



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': [656, 648], 'tooth_id': '46', 'score': 0.96},
{'point_2d': [1212, 659], 'tooth_id': '36', 'score': 0.96},
{'point_2d': [737, 667], 'tooth_id': '45', 'score': 0.96},
{'point_2d': [906, 433], 'tooth_id': '11', 'score': 0.93},
{'point_2d': [561, 628], 'tooth_id': '47', 'score': 0.93},
{'point_2d': [622, 417], 'tooth_id': '16', 'score': 0.93},
{'point_2d': [540, 404], 'tooth_id': '17', 'score': 0.93},
{'point_2d': [1298, 646], 'tooth_id': '37', 'score': 0.92},
{'point_2d': [1313, 434], 'tooth_id': '27', 'score': 0.92},
{'point_2d': [1231, 438], 'tooth_id': '26', 'score': 0.92},
{'point_2d': [791, 659], 'tooth_id': '44', 'score': 0.92},
{'point_2d': [693, 409], 'tooth_id': '15', 'score': 0.92},
{'point_2d': [1132, 681], 'tooth_id': '35', 'score': 0.92},
{'point_2d': [1080, 679], 'tooth_id': '34', 'score': 0.91},
{'point_2d': [1027, 444], 'tooth_id': '22', 'score': 0.91},
{'point_2d': [971, 442], 'tooth_id': '21', 'score': 0.91},
{'point_2d': [835, 670], 'tooth_id': '43', 'score': 0.9},
{'point_2d': [790, 418], 'tooth_id': '13', 'score': 0.9},
{'point_2d': [1040, 682], 'tooth_id': '33', 'score': 0.9},
{'point_2d': [892, 659], 'tooth_id': '42', 'score': 0.89},
{'point_2d': [849, 427], 'tooth_id': '12', 'score': 0.88},
{'point_2d': [991, 665], 'tooth_id': '32', 'score': 0.86},
{'point_2d': [1165, 426], 'tooth_id': '25', 'score': 0.86},
{'point_2d': [1115, 437], 'tooth_id': '24', 'score': 0.86},
{'point_2d': [742, 414], 'tooth_id': '14', 'score': 0.85},
{'point_2d': [1078, 436], 'tooth_id': '23', 'score': 0.85},
{'point_2d': [927, 659], 'tooth_id': '41', 'score': 0.82},
{'point_2d': [954, 661], 'tooth_id': '31', 'score': 0.82},
{'point_2d': [471, 386], 'tooth_id': '18', 'score': 0.77},
{'point_2d': [1380, 432], 'tooth_id': '28', 'score': 0.74}
]
```

Wisdom teeth detection (total: 2):

```
[
{'box_2d': [428, 312, 515, 460], 'tooth_id': '18', 'is_impacted': false, 'score': 0.77},
{'box_2d': [1353, 352, 1408, 512], 'tooth_id': '28', 'is_impacted': false, 'score': 0.74}
]
```

Dental Pathological Findings (total: 5):

```
[
{'box_2d': [669, 265, 736, 521], 'tooth_id': '15', 'label': 'periapical radiolucency', 'score': 0.33},
{'box_2d': [975, 329, 1041, 546], 'tooth_id': '22', 'label': 'calculus', 'score': 0.43},
{'box_2d': [1336, 558, 1430, 707], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.93, 'near_tooth': '37'},
{'box_2d': [407, 536, 521, 700], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.92, 'near_tooth': '47'},
{'box_2d': [1203, 459, 1218, 479], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.24, 'near_tooth': '26'}
]
```

Historical Treatments (total: 0):

```
[
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 30 teeth are visualized within the panoramic field. Wisdom teeth (#18 and #28) are present and not impacted. All remaining teeth demonstrate normal alignment and radiographic density, with no evidence of gross caries or fractures.

2. Pathological Findings

- **Tooth #15:** Suspicious for a periapical radiolucency at the apical region, suggesting potential apical pathology.
- **Tooth #22:** Suggests localized calculus deposits along the cervical margin, likely contributing to gingival inflammation.
- **Near tooth #37:** Clear indication of an impacted tooth structure lateral to the visible crown.
- **Near tooth #47:** Clear indication of an impacted tooth structure lateral to the visible crown.
- **Near tooth #26:** Suspicious for an early carious lesion at the interproximal surface, requiring further evaluation for confirmation.

3. Historical Interventions

No prior dental interventions (restorations, implants, or endodontic treatments) are evident in the radiographic field.

Clinical Summary & Recommendations

1. Priority Concerns

- Presence of impacted tooth fragments near #37 and #47, requiring surgical assessment for potential removal.
- Suspected periapical radiolucency at #15, warranting endodontic evaluation to rule out apical periodontitis.
- Suspicious interproximal caries near #26, necessitating intraoral imaging (e.g., bitewing radiograph) for definitive diagnosis.

2. Preventive Measures

- Reinforce plaque control and calculus removal through scaling and polishing, particularly around #22.
- Emphasize flossing and interdental cleaning to mitigate caries risk near #26.
- Monitor impacted areas near #37/#47 for signs of resorption or infection.

3. Follow-up Protocol

- Schedule a 3-month recall for clinical and radiographic reassessment of #15 and #26.
- Referral to an oral surgeon for evaluation of impacted fragments near #37 and #47.
- Consider additional imaging (e.g., cone-beam CT) for precise localization of impacted structures.