



## 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: 29):

```
[
{'point_2d': [711, 765], 'tooth_id': '45', 'score': 0.96},
{'point_2d': [1113, 731], 'tooth_id': '36', 'score': 0.95},
{'point_2d': [484, 672], 'tooth_id': '48', 'score': 0.92},
{'point_2d': [1197, 480], 'tooth_id': '27', 'score': 0.92},
{'point_2d': [561, 723], 'tooth_id': '47', 'score': 0.92},
{'point_2d': [1194, 708], 'tooth_id': '37', 'score': 0.92},
{'point_2d': [549, 496], 'tooth_id': '17', 'score': 0.91},
{'point_2d': [1037, 755], 'tooth_id': '35', 'score': 0.91},
{'point_2d': [956, 771], 'tooth_id': '33', 'score': 0.9},
{'point_2d': [998, 758], 'tooth_id': '34', 'score': 0.9},
{'point_2d': [621, 507], 'tooth_id': '16', 'score': 0.89},
{'point_2d': [719, 531], 'tooth_id': '14', 'score': 0.89},
{'point_2d': [765, 525], 'tooth_id': '13', 'score': 0.89},
{'point_2d': [800, 782], 'tooth_id': '43', 'score': 0.89},
{'point_2d': [940, 532], 'tooth_id': '22', 'score': 0.88},
{'point_2d': [844, 766], 'tooth_id': '42', 'score': 0.87},
{'point_2d': [679, 517], 'tooth_id': '15', 'score': 0.86},
{'point_2d': [760, 763], 'tooth_id': '44', 'score': 0.85},
{'point_2d': [1067, 506], 'tooth_id': '25', 'score': 0.84},
{'point_2d': [901, 543], 'tooth_id': '21', 'score': 0.84},
{'point_2d': [1022, 517], 'tooth_id': '24', 'score': 0.84},
{'point_2d': [853, 545], 'tooth_id': '11', 'score': 0.83},
{'point_2d': [808, 536], 'tooth_id': '12', 'score': 0.81},
{'point_2d': [914, 765], 'tooth_id': '32', 'score': 0.81},
{'point_2d': [980, 517], 'tooth_id': '23', 'score': 0.8},
{'point_2d': [1267, 463], 'tooth_id': '28', 'score': 0.76},
{'point_2d': [872, 762], 'tooth_id': '41', 'score': 0.74},
{'point_2d': [892, 762], 'tooth_id': '31', 'score': 0.68},
{'point_2d': [1279, 661], 'tooth_id': '38', 'score': 0.65}
]
```

Wisdom teeth detection (total: 3):

```
[
{'box_2d': [420, 589, 548, 756], 'tooth_id': '48', 'is_impacted': false, 'score': 0.92},
{'box_2d': [1233, 380, 1302, 547], 'tooth_id': '28', 'is_impacted': false, 'score': 0.76},
{'box_2d': [1216, 589, 1342, 734], 'tooth_id': '38', 'is_impacted': false, 'score': 0.65}
]
```

Dental Pathological Findings (total: 4):

```
[
{'box_2d': [1091, 414, 1156, 528], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.75, 'near_tooth': '25'},
{'box_2d': [1203, 506, 1227, 535], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.45, 'near_tooth': '27'},
{'box_2d': [1190, 637, 1218, 671], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.44, 'near_tooth': '37'},
{'box_2d': [1237, 593, 1299, 634], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.35, 'near_tooth': '38'}
]
```

Historical Treatments (total: 1):

```
[
{'box_2d': [610, 562, 658, 608], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.63, 'near_tooth': '16'}
]
```

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## Medical Report

### Teeth-Specific Observations

#### 1. General Condition

A total of 29 teeth are visualized, with full eruption observed. All detected wisdom teeth (#48, #28, and #38) are present and non-impacted. No significant anatomical anomalies or missing teeth are noted.

#### 2. Pathological Findings

- Suspicious for a root stump near tooth #25.
- Areas of concern noted for suspected caries near tooth #27.
- Areas of concern noted for suspected caries near tooth #37.
- Areas of concern noted for suspected caries near tooth #38.

#### 3. Historical Interventions

A restoration is present near tooth #16.

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### Clinical Summary & Recommendations

#### Priority Concerns

- The suspicious root stump near #25 warrants evaluation for possible residual root fragments or infection.
- Suspected caries near posterior teeth (#27, #37, #38) require confirmation via additional imaging or clinical assessment to determine extent and treatment urgency.

#### Preventive Measures

- Reinforce oral hygiene protocols, emphasizing interproximal cleaning for posterior regions.
- Educate on dietary modifications to reduce caries risk in susceptible areas.

#### Follow-up Protocol

- Schedule a 6-month recall to monitor suspicious caries and root stump.
- Refer to an endodontist for further evaluation of the root stump near #25 if clinical symptoms arise.
- Consider targeted radiographic imaging (e.g., bitewing) to clarify caries status in #27, #37, and #38.