Apexification

Therapy to stimulate root growth and apical repair subsequent to pulpal necrosis in anterior permanent teeth. It was found is highly effective in the management of immature necrotic permanent teeth. The apexification procedure should precede conventional root canal therapy in the management of teeth with irreversibly diseased pulp and open apices. Apexification by introducing Ca(OH)$_2$ reaching the end of the roof it will produce continuous growth of the apex and close the opening. Ca(OH)$_2$ introduce in the open apex either form a calcific barrier just below the apex or is enough to cap formation or below the apex. After calcific bridge develops or the closure occurs or when calcific plug is observed. Endodontic procedure may be completed. If the pulp is vital and the apex is close do RCT immediately.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Size type</th>
<th>Time laps</th>
<th>Maturation of apex</th>
<th>Medication.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pulp capping</td>
<td>Pin point</td>
<td>Short (2 hrs)</td>
<td>Immature</td>
<td>Ca(OH)$_2$</td>
</tr>
<tr>
<td>Pulpotomy</td>
<td>Little bigger</td>
<td>Short or even Longer</td>
<td>Immature</td>
<td>Ca(OH)$_2$.</td>
</tr>
<tr>
<td>Pulpectomy</td>
<td>Large-Small</td>
<td>Long (1 month)</td>
<td>Mature</td>
<td>Gutta purcha.</td>
</tr>
<tr>
<td>Apexification</td>
<td>Large-Small</td>
<td>Long</td>
<td>Immature</td>
<td>Ca(OH)$_2$</td>
</tr>
</tbody>
</table>

Class IV Fracture,
Root Fracture with or without coronal fracture of the crown

Root Fracture
Coronal fracture or cervical fracture
Middle 1/3rd fracture
Apical 1/3rd fracture
Coronal or cervical fracture
We usually remove the crown and if the remaining root is long enough we do root canal filling and then we do post and core and we cement it in the child mouth which is going to stay forever. Then we take an impression over all and then over that impression we make acrylic crown. If the remaining root is short do extraction

Middle 1/3rd Fracture
If there is slight mobility we extirpate the pulp and do R.C.F with silver cone filling material in the future callus formation will occur. If high mobility we have to extract the teeth. Some time mostly at the apical part, stay vital so inject Ca(OH)2 to interrupt the fracture line. New calcific body form by Ca(OH)2 in fracture line.

Apical 1/3rd Fracture
There is no treatment and we have to leave it as it is, because fracture in apical 1/3rd are often calcific repair without treatment. Just observe the child in future and do devitalization of the pulp some time the fracture part become re-attached with the root. X-Ray is important.

Root fracture of primary teeth is relatively uncommon because the more pliable alveolar bone allow displacement of the tooth rather than fracture. When root fracture occurs in the primary tooth it should be treated in the same manner as that recommended for permanent teeth.

The prognosis is less favorable. The pulp in the permanent teeth with fracture root has a better chance to recover, since the fracture allows immediate decompression and circulation is more likely to be maintained.

Semi Permanent treatment
It should be done immediately why we don’t do permanent filling from the beginning?

The dentinal tubules in young children are widely open. So any cut in the crown or cementation for the crown might effect the pulp because it produces irritation to the pulp.

The full length of the clinical crown is not yet established in a child.

The pulp chamber of newly erupted tooth is wide and any cutting might get pulp exposure.

The root of the tooth continue to develop 3-4 years after eruption.

Treatment divided into 3 stages:
Emergency treatment
Intermediate or semi-permanent treatment
Permanent treatment

Semi-permanent:
These are according to the need of the child. Have to keep in mind prognosis of Pulp healing amount of structure remain stage of root development stage of eruption of tooth size of pulp chamber occlusion of patient well of the parent and child
Types of semi-permanent restorations:
  colloid crown
  Chrom steal crown with window labeling
  pin with filling material
  cold cure acrylic temporary crown (good esthetic, keep it 4-6 weeks in the month)
In case of Class III fracture where fracture line below the level of root, try to extend the root orthodontically and do R.C and make post and core.