



## 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):

```
[  
]
```

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# 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.

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## 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.