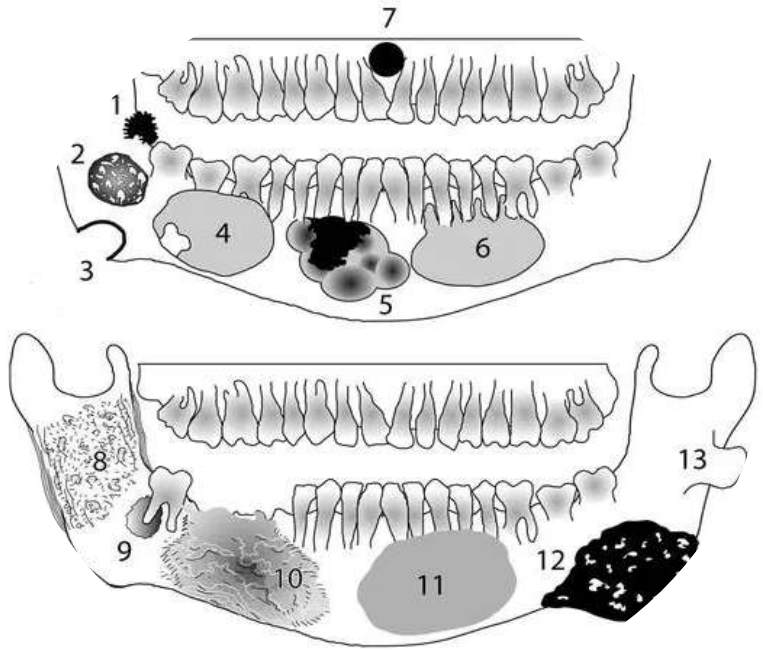
BENIGN ODONTOGENIC TUMURS

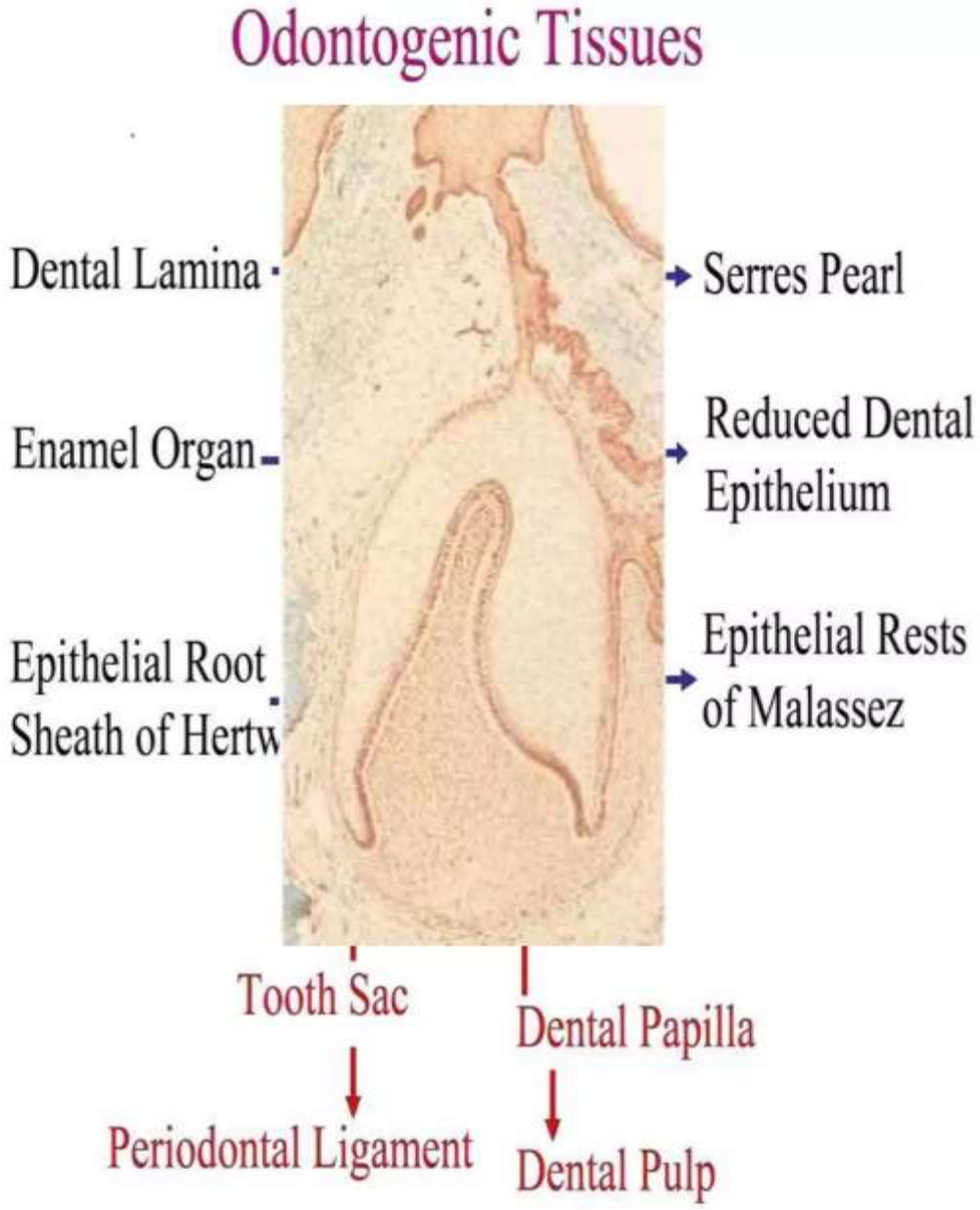


- **ODONTOGENIC TUMUR** : Are tumours arising from odotogenic tissues

- **ODONTOGENIC TISSUES ARE** :

  I) Ectodermal

  2) mesenchymal



CLASSIFICATION OF ODONTOGENIC TUMORS

I. Tumors of odontogenic epithelium »

A . Ameloblastoma:

1 . Solid , multicystic , extrosseous , peripheral type

2 . Metastasizing mc ameloblastoma

B . Clear cell odontogenic carcinoma »

C . Adenomatoid odontogenic tumor »

D . Calcifying epithelial odontogenic tumor »

E . Squamous odontogenic tumor –

II. Mixed odontogenic tumors (odontogenic epithelium and mesenchyme) »

A . Ameloblastic fibroma »

B . Ameloblastic fibro-odontoma »

C . Ameloblastic fibrosarcoma »

D . Odontoameloblastoma »

E . Compound odontoma »

F . Complex odontoma –

- ***III. Tumors of odontogenic ectomesenchyme »***

A . Odontogenic fibroma »

B . cemento-ossifying fibroma »

C . Odontogenic myxoma »

D . Cementoblastoma

AMELOBLASTOMA

?

AMELOBLASTOMA

AMELOBLASTOMA

11% of all odontogenic tumors

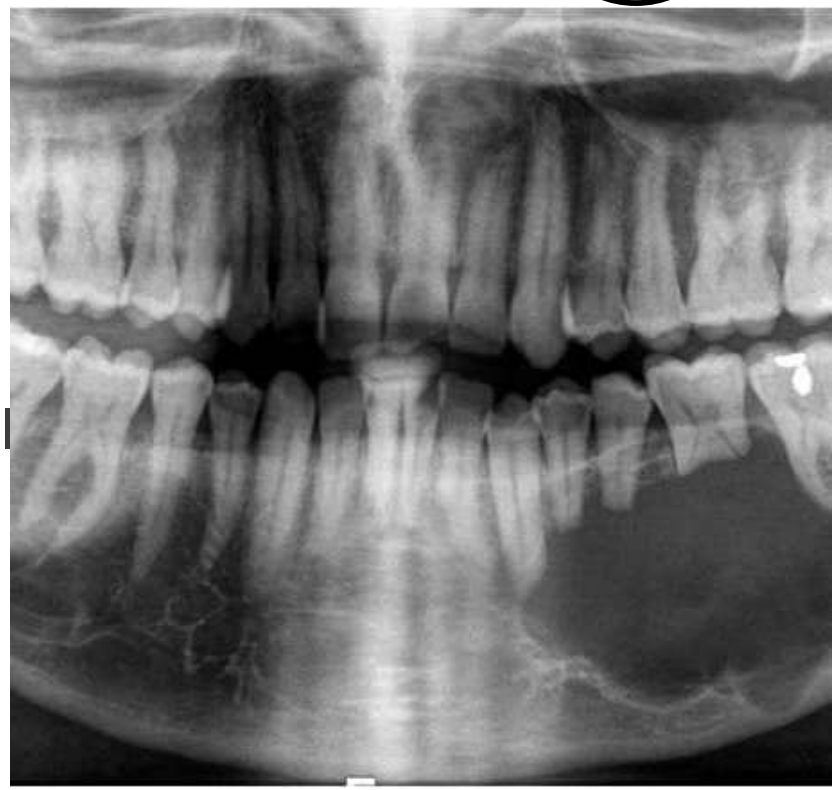
1% of oral odontogenic epithelial tumors

Second MC odontogenic neoplasm

Described as

" usually unicentric, nonfunctional, intermittent in growth, anatomicall benign and clinically persistent"

…. ROBINSON



Defined as " a slowly growing, locally invasive epithelial odontogenic tumor of the jaws with a high rate of recurrence if not removed adequately, but with virtually no tendency to metastasize"….WHO 2005

AMELOBLASTOMA

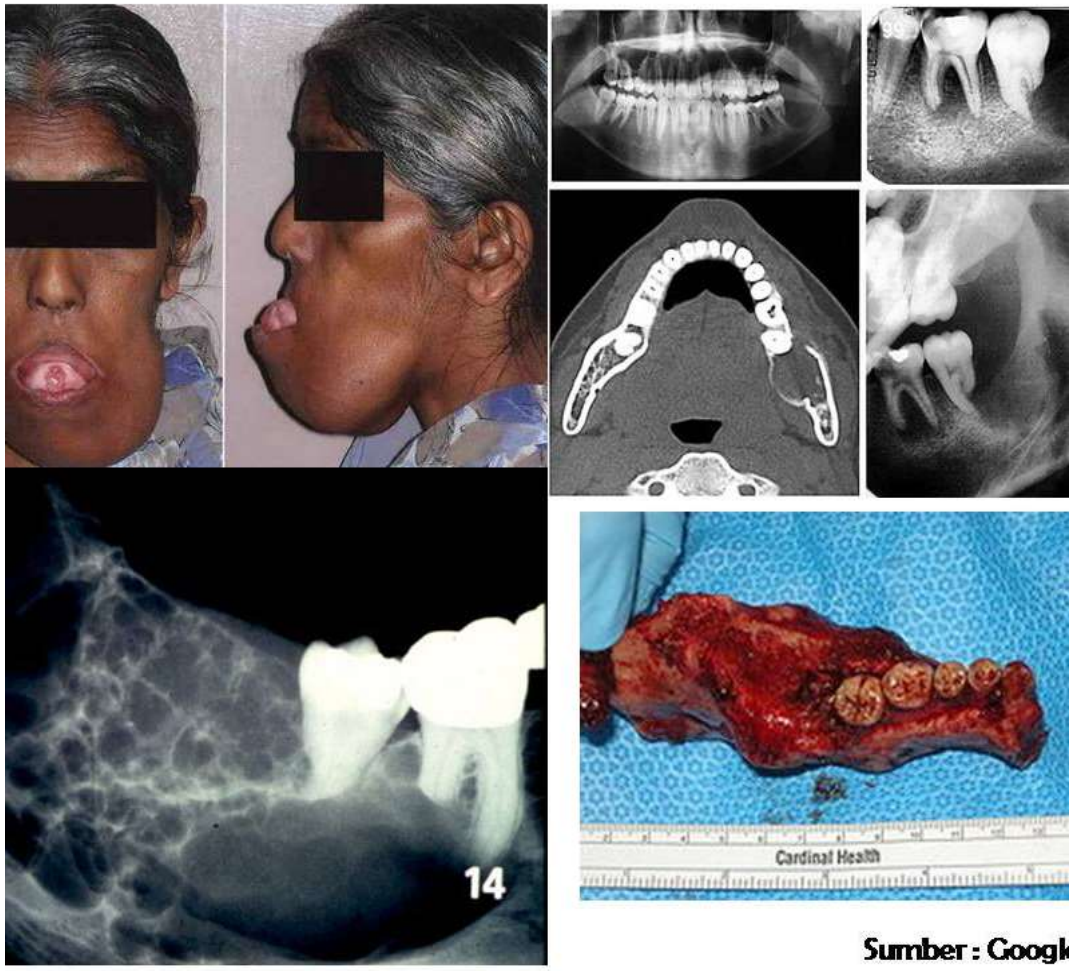
• Ameloblastoma is the tumor of odontogenic epithelial PATHOGENESIS Derived from :

☐ Cell rests of enamel organ, either remnants of dental lamina or remnants of Hertwig's sheath, epithelial cell rests of Malassez

☐ Epithelium of odontogenic cysts, particularly the dentigerous cyst or odontoma

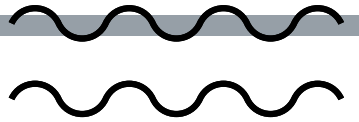
☐ Disturbances of the developing enamel organ

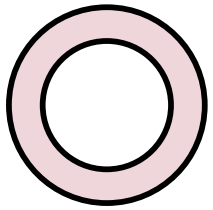
☐ Basal cells of surface epithelium of the jaws Nature of stimulus: not known



Sumber : Googl

CLINICAL FEATURES





- Age : 10 to 90 years
- Gender : male = female

- Race: Blacks > White
- Site : Mandible > maxilla

Mandible: Molar-angle ramus ; May extend to symphyseal region

Maxilla: Third molar area ; May extend into the floor of maxillary sinus and nasal cavity

CLINICAL MANIFESTATIONS

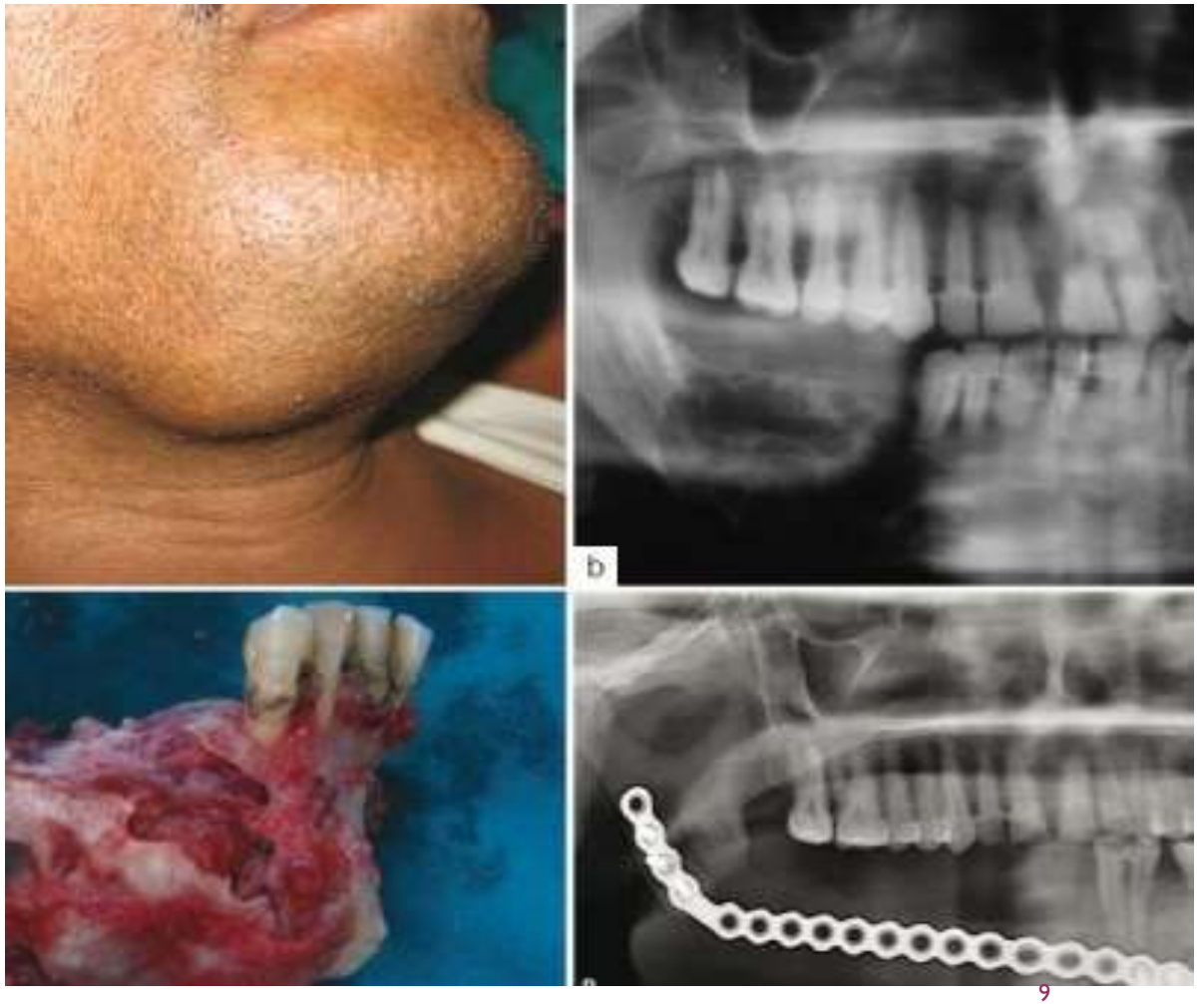
A slow growing tumor, painless

- Early stages: asymptomatic, discovered incidentally Enlarges- Facial deformity, expansion of jaw bone Expansion (bony hard, non-tender, ovoid or fusiform)
- Advanced stages: Egg shell crackling (thinning of cortical plate) May extend into soft tissue Maxillary lesion – extend into sinus Tooth mobility (may be)

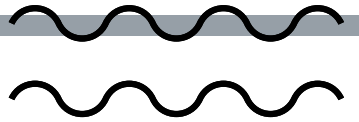
MANAGEMENT

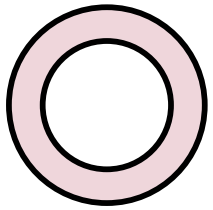
1. Complete eradication of lesion
2. Reconstruction of the resultant defect

- Curettage never be considered as the treatment modality ; due to high recurrence rate 55 to 100 percent after curettage



GROUP OF BENIGN TUMUR WHICH ARE INVASIVE OR AGGRESSIVE

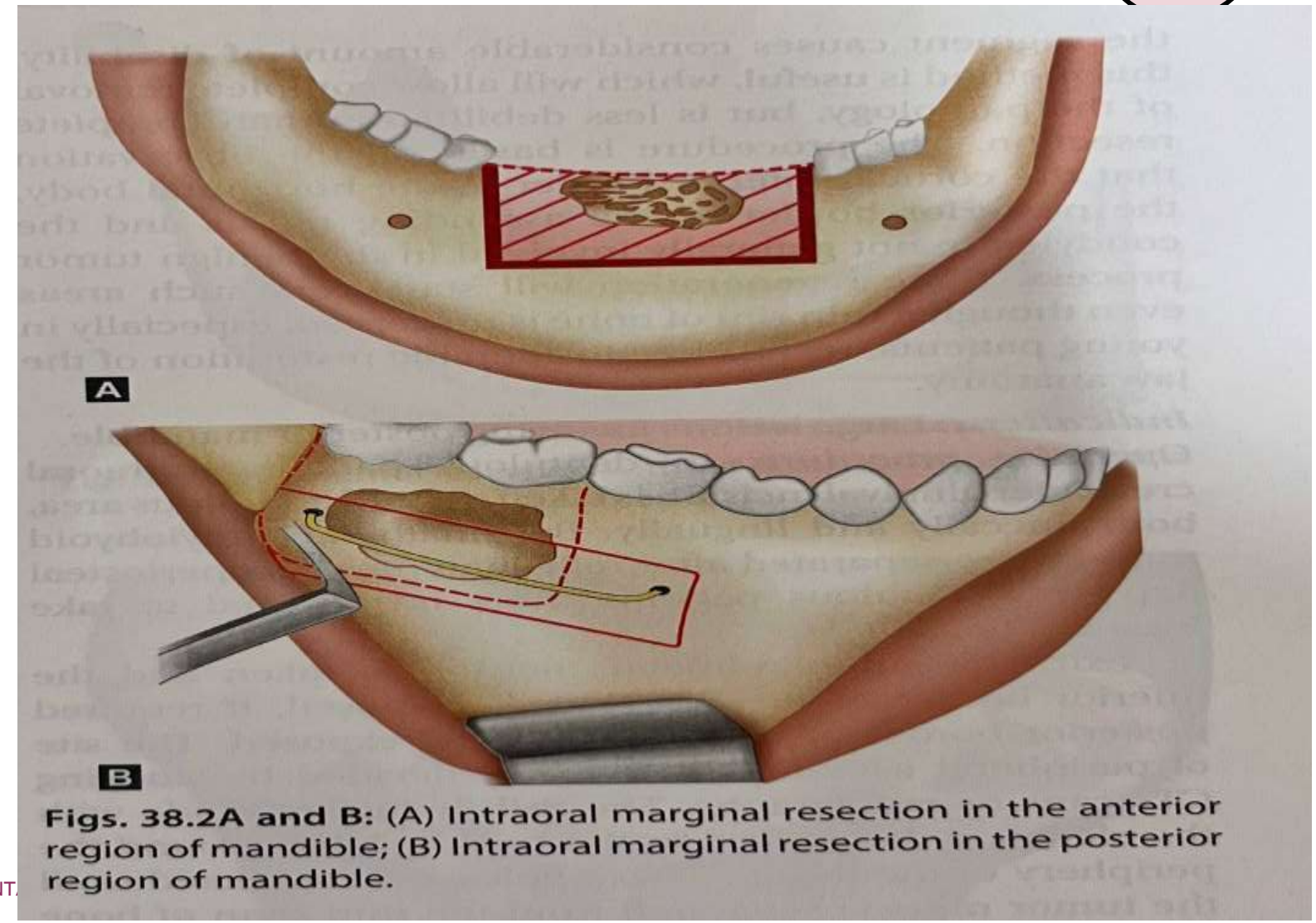




1. **Resection without continuity defect :** also known as marginal resection (en block resection)
2. **Resection with continuity defect :** carried out more extensive lesion include resection of inferior border of mandible
3. **Partial resection :** depending upon site of tumor from small contunity defect to segmental resection to hemi mandibulectomy
4. **Total resection :** total maxillectomy and madibulectomy

MARGINAL RESECTION OR RESECTION WITHOUT CONTINUITY DEFECT / PERIPHERAL OSTEOTOMY EN BLOCK RESECTION

Intraoral marginal resection :



Figs. 38.2A and B: (A) Intraoral marginal resection in the anterior region of mandible; (B) Intraoral marginal resection in the posterior region of mandible.

Extraoral peripheral osteotomy

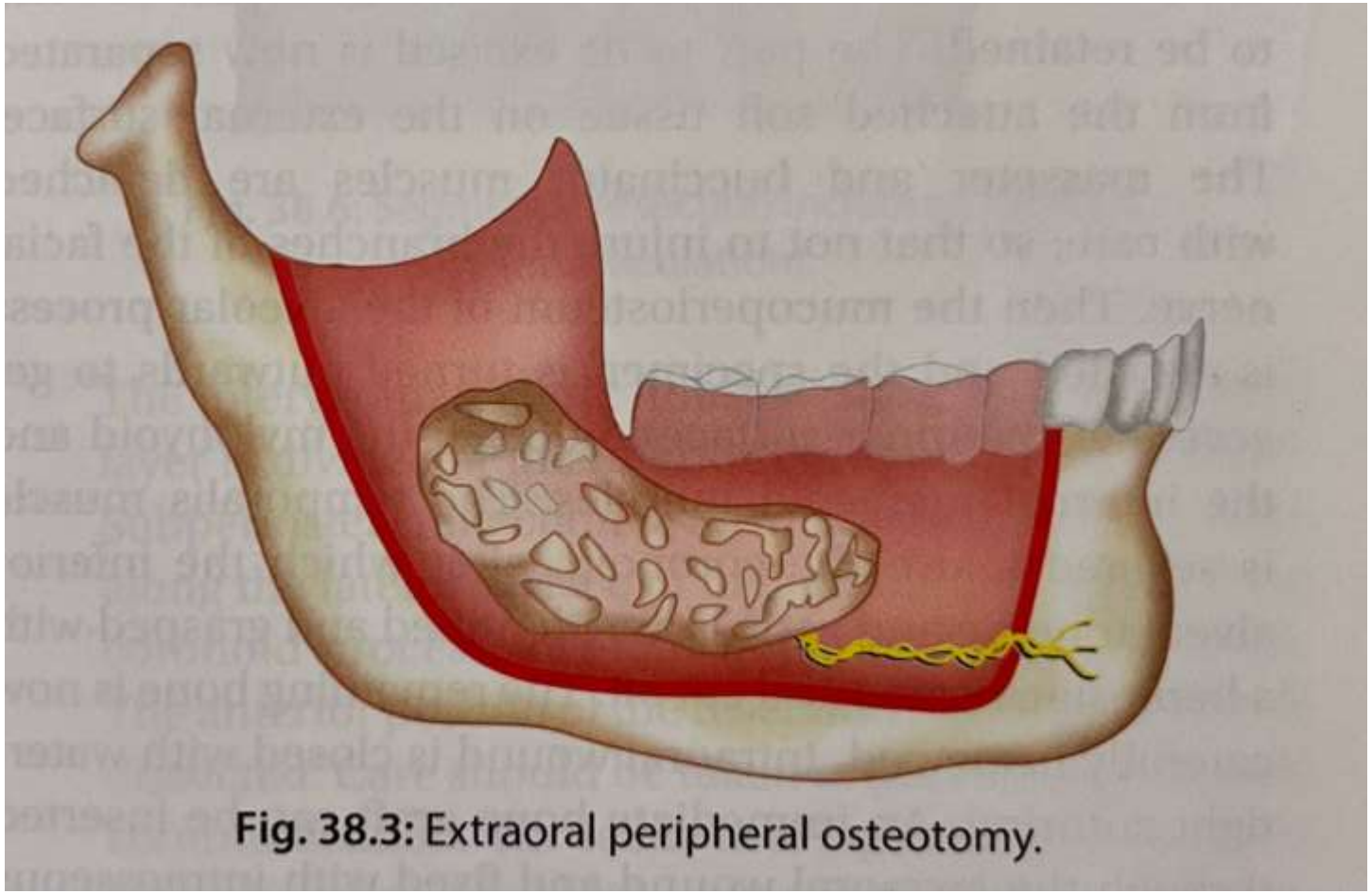


Fig. 38.3: Extraoral peripheral osteotomy.

SEGMENTAL RESECTION OF THE JAW (INTRAORAL APPROACH)

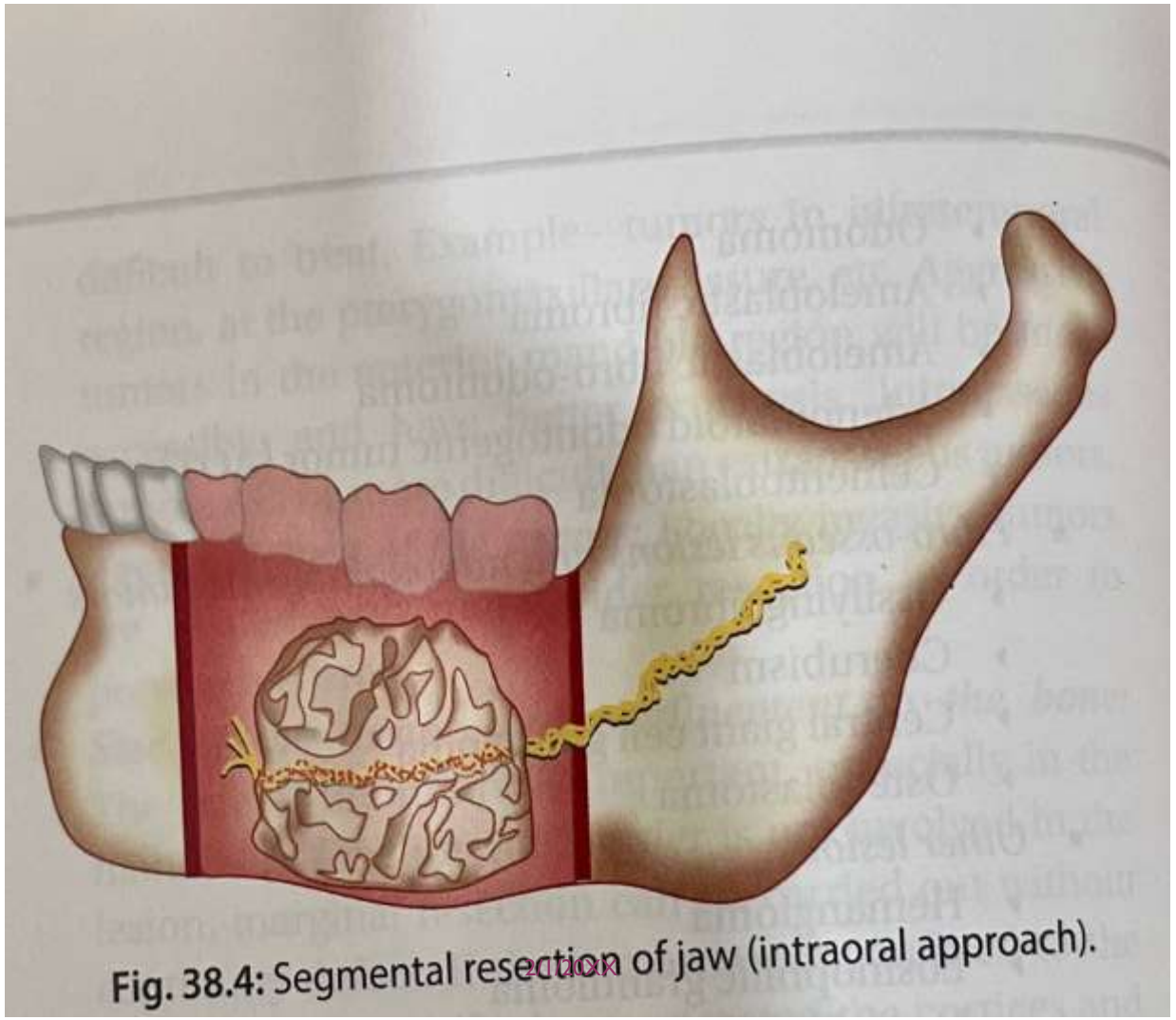


Fig. 38.4: Segmental resection of jaw (intraoral approach).

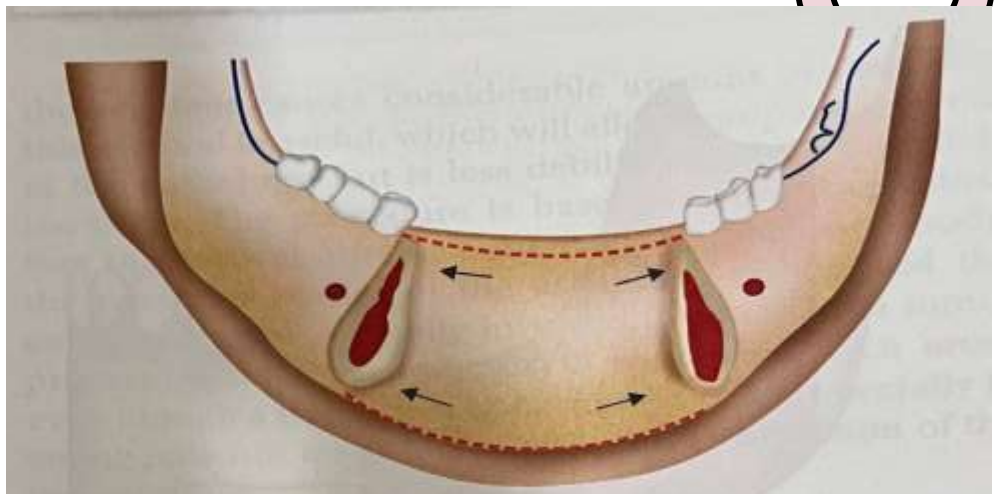


Fig. 38.7: Intraoral segmental resection involving mandibular midline.

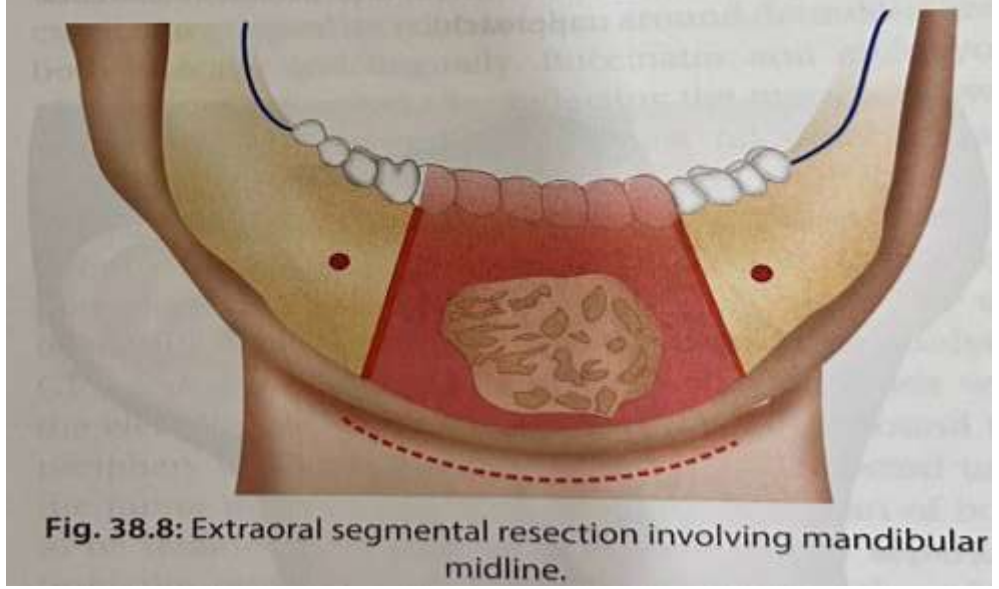


Fig. 38.8: Extraoral segmental resection involving mandibular midline.

VARIATION OF LIP SPLIT FOR BETTER COSMETIC RESULTS

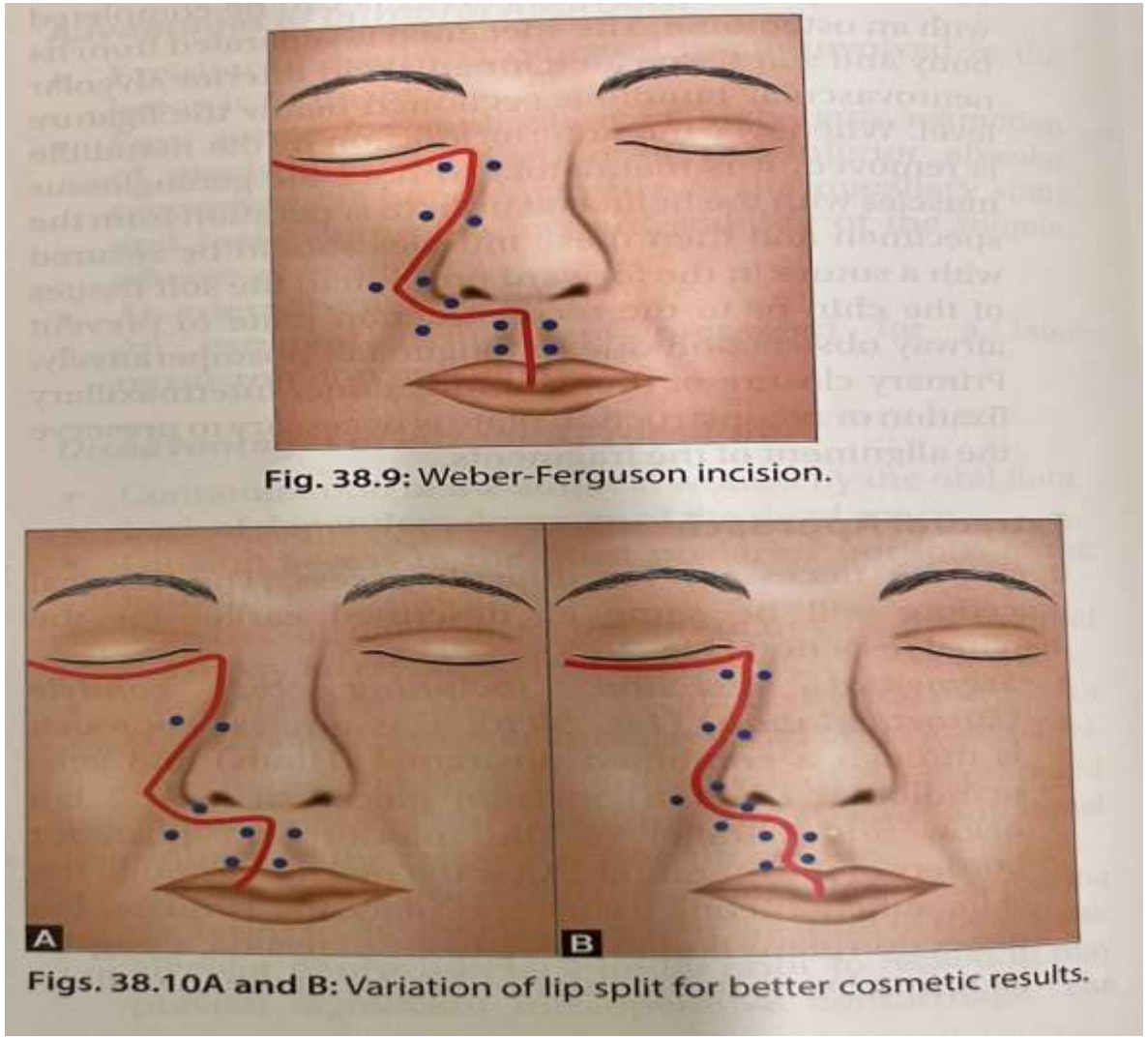


Fig. 38.9: Weber-Ferguson incision.

Figs. 38.10A and B: Variation of lip split for better cosmetic results.

MAXILLECTOMY

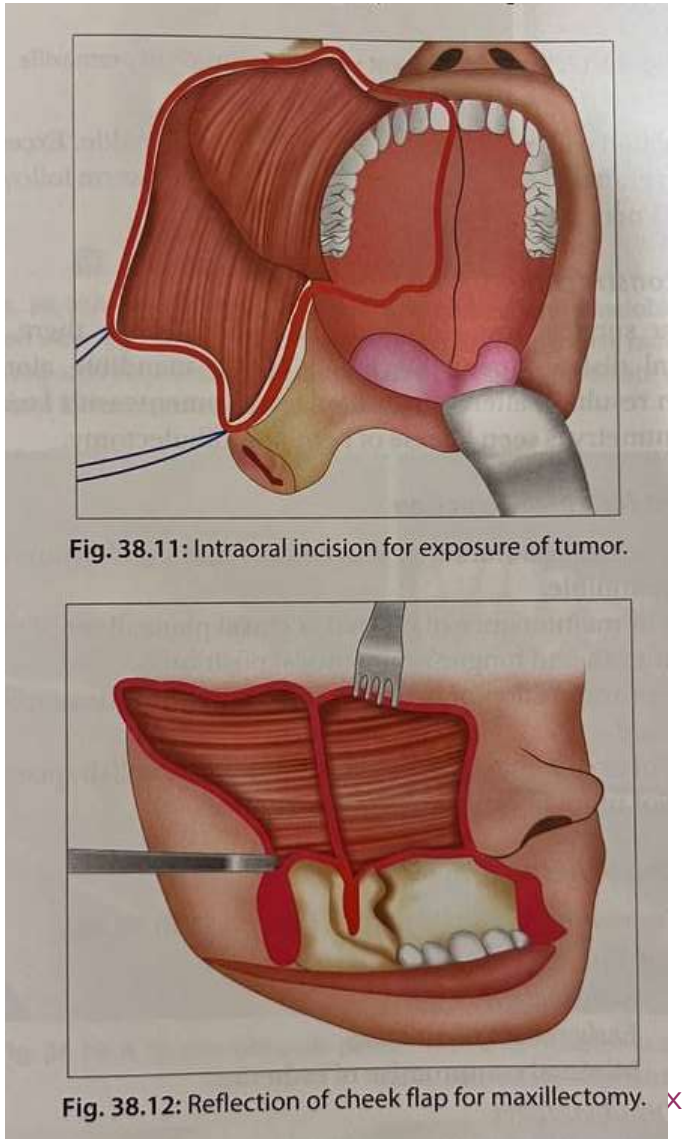


Fig. 38.11: Intraoral incision for exposure of tumor.

Fig. 38.12: Reflection of cheek flap for maxillectomy.

BONY CUTS FOR MAXILLECTOMY

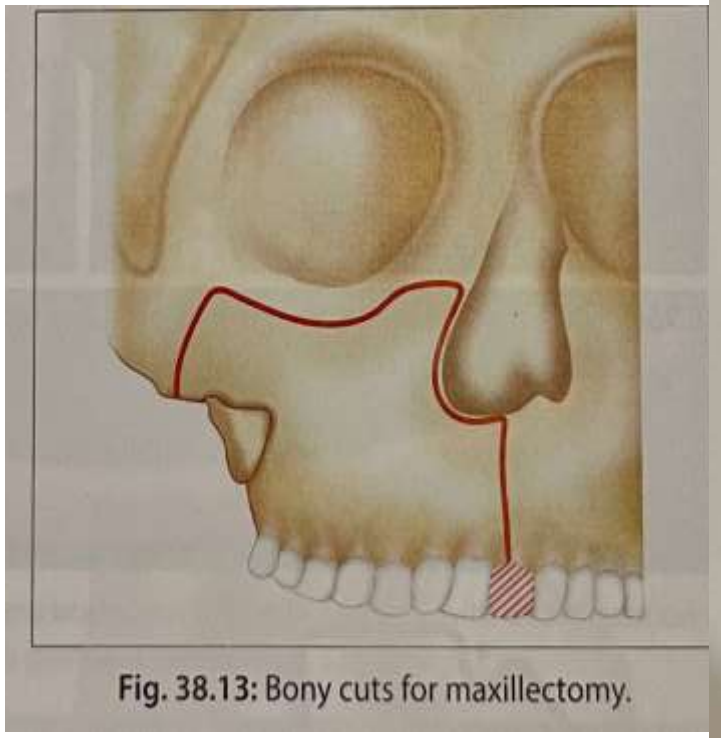


Fig. 38.13: Bony cuts for maxillectomy.

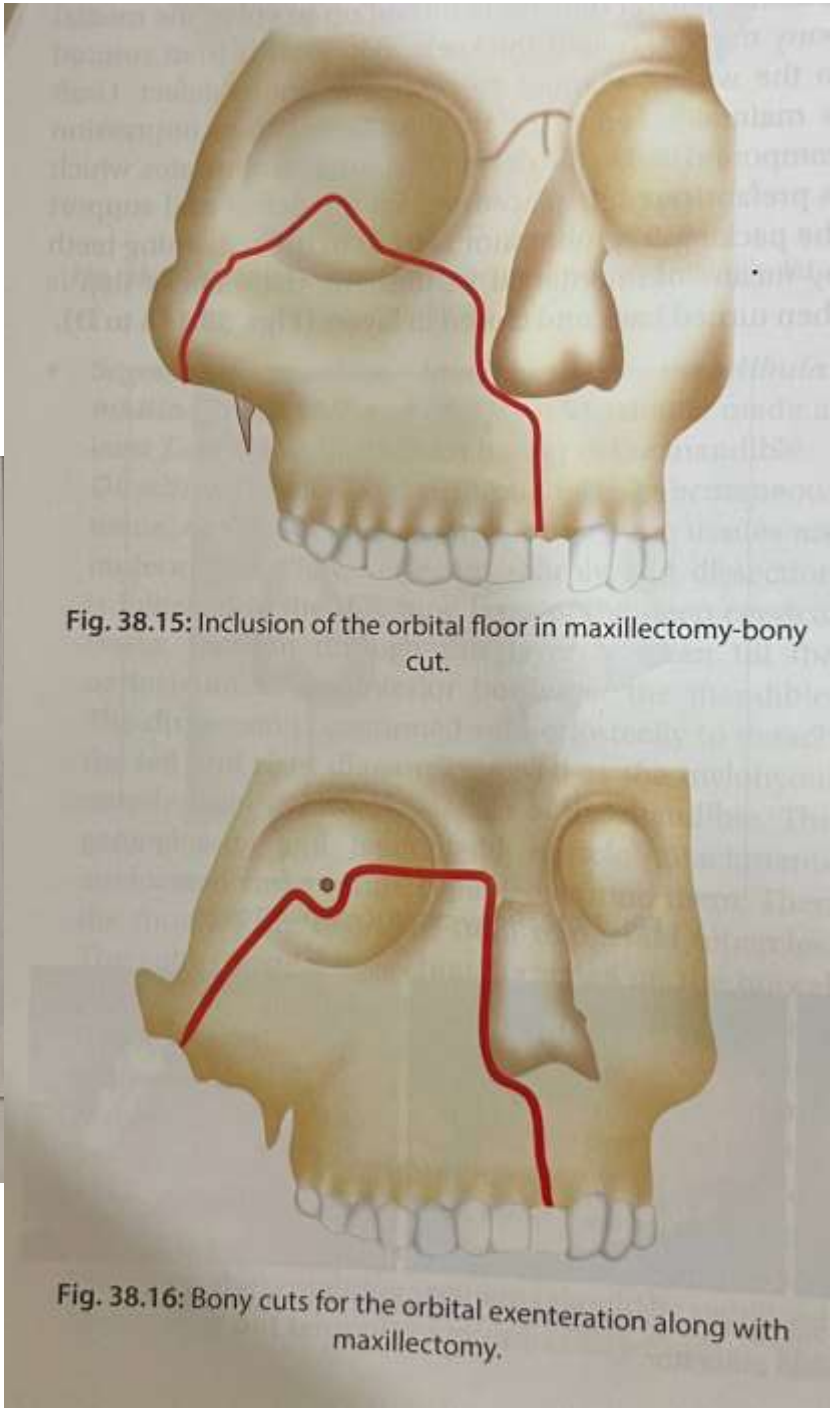


Fig. 38.15: Inclusion of the orbital floor in maxillectomy-bony cut.

Fig. 38.16: Bony cuts for the orbital exenteration along with maxillectomy.

MANAGEMENT FOR INTRSOSSEOUS , SOLID MULTICYSTIC

1) En bloc resection or marginal resection without continuity defect
2) Segmental resection with continuity defect

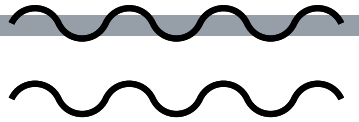
JACKSON and CALLON FORTE have given guide line depending upon anatomical extends

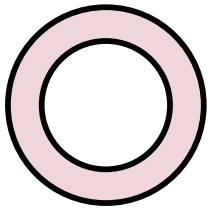
i. Tumor confined to maxilla without orbital floor involvement – partial maxillectomy
ii. Tumors involving the orbital floor , but not the periorbital area – total maxillectomy
iii. Tumor involving orbital contents –total maxillectomy with orbital exenteration
iv. Tumor involving the skull bone – along with skull base resection – neurosurgical procedure






RECONSTRUCTION





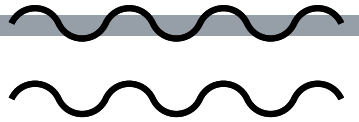
IMMEDIATE RECONSTRUCTION

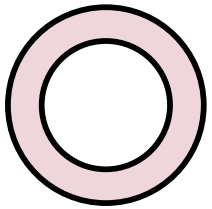
1) Performing surgical excision and grafting

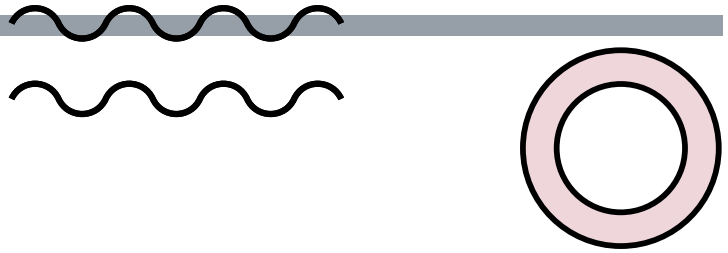
2) Surgical excision utilizing both intraoral and extraoral approach , first obtaining water tight oral closure and grafting done through extroral approach

DELAYED RECONSTRUCTION

1) Intermaxillary fixation using a reconstruction plate







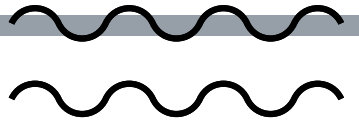
☐ BENIGN

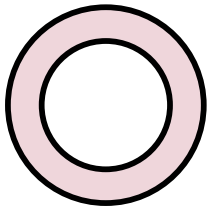
- ☐(Solid) multicystic ameloblastoma
- ☐Cystic(unicystic) ameloblastoma
- ☐Peripheral ameloblastoma

☐ MALIGNANT

- ☐Malignant ameloblastoma
- ☐Ameloblastic carcinoma

CLASSIFICATION





☐ On the basis of behavioural pattern, anatomical location, radiographic appearances, histologic features: (Leon Barnes)

1. Unicystic ameloblastoma
2. Multicystic ameloblastoma
3. Desmoplastic ameloblastoma
4. Peripheral ameloblastoma

☐ Histologically,

1. Follicular ameloblastoma
2. Plexiform ameloblastoma
3. Acantomatous ameloblastoma
4. Desmoplastic ameloblastoma
5. Granular cell ameloblastoma
6. Basal cell ameloblastoma

HISTOPATHOLOGY : COMPOSED OF NESTS STRANDS AND CORDS OF AMELOBLASTIC EPITHELIUM ALL SEPARATED BY RELATIVELY SMALL AMOUNTS OF FIBROUS CONNECTIVE TISSUE STROMA

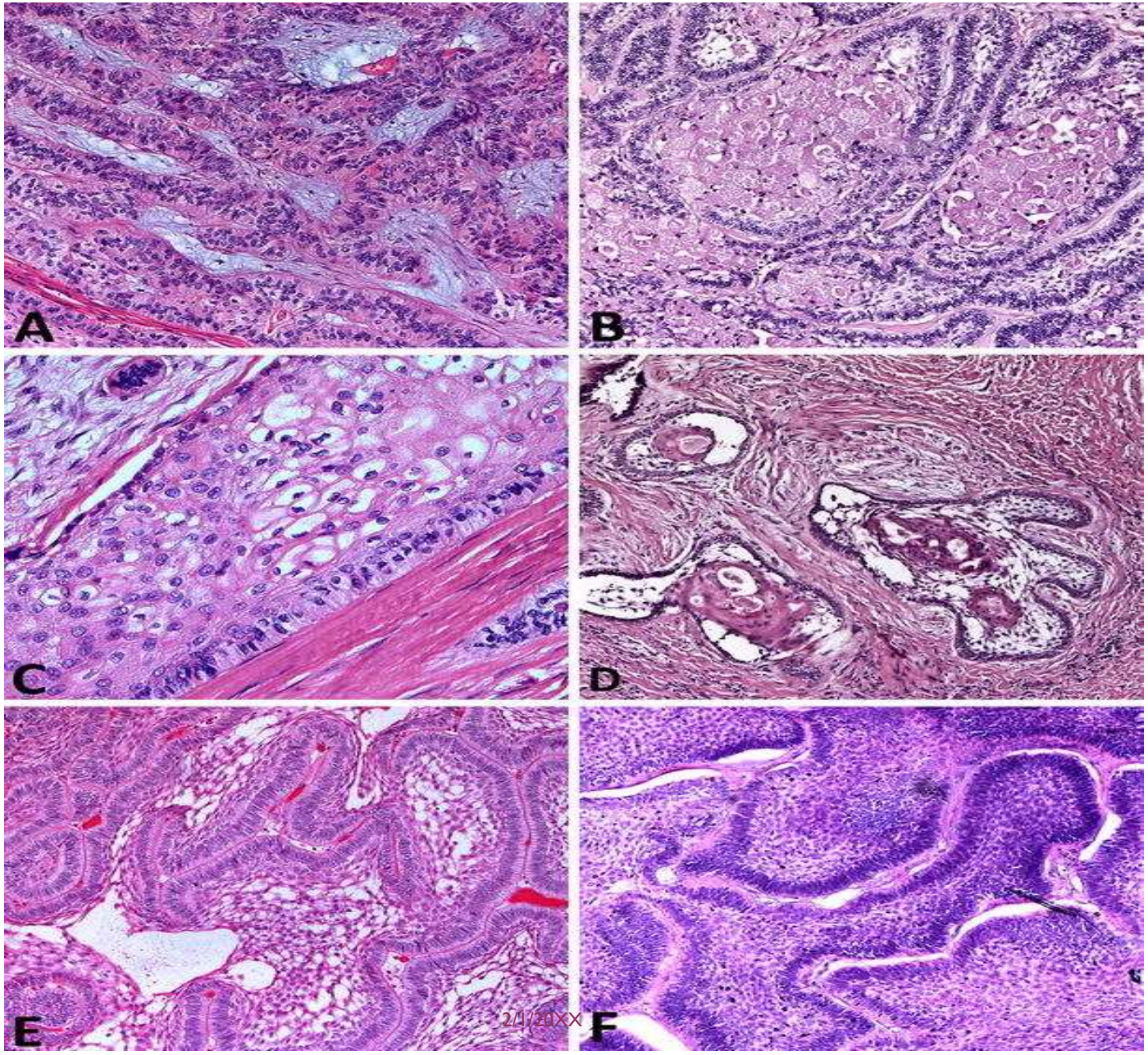
Two main pattern are seen

FOLLICULAR TYPE

- Consists of small to large odontogenic epithelial nests and variously shaped and sized Ameloblastomatous islands
- Cyst formation is commonly seen

PLEXIFOEM TYPE

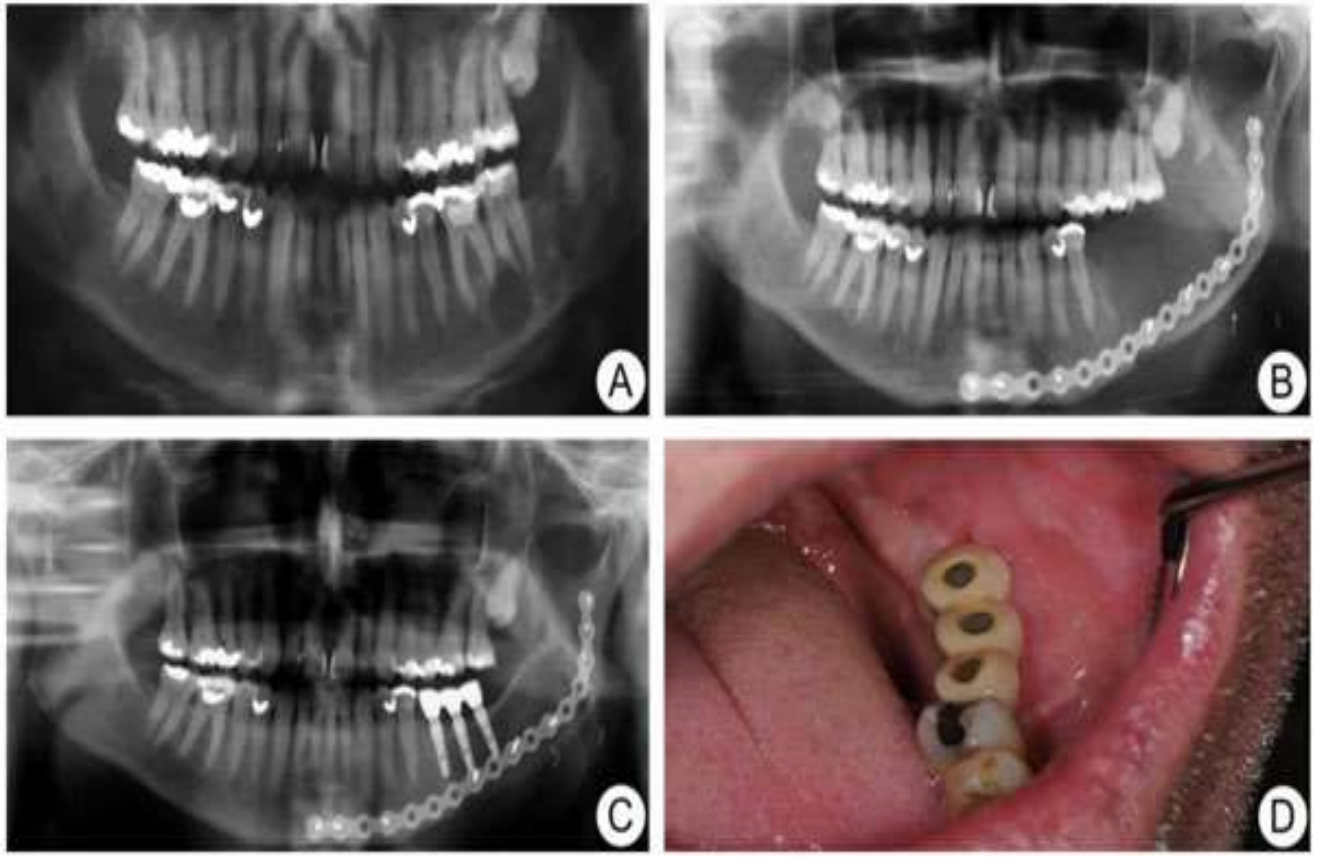
- Consits of interlacing strands of narrow or wide odontogenic epithelial tubercle resembling the dental lamina



HISTOLOGIC PATTERN OF AMELOBLASTOMA

A. PLEXIFORM AMELOBLASTOMA
B. GRANULAR AMELOBLASTOMA
C. ACANTHOMATOUS AMELOBLASTOMA
D. DESMOPLASTIC AMELOBLASTOMA
E. FOLLICULAR AMELOBLASTOMA
F. BASAL CELL TYPE AMELOBLASTOMA

Maxillar, nasal and palate cancer – Maxillectomy IIA – Obturator prosthesis



Ameloblastoma of the jaw resection and reconstruction with vascularized fibula and implants

ADENOMATOID ODONTOGENIC TUMOR (AOT)

- Formerly called an adeno ameloblastoma
- AOT represents about 3-7% of all odontogenic tumors .

☐ Hypothesized to be hamartomas, as AOT stop developing about the time tooth structures complete their development

☐ Synonyms: adenoameloblastoma, Ameloblastic adenomatoid tumor

☐ Variants: Intraosseous, Extraosseous

☐ Intraosseous: Follicular (73%) , Extrafollicular

☐ Extraosseous: small, sessile masses on facial gingiva of maxilla

☐ Pathogenesis: Enamel organ epithelium , dental lamina

- AOT is called as 2/3rd tumour

– 2/3rd cases occurs in age group pf 10-19 yrs

– 2/3rd cases seen in females

– 2/3rd in the anterior jaws

– 2/3rd in maxilla

CLINICAL FEATURES

- Patient Age : second decade with a mean around 17 years.
- Gender Predilection :

  Females : male , 2:1
- Location : 65% of them occur in the maxilla > Mandible Incisor- Canine- Premolar especially canine region

75% of the cases are associated with the crown of an unerupted tooth.

commonly intraosseous On rare occasion the lesion is extraosseous.

- Frequently asymptomatic
- Painless expansion

Radiographic and Additional Features

• AOTs typically appear as pericoronal radiolucencies, which may have radiopaque material

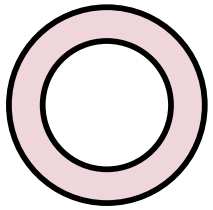
("snowflake" calcifications) within the lucency

- Root resorption(rare)
- • Expansion of jaw with maintenance if cortical outline Inhibition of eruption of tooth Displacement of teeth EFFECT ON SURROUNDING STRUCTURES

HISTOLOGIC FEATURES

- The lesion is usually surrounded by a thick, fibrous capsule.
- The tumor is composed of spindle-shaped epithelial cells that form sheets, strands or whorled masses with little connective tissue.
- The epithelial cells may form rosette-like structures, tubular or duct-like structures may be prominent or absent.
- Calcifications may be observed in the tumor mass

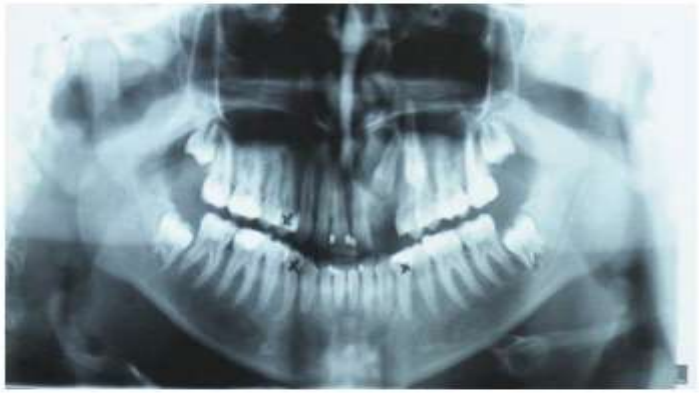
TREATMENT AND PROGNOSIS



- Enucleation is the treatment of choice as the tumor is easily removed from the bone.

- AOTs seldom recur

ADENOMATOID ODOTOGENIC TUMUR ASSOCIATED WITH AN IMPACTED MAXILLARY LATERAL INCISOR



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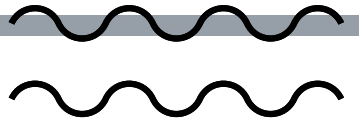
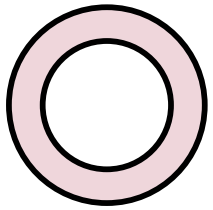
Intraoral view a swelling at buccal fold

Enucleated mass with the root of tooth

Two weeks postop

CALCIFYING EPITHELIAL ODONTOGENIC TUMOR (CEOT)





- 1 % of all odontogenic neoplasms

- Synonym : Pindborg's tumor

Ameloblastoma of unusual type with calcification

- Pathogenesis: mostly uncertain

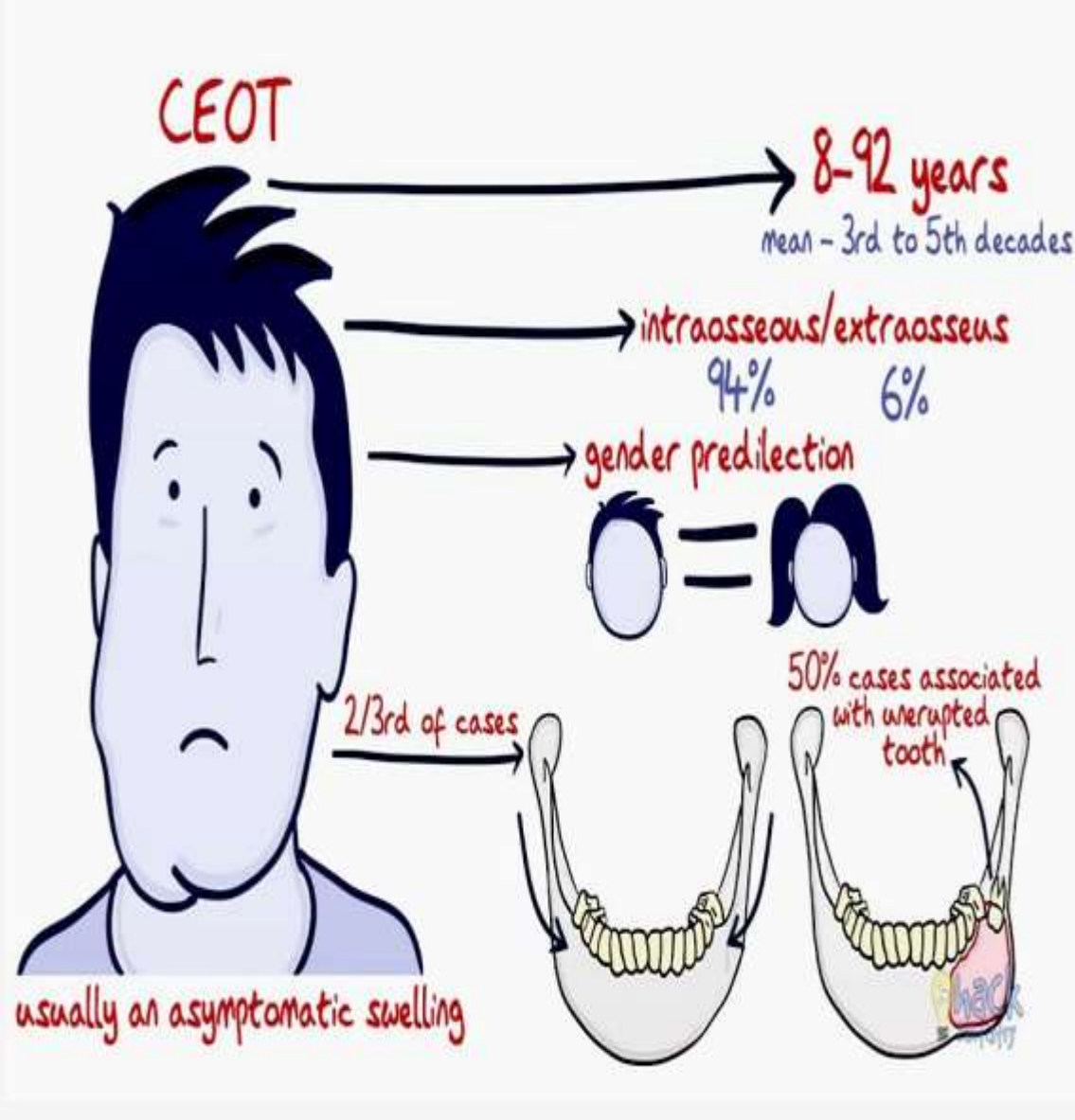
1. Stratum intermedium cells
2. Dental lamina

CLINICAL FEATURES

- Patient Age: 2nd to 10th decades (mean age 40 years).
- Gender Predilection : no reported sex predilection.
- Variety: intraosseous (common) , extraosseous
- Location : Mandible> maxilla 2:1 Premolar- molar area
- 75 % of the CEOTs occur in the mandible with most occurring in the posterior region. A rare peripheral CEOT does occur.
- Painless swelling slow growing
- Bony lesions most commonly present as painless, slow-growing swellings.
- Peripheral lesions typically appear as non-specific sessile gingival masses.

Clinical manifestation :

expansion of jaw, hard on palpation CEOT



• • Radiographic Features

- Bony lesions most commonly present as painless, slow- growing swellings.
- Peripheral lesions typically appear as non-specific sessile gingival masses.

- CEOTs occur as radiolucent lesions with/without opaque foci.
- They are usually well-circumscribed and may be unilocular or multilocular.
- Slightly over 50% of the CEOTs are associated with an unerupted tooth.

Driven snow appearance (scattered flakes of calcification throuout the radiolucency can be seen)

Completely radiopaque Radiopaque foci of varying size and density, calcifications close to embedded tooth CEOT

HISTOLOGIC FEATURES

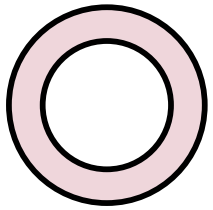
This lesion is typically composed of islands, sheets or strands of polyhedral epithelial cells in a fibrous

Stroma HISTOPATHOLGY Fibrous stroma with islands and sheets of polyhedral epithelial cells with abundant eosinophilic cytoplasm,

sharply defined cell borders and well-developed intercellular bridges.

Eosinophilic, homogeneous hyalin material that is often calcified in the form of concentric rings is present within or around the sheets of tumor cells LIESEGANG RINGS

TREATMENT AND PROGNOSIS

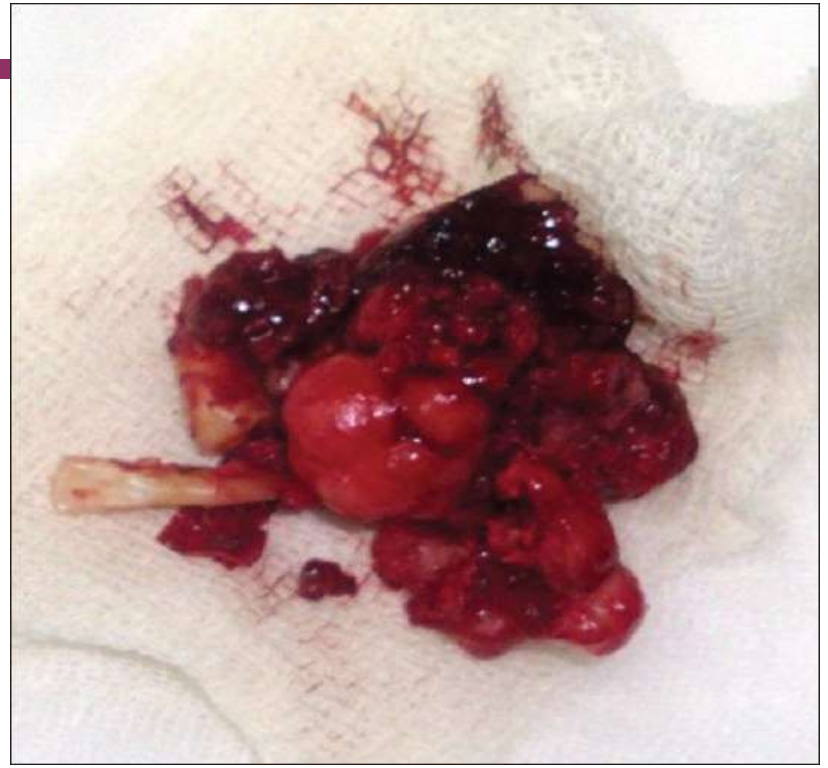


- Conservative local resection is the treatment of choice as these lesions are typically less aggressive than the ameloblastoma.
- With this treatment the recurrence rate is approximately 15 % and the overall prognosis is good

CASE REPORT : A 42-YEAR-OLD MALE PATIENT REPORTED TO OUR INSTITUTION WITH A CHIEF COMPLAINT OF A SWELLING IN THE RIGHT SIDE OF THE MANDIBLE IN THE REGION OF 43, 44 AND 45. THE MOBILE 43 AND 44 WERE EXTRACTED IN A PRIVATE CLINIC 2 YEARS BACK.

- intrabony mandibular location of the lesion and its limited size
- On inspection, the diffuse extra oral swelling on the left side of face extending approximately posteriorly 4 cm from the angle of mandible, anteriorly 3 cm from the symphysis menti and inferiorly up to the inferior border of mandible.
- The swelling was firm in consistency and nontender.

- Orthopantomograph revealed missing 43, 44 with a multilocular radiolucency, sclerotic borders and displacement of 42 and 45.
- Lower border of the mandible was intact. Few radioopaque spots were seen within the radiolucency .
- Mandibular occlusal view radiographs revealed bicortical expansion of both buccal and lingual cortical plates



- The tumor was surgically removed completely as a mass by enucleation with removal of a thin layer of bone adjacent to the lesion, followed by curettage

POST OP WITH

OBTURATOR

SQUAMOUS ODONTOGENIC TUMOR (SOT)

• Clinical Features

- Patient Age : Second through the seventh decades (mean 40 years).
- Gender Predilection : None
- Location : SOTs occur with about equal frequency in maxilla and mandible.

They are more common in the anterior regions of the jaws than in the posterior. The lesions occur in the alveolar process

- Asymptomatic lesions , may experience mild pain , discomfort , tooth mobility

Radiographic Features

- SOTs appear as non-specific radiolucent lesions.
- They may be well-circumscribed or ill-defined.
- They often appear semicircular or triangular in shape and lateral to the tooth root
- Asoo with cervical portion of tooth

Histologic Features

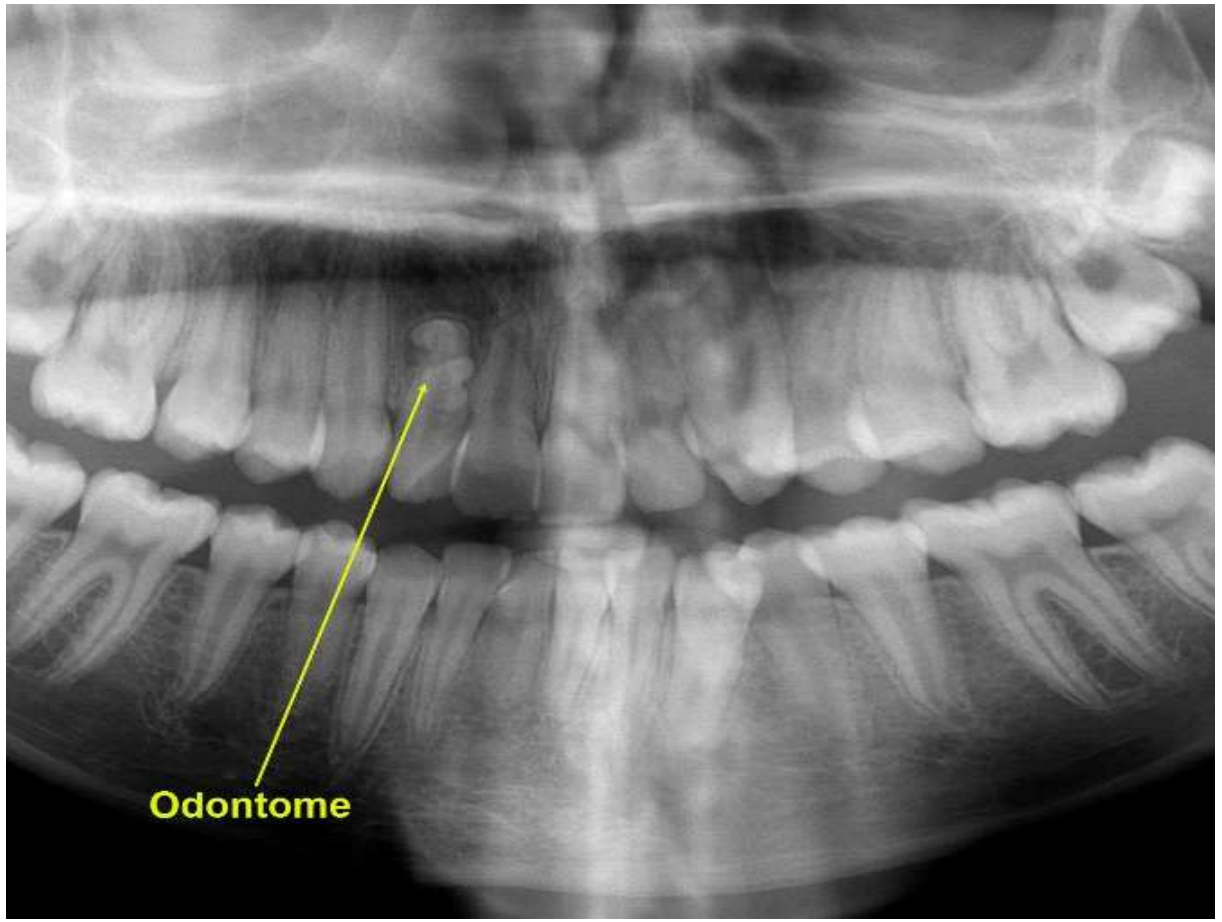
- Islands of bland-appearing squamous epithelium
- Mature fibrous connective tissue stroma.
- The peripheral cells do not show the characteristic polarization seen in the ameloblastoma

TREATMENT AND PROGNOSIS

- SOTs often present as painless gingival swellings associated with tooth mobility. Approximately 25 % are asymptomatic.
- Conservative local excision or curettage appears to be effective treatment and there have only be a few recurrences reported.

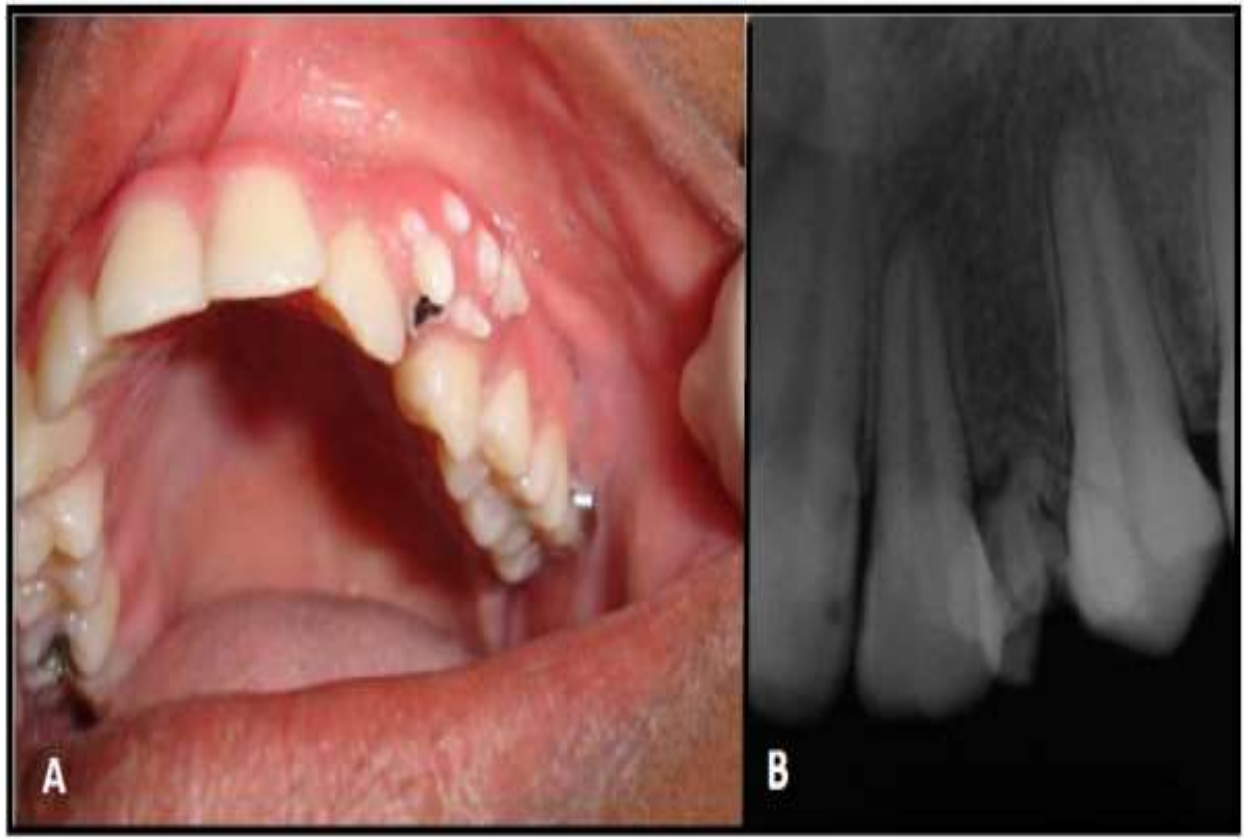
ODONTOMA

- The odontoma is the most common odontogenic tumor.
- It is not a true neoplasm but rather is considered to be a developmental anomaly (hamartoma).
- Two types of odontomas are recognized :
  - Compound: this type of odontoma is composed of multiple small tooth-like structures.
  - Complex : this lesion is composed of a conglomerate mass of enamel and dentin, which bears no anatomic resemblance to a tooth



CLINICAL FEATURES

- Patient Age : Most cases are recognized during the second decade of life with a mean of 14 years.
- Gender Predilection : Approximately equal.
- Location : Some what more common in the maxilla. The compound type is more often in the anterior maxilla while the complex type occurs more often in the posterior regions of either jaw.



Radiographic Features

- Early lesions are radiolucent with smooth, well-defined contours.
- Later a well-defined radiopaque appearance develops.
- The compound type shows apparent tooth shapes while the complex type appears as a uniform opaque mass with no apparent tooth shapes present

Additional Features

- Most odontomas are small and do not exceed the size of a normal tooth in the region.
- However, large ones do occur and these may cause expansion of the jaw.
- Most odontomas are asymptomatic and as a result are discovered upon routine radiographic examination.
- Odontomas may block the eruption of a permanent tooth and in these cases are often discovered when "searching for" the "missing" tooth radiographically

HISTOLOGIC FEATURES

- The compound odontoma is composed of enamel, dentin and cementum arrange in recognizable tooth forms; some enamel matrix may be retained in immature and hypo mineralized specimens.

- The complex odontoma is composed of enamel, dentin and cementum but these tissues are arranged in a random manner that bears no morphological resemblance to a tooth

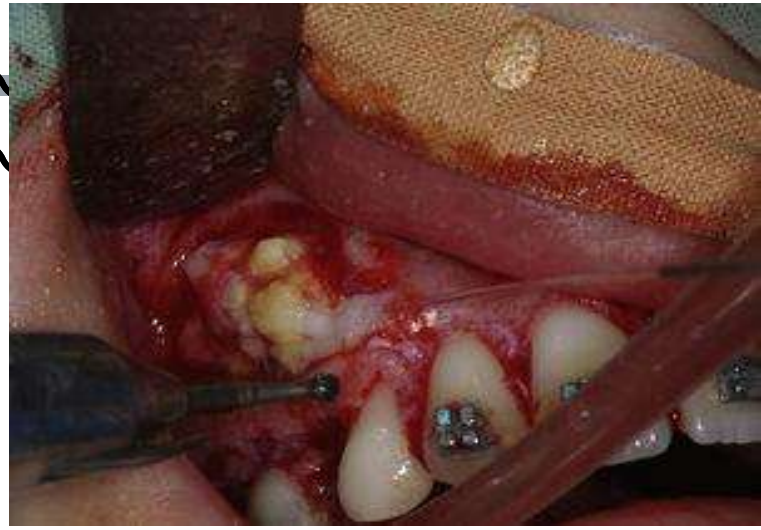
TREATMENT AND PROGNOSIS

- **Odontomas are treated by simple local excision and the prognosis is excellent.**

REASON FOR EXCISION

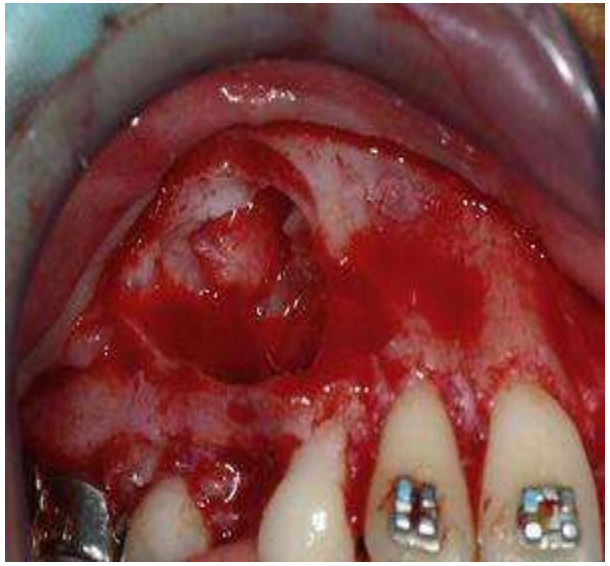
PRE OP X RAY

CLINICAL



EXPOSURE OF DENTICLE

SURGICAL EIXISION OF DENTICLES



SITE AFTER SURGICAL EXISION

DENTICLES

POST OF XRAY