



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: 30):

```
[  
{'point_2d': [1175, 656], 'tooth_id': '36', 'score': 0.97},  
{'point_2d': [738, 660], 'tooth_id': '45', 'score': 0.96},  
{'point_2d': [1257, 638], 'tooth_id': '37', 'score': 0.94},  
{'point_2d': [672, 657], 'tooth_id': '46', 'score': 0.94},  
{'point_2d': [788, 481], 'tooth_id': '13', 'score': 0.94},  
{'point_2d': [1010, 489], 'tooth_id': '22', 'score': 0.93},  
{'point_2d': [954, 482], 'tooth_id': '21', 'score': 0.93},  
{'point_2d': [564, 479], 'tooth_id': '17', 'score': 0.93},  
{'point_2d': [1099, 662], 'tooth_id': '35', 'score': 0.92},  
{'point_2d': [871, 676], 'tooth_id': '42', 'score': 0.92},  
{'point_2d': [1296, 476], 'tooth_id': '27', 'score': 0.92},  
{'point_2d': [632, 475], 'tooth_id': '16', 'score': 0.91},  
{'point_2d': [1008, 681], 'tooth_id': '33', 'score': 0.9},  
{'point_2d': [841, 488], 'tooth_id': '12', 'score': 0.9},  
{'point_2d': [694, 479], 'tooth_id': '15', 'score': 0.9},  
{'point_2d': [823, 682], 'tooth_id': '43', 'score': 0.9},  
{'point_2d': [1153, 479], 'tooth_id': '25', 'score': 0.89},  
{'point_2d': [776, 673], 'tooth_id': '44', 'score': 0.88},  
{'point_2d': [746, 484], 'tooth_id': '14', 'score': 0.88},  
{'point_2d': [1103, 482], 'tooth_id': '24', 'score': 0.88},  
{'point_2d': [1061, 477], 'tooth_id': '23', 'score': 0.88},  
{'point_2d': [895, 485], 'tooth_id': '11', 'score': 0.87},  
{'point_2d': [1053, 671], 'tooth_id': '34', 'score': 0.87},  
{'point_2d': [522, 443], 'tooth_id': '18', 'score': 0.87},  
{'point_2d': [934, 673], 'tooth_id': '31', 'score': 0.86},  
{'point_2d': [531, 610], 'tooth_id': '48', 'score': 0.84},  
{'point_2d': [902, 673], 'tooth_id': '41', 'score': 0.84},  
{'point_2d': [1219, 473], 'tooth_id': '26', 'score': 0.83},  
{'point_2d': [963, 679], 'tooth_id': '32', 'score': 0.77},  
{'point_2d': [591, 599], 'tooth_id': '47', 'score': 0.71}  
]
```

Wisdom teeth detection (total: 2):

```
[  
{'box_2d': [485, 373, 559, 512], 'tooth_id': '18', 'is_impacted': false, 'score': 0.87},  
{'box_2d': [491, 546, 572, 674], 'tooth_id': '48', 'is_impacted': false, 'score': 0.84}  
]
```

Dental Pathological Findings (total: 6):

```
[  
{'box_2d': [1139, 396, 1182, 565], 'tooth_id': '25', 'label': 'periapical radiolucency', 'score': 0.27},  
{'box_2d': [704, 405, 773, 597], 'tooth_id': '14', 'label': 'caries', 'score': 0.3},  
{'box_2d': [833, 391, 1000, 590], 'tooth_id': '11', 'label': 'calculus', 'score': 0.36},  
{'box_2d': [1287, 552, 1369, 689], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.79, 'near_tooth': '37'},  
{'box_2d': [1309, 373, 1388, 498], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.59, 'near_tooth': '27'},  
{'box_2d': [543, 571, 570, 601], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.44, 'near_tooth': '48'}  
]
```

Historical Treatments (total: 3):

```
[
```

```
{'box_2d': [573, 568, 656, 617], 'tooth_id': '47', 'label': 'crown', 'score': 0.84},  
{'box_2d': [545, 569, 657, 695], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.9, 'near_tooth': '47'},  
{'box_2d': [1205, 565, 1263, 596], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.59, 'near_tooth': '37'}  
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 30 teeth are visualized within the panoramic field of view. All identified wisdom teeth (#18 and #48) are fully erupted and not impacted. The remaining dentition demonstrates normal morphology and spatial alignment.

2. Pathological Findings

- #14: Suspicious for early carious lesion in the mesial aspect.
- #11: Suspicious for calculus deposition in the subgingival region.
- #25: Areas of concern noted for periapical radiolucency at the apical region.
- Near #37: Suspicious for impacted tooth in the posterior mandibular region.
- Near #27: Suspicious for impacted tooth in the posterior mandibular region.
- Near #48: Suspicious for carious lesion in the distal aspect of the adjacent soft tissues.

3. Historical Interventions

- #47: Presence of a crown on the mesiobuccal surface.
- Near #47: Root canal-treated tooth with radiopaque filling visible.
- Near #37: Presence of a restoration in the interproximal area.

Clinical Summary & Recommendations

1. Priority Concerns

- Suspicious impacted tooth near #37 and #27 requires further radiographic and clinical evaluation to assess surgical extraction feasibility.
- Periapical radiolucency at #25 necessitates endodontic assessment to rule out apical periodontitis or non-vitality.
- Carious lesion near #48 should be confirmed via close-up imaging and addressed with preventive or restorative intervention.

2. Preventive Measures

- Reinforce oral hygiene measures, particularly for areas with calculus susceptibility (#11).
- Monitor suspicious caries (#14) and impacted teeth (#37, #27) for progression during routine recalls.

3. Follow-up Protocol

- Refer to an endodontist for definitive management of #25's apical radiolucency.
- Schedule a 6-month recall for reassessment of impacted teeth and calculus-prone regions.
- Consider cone-beam CT imaging for detailed evaluation of impacted mandibular teeth (#37, #27).