



Grounding Caption

This localization caption provides multi-dimensional spatial analysis of anatomical structures and pathological findings for this panoramic dental X-ray image, including:

Teeth visibility with center points (total: 8):

```
[
  {'point_2d': [945, 658], 'tooth_id': '33', 'score': 0.9},
  {'point_2d': [747, 633], 'tooth_id': '44', 'score': 0.89},
  {'point_2d': [850, 640], 'tooth_id': '41', 'score': 0.87},
  {'point_2d': [787, 654], 'tooth_id': '43', 'score': 0.87},
  {'point_2d': [825, 653], 'tooth_id': '42', 'score': 0.84},
  {'point_2d': [879, 639], 'tooth_id': '31', 'score': 0.83},
  {'point_2d': [537, 416], 'tooth_id': '18', 'score': 0.8},
  {'point_2d': [909, 654], 'tooth_id': '32', 'score': 0.6}
]
```

Wisdom teeth detection (total: 1):

```
[
  {'box_2d': [503, 348, 570, 485], 'tooth_id': '18', 'is_impacted': false, 'score': 0.8}
]
```

Dental Pathological Findings (total: 4):

```
[
  {'box_2d': [1160, 415, 1216, 478], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.94, 'near_tooth': '33'},
  {'box_2d': [795, 385, 822, 516], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.72, 'near_tooth': '44'},
  {'box_2d': [398, 478, 480, 562], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.48, 'near_tooth': '18'},
  {'box_2d': [942, 407, 986, 537], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.45, 'near_tooth': '33'}
]
```

Historical Treatments (total: 8):

```
[
  {'box_2d': [907, 499, 1162, 659], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.92, 'near_tooth': '33'},
  {'box_2d': [474, 460, 809, 656], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.91, 'near_tooth': '44'},
  {'box_2d': [1062, 387, 1103, 462], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.94, 'near_tooth': '33'},
  {'box_2d': [995, 408, 1030, 484], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.91, 'near_tooth': '33'},
  {'box_2d': [880, 407, 906, 478], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.91, 'near_tooth': '31'},
  {'box_2d': [706, 400, 734, 473], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.89, 'near_tooth': '18'},
  {'box_2d': [663, 383, 692, 458], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.87, 'near_tooth': '18'},
  {'box_2d': [940, 409, 987, 538], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.69, 'near_tooth': '33'}
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 8 teeth are visualized, including mandibular molars (#33, #44, #41, #43, #42, #31, #18) and one maxillary molar (#32). The left mandibular first molar (#32) is partially visualized (confidence score: 0.6). Wisdom teeth analysis reveals #18 is fully erupted and not impacted, with no evidence of impaction.

2. Pathological Findings

- **#33**: Clear indication of a root stump near the distal aspect (confidence score: 0.94).
- **#44**: Suspicious for a root stump near the mesial aspect (confidence score: 0.72).
- **#18**: Areas of concern noted for a root stump near the apical region (confidence score: 0.48).
- **#33**: Additional suspicious area for a root stump near the distobuccal aspect (confidence score: 0.45).

3. Historical Interventions

- **#33**: Presence of a crown restoration and three implant fixtures (one apical, one mid-root, and one distal).
 - **#44**: Restoration observed near the mesial surface.
 - **#31**: Implant fixture detected near the mid-root.
 - **#18**: Two implant fixtures identified near the apical and mid-root regions.
-

Clinical Summary & Recommendations

1. Priority Concerns

- Root stumps near #33 (confirmed) and #44 (suspected) require evaluation for potential extraction or endodontic intervention.
- Suspicious root remnants near #18 and #33 necessitate further imaging (e.g., CBCT) to clarify extent.

2. Preventive Measures

- Reinforce meticulous oral hygiene around implant fixtures (#33, #31, #18) to prevent peri-implantitis.
- Monitor suspicious areas near #44 and #18 for progressive radiographic changes during routine recalls.

3. Follow-up Protocol

- Schedule a 3–6 month recall for clinical and radiographic reevaluation of root stumps.
- Refer to a periodontist or oral surgeon for definitive management of root stumps and implant stability assessment.
- Consider CBCT imaging for comprehensive evaluation of #33 and #18 pathology.