Pulp & periapical disease
Asymptomatic Pulpoperiapical Pathosis

**Definition:**

Any reaction of the periapical tissue to inflammation, where **proliferative** forces are hyperactive and play a dominant role.

**N.B.:**

1. from the onset  (If irritant is of low intensity)
2. it may develop from an acute apical Periodontitis whose acute features have dissipated.
Types:

1) Chronic apical Periodontitis
   a) Chronic periapical abscess
   b) periapical granuloma
   c) Periapical cyst
<table>
<thead>
<tr>
<th>visual examination:</th>
<th>History of long Standing caries or trauma.</th>
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</thead>
<tbody>
<tr>
<td>Signs and Symptoms:</td>
<td>Painless</td>
</tr>
<tr>
<td>Percussion:</td>
<td>-ve or slight discomfort</td>
</tr>
<tr>
<td>Palpation and mobility:</td>
<td>may be some degree of mobility, due to bone loss.</td>
</tr>
<tr>
<td>Vitality tests:</td>
<td>-ve</td>
</tr>
<tr>
<td>Radiographically:</td>
<td>ill defined (hazy) radiolucent area around the apex.</td>
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</table>
b) Periapical granuloma:

Characterized by growth of granulomatous tissue and presence of chronic inflammatory cells.

Sequel of events:

Irritant pass from pulp to periapical tissue -> leads to: formation of four zones
A) Zone 1 (zone of necrosis):
Necrotic material and sometimes micro-organisms from pulp to periapical tissues.

B) Zone 2 (zone of contamination):
Contaminated material from zone 1 and some inflammatory cells.

C) Zone 3 (zone of irritation):
Consists of granulation tissue without micro-organisms.

D) Zone 4 (zone of Stimulation):
Stimulation of fibroblasts at the periphery of zone 3 fibrous capsule→ Stimulation of osteoblasts→ bone formation.
diagnostic features are the same as in chronic periapical abscess

**EXCEPT**

Radiographically: Well-defined radiolucent area surrounded by radio-opaque margin.

Clinically no sinus tract is present.
c) Periapical cyst:

**Definition:**
A periapical granuloma with a central fluid-filled epithelial lined cavity.
Pathogenesis:

1) **Irritation** of the epithelial Clusters (epithelial rests of Mallassez).
2) Epithelial cells undergo **mitosis and proliferate**.
3) **Central cells** become far away from blood supply.
4) CT. of the granuloma, gives **out finger-like processes** into the epithelium, to try to try to the blood supply.
6) *fatty degeneration* of the central cells and *release of fluids*.

7) Increases the *osmotic pressure* in the center.

9) A definite *central cavity develops*, containing fluid and numbers of cells in different stages of degeneration.

10) *Fluid* from the surrounding granulomatous tissue is *attracted to the center* of the mass.
11) Cystic growth causes pressure on surrounding CT., cause more ischemia and size growth.
12) Cystic growth occurs on the expense of the bone as it stimulates formation of osteoclasts causing bone resorption (egg shell crackling).
13) Around the cyst there is a thick layer of bone (condensing Osteitis).
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<th><strong>Visual Examination:</strong></th>
<th><strong>History of periapical granuloma. due to pulp affection by caries or trauma.</strong></th>
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<td><strong>Palpation and mobility:</strong></td>
<td><strong>-Palpation -&gt; swelling, egg-shell crackling. Mobility-&gt;increased mobility, due to bone resorption and may reach root of the neighboring teeth.</strong></td>
</tr>
<tr>
<td><strong>Vitality tests:</strong></td>
<td><strong>-ve result or false +ve in case of liquifactive necrosis.</strong></td>
</tr>
<tr>
<td><strong>Radiographically:</strong></td>
<td><strong>Well defined periapical radiolucency, surrounded by a radio-opaque margin.</strong></td>
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Treatment:
Root canal treatment + surgical removal of the cyst + apicectomy.
3) Condensing Osteitis: (pulpoperiapical osteosclerosis)

(A) It is a productive response of the periapical bone to a low grade long standing pulpal irritation.

(B) Characterized by increased density of bone, because of osteoblastic hyperactivity.

(C) So bone formation at apex in expense of bone marrow space, which decreases.

(D) Radiographically appears radio-opaque.

Treatment by root canal treatment, condition subsides.
Thank You