



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': [1244, 661], 'tooth_id': '37', 'score': 0.95},
{'point_2d': [676, 657], 'tooth_id': '46', 'score': 0.95},
{'point_2d': [1155, 674], 'tooth_id': '36', 'score': 0.94},
{'point_2d': [1268, 468], 'tooth_id': '27', 'score': 0.94},
{'point_2d': [750, 685], 'tooth_id': '45', 'score': 0.93},
{'point_2d': [582, 628], 'tooth_id': '47', 'score': 0.92},
{'point_2d': [501, 581], 'tooth_id': '48', 'score': 0.92},
{'point_2d': [552, 426], 'tooth_id': '17', 'score': 0.92},
{'point_2d': [811, 477], 'tooth_id': '13', 'score': 0.91},
{'point_2d': [859, 678], 'tooth_id': '43', 'score': 0.91},
{'point_2d': [1302, 628], 'tooth_id': '38', 'score': 0.91},
{'point_2d': [1058, 704], 'tooth_id': '34', 'score': 0.9},
{'point_2d': [641, 447], 'tooth_id': '16', 'score': 0.9},
{'point_2d': [1093, 698], 'tooth_id': '35', 'score': 0.9},
{'point_2d': [956, 498], 'tooth_id': '21', 'score': 0.9},
{'point_2d': [1085, 480], 'tooth_id': '24', 'score': 0.89},
{'point_2d': [1192, 475], 'tooth_id': '26', 'score': 0.88},
{'point_2d': [976, 688], 'tooth_id': '32', 'score': 0.88},
{'point_2d': [801, 686], 'tooth_id': '44', 'score': 0.88},
{'point_2d': [714, 455], 'tooth_id': '15', 'score': 0.87},
{'point_2d': [865, 482], 'tooth_id': '12', 'score': 0.87},
{'point_2d': [1013, 688], 'tooth_id': '33', 'score': 0.86},
{'point_2d': [1127, 483], 'tooth_id': '25', 'score': 0.86},
{'point_2d': [911, 485], 'tooth_id': '11', 'score': 0.86},
{'point_2d': [758, 471], 'tooth_id': '14', 'score': 0.83},
{'point_2d': [934, 679], 'tooth_id': '31', 'score': 0.77},
{'point_2d': [1037, 491], 'tooth_id': '23', 'score': 0.75},
{'point_2d': [903, 671], 'tooth_id': '42', 'score': 0.68},
{'point_2d': [1324, 463], 'tooth_id': '28', 'score': 0.62}
]
```

Wisdom teeth detection (total: 3):

```
[
{'box_2d': [432, 508, 569, 654], 'tooth_id': '48', 'is_impacted': false, 'score': 0.92},
{'box_2d': [1253, 557, 1352, 699], 'tooth_id': '38', 'is_impacted': false, 'score': 0.91},
{'box_2d': [1293, 401, 1354, 525], 'tooth_id': '28', 'is_impacted': true, 'score': 0.62}
]
```

Dental Pathological Findings (total: 5):

```
[
{'box_2d': [904, 366, 975, 580], 'tooth_id': '21', 'label': 'calculus', 'score': 0.43},
{'box_2d': [1107, 380, 1160, 567], 'tooth_id': '25', 'label': 'periapical radiolucency', 'score': 0.28},
{'box_2d': [1294, 402, 1354, 525], 'tooth_id': '28', 'label': 'impacted', 'score': 0.48},
{'box_2d': [1334, 665, 1373, 713], 'tooth_id': 'unknown', 'label': 'periapical radiolucency', 'score': 0.35, 'near_tooth': '38'},
{'box_2d': [1153, 505, 1171, 535], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.25, 'near_tooth': '25'}
]
```

Historical Treatments (total: 0):

```
[
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 29 teeth are visualized within the panoramic field. Wisdom teeth include #48 (non-impacted), #38 (non-impacted), and #28 (impacted). All detected teeth demonstrate normal anatomical alignment and root morphology.

2. Pathological Findings

- #21: Suspicious for supragingival/subgingival calculus.
- #25: Suspicious for periapical radiolucency, potentially indicative of apical pathology.
- #28: Impacted wisdom tooth with limited radiographic visibility.
- Near #38: Suspicious for periapical radiolucency involving adjacent apices.
- Near #25: Areas of concern for carious lesion involvement.

3. Historical Interventions

No prior restorative interventions (e.g., fillings, crowns, root canal treatments, implants) are evident on this examination.

Clinical Summary & Recommendations

Priority Concerns

- Impacted wisdom tooth (#28) requires evaluation for extraction due to potential risk of pericoronitis or adjacent molar compromise.
- Periapical radiolucency near #38 and #25 necessitates endodontic assessment to rule out apical periodontitis or non-vitality.
- Suspected carious lesion near #25 warrants clinical correlation and preventive intervention.

Preventive Measures

- Reinforce plaque control measures to address calculus accumulation on #21.
- Educate on interdental brushing and flossing near impacted #28 to mitigate periodontal risks.
- Schedule regular recall for monitoring of suspect caries and periapical lesions.

Follow-up Protocol

- Refer to endodontist for #38 and #25 within 2 weeks to evaluate periapical radiolucency.
- Radiographic and clinical re-evaluation in 6 months for impacted #28 and suspicious lesions.
- Consider prophylactic extraction of #28 if radiographic progression or symptomatic involvement is observed.