



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: 28):

```
[
{'point_2d': [1128, 647], 'tooth_id': '36', 'score': 0.95},
{'point_2d': [659, 645], 'tooth_id': '46', 'score': 0.95},
{'point_2d': [564, 616], 'tooth_id': '47', 'score': 0.94},
{'point_2d': [731, 665], 'tooth_id': '45', 'score': 0.94},
{'point_2d': [632, 411], 'tooth_id': '16', 'score': 0.92},
{'point_2d': [485, 380], 'tooth_id': '18', 'score': 0.92},
{'point_2d': [552, 401], 'tooth_id': '17', 'score': 0.92},
{'point_2d': [1271, 580], 'tooth_id': '38', 'score': 0.92},
{'point_2d': [488, 570], 'tooth_id': '48', 'score': 0.91},
{'point_2d': [1199, 420], 'tooth_id': '27', 'score': 0.91},
{'point_2d': [1265, 404], 'tooth_id': '28', 'score': 0.91},
{'point_2d': [1011, 674], 'tooth_id': '34', 'score': 0.91},
{'point_2d': [1053, 652], 'tooth_id': '35', 'score': 0.91},
{'point_2d': [699, 411], 'tooth_id': '15', 'score': 0.9},
{'point_2d': [975, 689], 'tooth_id': '33', 'score': 0.9},
{'point_2d': [818, 686], 'tooth_id': '43', 'score': 0.89},
{'point_2d': [784, 422], 'tooth_id': '13', 'score': 0.86},
{'point_2d': [945, 444], 'tooth_id': '22', 'score': 0.86},
{'point_2d': [1027, 436], 'tooth_id': '24', 'score': 0.84},
{'point_2d': [782, 665], 'tooth_id': '44', 'score': 0.84},
{'point_2d': [991, 432], 'tooth_id': '23', 'score': 0.83},
{'point_2d': [897, 657], 'tooth_id': '31', 'score': 0.81},
{'point_2d': [1078, 429], 'tooth_id': '25', 'score': 0.79},
{'point_2d': [929, 658], 'tooth_id': '32', 'score': 0.78},
{'point_2d': [874, 647], 'tooth_id': '41', 'score': 0.74},
{'point_2d': [827, 438], 'tooth_id': '12', 'score': 0.74},
{'point_2d': [742, 417], 'tooth_id': '14', 'score': 0.7},
{'point_2d': [865, 449], 'tooth_id': '11', 'score': 0.61}
]
```

Wisdom teeth detection (total: 4):

```
[
{'box_2d': [444, 304, 526, 455], 'tooth_id': '18', 'is_impacted': false, 'score': 0.92},
{'box_2d': [1206, 504, 1336, 657], 'tooth_id': '38', 'is_impacted': false, 'score': 0.92},
{'box_2d': [419, 487, 556, 653], 'tooth_id': '48', 'is_impacted': false, 'score': 0.91},
{'box_2d': [1229, 329, 1300, 480], 'tooth_id': '28', 'is_impacted': false, 'score': 0.91}
]
```

Dental Pathological Findings (total: 2):

```
[
{'box_2d': [1050, 308, 1110, 565], 'tooth_id': '25', 'label': 'caries', 'score': 0.26},
{'box_2d': [1099, 359, 1163, 485], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.94, 'near_tooth': '25'}
]
```

Historical Treatments (total: 0):

```
[
]
```

Medical Report

Teeth-Specific Observations

General Condition

The panoramic radiograph visualizes a total of 28 teeth, with all permanent teeth accounted for. Wisdom teeth (#18, #28, #38, #48) are fully erupted and not impacted. No significant periodontal bone loss or generalized radiolucency is observed.

Pathological Findings

- Areas of concern noted for **#25 (tooth #25)**, suspicious for early caries with radiolucent changes in the coronal region.
- Clear indication of a **root-stump** adjacent to **#25**, consistent with a prior extraction or residual apical fragment.

Historical Interventions

No evidence of restorations, crowns, root canal treatments, or dental implants is present.

Clinical Summary & Recommendations

Priority Concerns

1. **Deep caries suspicious on #25** requires immediate clinical evaluation to assess caries depth and potential need for restorative intervention.
2. **Root-stump near #25** warrants radiographic correlation and clinical examination to determine if residual apical tissue remains or if a post-extraction shadow is present.

Preventive Measures

- Reinforce patient education on interproximal cleaning techniques for #24–#26 to mitigate caries risk.
- Emphasize fluoride application and dietary counseling for high-risk areas.

Follow-up Protocol

- Schedule a **6-month recall** for re-evaluation of suspicious caries on #25.
- Refer to a general dentist for clinical assessment of the root-stump to rule out apical pathology.
- Perform **digital periapical imaging** of #25 if symptomatic or radiographic changes are noted.