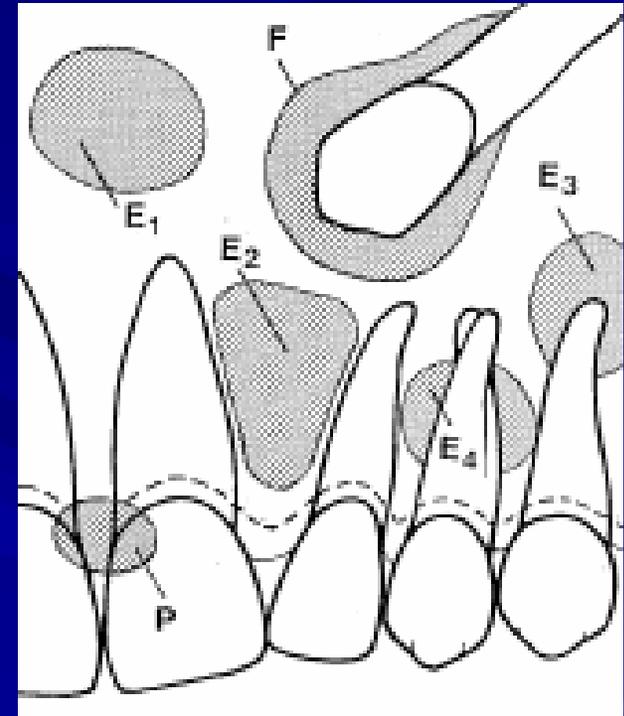


Predilections of AOT

- Age – second decade, 69%
- Gender – female, 1.9:1
 1. Race – Asian, 3:1
 2. Type – Peripheral, 14:1
- Site – Mx ant., 2.1:1 (Mx:Md)
- Unerupted tooth -- Canine

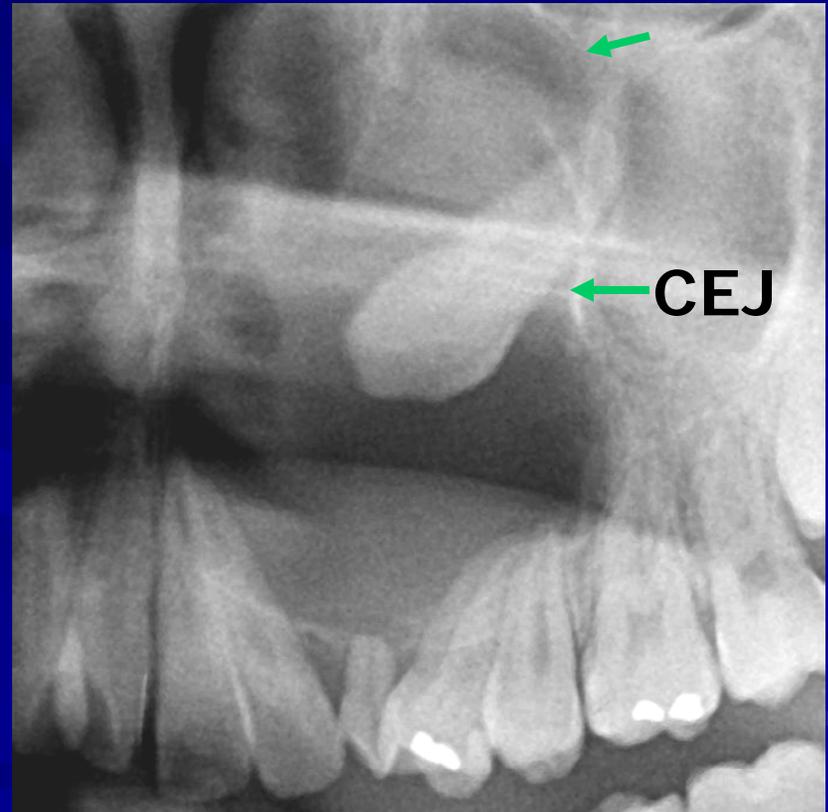
Differential Diagnosis of AOT

- Follicular type
 - dentigerous cyst
- Extrafollicular type
 - radicular cyst, lateral periodontal cyst, etc.
- Peripheral type
 - gingival fibrous lesions, ex:
fibroma, epulis.



Differences In Radiograph

- **“Snowflake” appearance**
-- foci of calcification, 33%~66%
- **May extend apically past the CEJ in follicular type**



Histological Features

- **Duct-like structure**
 - odontogenic origin
- **“Tumor droplets” in the central of the rosette or swirled structure**
 - eosinophilic amorphous hyaline material,
 1. Amyloid-like
 2. Enamel matrix or dentinoid material
- **Calcification**

Immunohistochemical Stains

■ Enamel proteins

-- amelogenin, enamelin

■ Cytokeratin

1. CK 14 -- dental epithelium (+)

2. CK 8, 10, 18 – dental epithelium (-)

3. CK19 – preameloblast (+),
secreting ameloblast(+)

Results In Literatures

- **Murata et al, 2000**

- 1. Positive of tall columnar cells of duct-like structures and tumor droplets → ameloblast origin**
- 2. Negative of calcifications → dystrophic degeneration**

- **Leon et al, 2005**

- CK14 (+), CK19 (+), CK8, 10, 18 (-),
→ probable origin: REE**

Conclusion

- **AOT ex DC**
 - probably the same origin: REE
 - AOT : epithelial odontogenic tumor
- **Should view as tumor**
 - treatment – enucleation
 - prognosis – good
 - recurrence – rare (0.2%)
- **Phenol – no effect on histopathological examination**