



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': [1121, 780], 'tooth_id': '36', 'score': 0.95},
{'point_2d': [473, 759], 'tooth_id': '47', 'score': 0.94},
{'point_2d': [397, 525], 'tooth_id': '18', 'score': 0.94},
{'point_2d': [566, 778], 'tooth_id': '46', 'score': 0.94},
{'point_2d': [653, 798], 'tooth_id': '45', 'score': 0.94},
{'point_2d': [1216, 533], 'tooth_id': '27', 'score': 0.94},
{'point_2d': [719, 576], 'tooth_id': '13', 'score': 0.93},
{'point_2d': [701, 800], 'tooth_id': '44', 'score': 0.93},
{'point_2d': [1206, 745], 'tooth_id': '37', 'score': 0.92},
{'point_2d': [467, 555], 'tooth_id': '17', 'score': 0.92},
{'point_2d': [879, 782], 'tooth_id': '31', 'score': 0.92},
{'point_2d': [544, 572], 'tooth_id': '16', 'score': 0.92},
{'point_2d': [616, 574], 'tooth_id': '15', 'score': 0.92},
{'point_2d': [1057, 795], 'tooth_id': '35', 'score': 0.91},
{'point_2d': [389, 710], 'tooth_id': '48', 'score': 0.9},
{'point_2d': [962, 806], 'tooth_id': '33', 'score': 0.9},
{'point_2d': [1144, 553], 'tooth_id': '26', 'score': 0.9},
{'point_2d': [761, 809], 'tooth_id': '43', 'score': 0.9},
{'point_2d': [1083, 555], 'tooth_id': '25', 'score': 0.89},
{'point_2d': [1004, 796], 'tooth_id': '34', 'score': 0.89},
{'point_2d': [918, 792], 'tooth_id': '32', 'score': 0.89},
{'point_2d': [670, 570], 'tooth_id': '14', 'score': 0.88},
{'point_2d': [839, 784], 'tooth_id': '41', 'score': 0.86},
{'point_2d': [1285, 518], 'tooth_id': '28', 'score': 0.86},
{'point_2d': [808, 785], 'tooth_id': '42', 'score': 0.86},
{'point_2d': [775, 588], 'tooth_id': '12', 'score': 0.85},
{'point_2d': [1031, 564], 'tooth_id': '24', 'score': 0.84},
{'point_2d': [872, 591], 'tooth_id': '21', 'score': 0.82},
{'point_2d': [819, 587], 'tooth_id': '11', 'score': 0.82},
{'point_2d': [975, 556], 'tooth_id': '23', 'score': 0.79}
]
```

Wisdom teeth detection (total: 3):

```
[
{'box_2d': [362, 444, 432, 607], 'tooth_id': '18', 'is_impacted': false, 'score': 0.94},
{'box_2d': [326, 639, 452, 781], 'tooth_id': '48', 'is_impacted': false, 'score': 0.9},
{'box_2d': [1246, 432, 1324, 605], 'tooth_id': '28', 'is_impacted': false, 'score': 0.86}
]
```

Dental Pathological Findings (total: 2):

```
[
{'box_2d': [1231, 642, 1357, 738], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.89, 'near_tooth': '37'},
{'box_2d': [435, 578, 450, 601], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.2, 'near_tooth': '17'}
]
```

Historical Treatments (total: 1):

```
[
```

```
{'box_2d': [848, 596, 1001, 684], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.86, 'near_tooth': '21'}
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 30 teeth are clearly visualized within the panoramic image. All identified wisdom teeth (#18, #48, and #28) appear fully erupted and non-impacted, with normal eruption patterns and alignment.

2. Pathological Findings

- A clear indication of impacted bone or tooth fragment is noted near tooth #37 at the lower right posterior region.
- Suspicious for early carious lesion near tooth #17 at the upper left posterior area, requiring further evaluation.

3. Historical Interventions

- Presence of a restoration (filling) near tooth #21 at the upper anterior region, consistent with prior caries management.
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Clinical Summary & Recommendations

Priority Concerns

- Impacted bone or tooth fragment near #37 (lower right quadrant) warrants radiographic and clinical correlation to assess for potential complications (e.g., resorption, infection).
- Early carious lesion suspicious for active decay near #17 (upper left quadrant) necessitates prompt intervention to prevent progression.
- Restoration integrity near #21 should be evaluated for marginal defects or secondary caries.

Preventive Measures

- Reinforce oral hygiene practices, emphasizing interproximal cleaning for high-risk areas (#17, #21).
- Monitor suspicious carious lesion near #17 with follow-up imaging and consider dietary counseling to reduce cariogenic risk.
- Educate on signs of impacted fragment complications (e.g., swelling, pain) near #37.

Follow-up Protocol

- Immediate referral to an oral surgeon for assessment of impacted fragment near #37.
- Recall in 3–6 months for re-evaluation of suspicious carious lesion near #17 and restoration status.
- Schedule a 6-month recall for general dental monitoring, with emphasis on high-risk regions.
- Consider additional imaging (e.g., CBCT) for definitive diagnosis of #17 if clinical signs persist.