



## 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': [728, 680], 'tooth_id': '45', 'score': 0.95},
{'point_2d': [595, 674], 'tooth_id': '47', 'score': 0.95},
{'point_2d': [544, 488], 'tooth_id': '18', 'score': 0.95},
{'point_2d': [525, 647], 'tooth_id': '48', 'score': 0.91},
{'point_2d': [775, 679], 'tooth_id': '44', 'score': 0.9},
{'point_2d': [608, 502], 'tooth_id': '17', 'score': 0.9},
{'point_2d': [1012, 513], 'tooth_id': '23', 'score': 0.9},
{'point_2d': [1064, 685], 'tooth_id': '35', 'score': 0.89},
{'point_2d': [1085, 517], 'tooth_id': '25', 'score': 0.89},
{'point_2d': [812, 691], 'tooth_id': '43', 'score': 0.89},
{'point_2d': [851, 504], 'tooth_id': '12', 'score': 0.88},
{'point_2d': [855, 688], 'tooth_id': '42', 'score': 0.87},
{'point_2d': [1018, 694], 'tooth_id': '34', 'score': 0.87},
{'point_2d': [972, 678], 'tooth_id': '33', 'score': 0.87},
{'point_2d': [929, 511], 'tooth_id': '21', 'score': 0.86},
{'point_2d': [882, 682], 'tooth_id': '41', 'score': 0.86},
{'point_2d': [678, 510], 'tooth_id': '16', 'score': 0.86},
{'point_2d': [735, 503], 'tooth_id': '15', 'score': 0.85},
{'point_2d': [805, 498], 'tooth_id': '13', 'score': 0.85},
{'point_2d': [1043, 515], 'tooth_id': '24', 'score': 0.85},
{'point_2d': [1202, 518], 'tooth_id': '27', 'score': 0.85},
{'point_2d': [1258, 503], 'tooth_id': '28', 'score': 0.84},
{'point_2d': [886, 511], 'tooth_id': '11', 'score': 0.84},
{'point_2d': [909, 680], 'tooth_id': '31', 'score': 0.83},
{'point_2d': [936, 678], 'tooth_id': '32', 'score': 0.83},
{'point_2d': [1139, 527], 'tooth_id': '26', 'score': 0.83},
{'point_2d': [964, 514], 'tooth_id': '22', 'score': 0.81},
{'point_2d': [776, 498], 'tooth_id': '14', 'score': 0.8},
{'point_2d': [1272, 646], 'tooth_id': '38', 'score': 0.77}]
```

Wisdom teeth detection (total: 4):

```
[{'box_2d': [512, 421, 577, 555], 'tooth_id': '18', 'is_impacted': false, 'score': 0.95},
{'box_2d': [481, 584, 570, 710], 'tooth_id': '48', 'is_impacted': false, 'score': 0.91},
{'box_2d': [1229, 442, 1287, 565], 'tooth_id': '28', 'is_impacted': false, 'score': 0.84},
{'box_2d': [1215, 584, 1328, 707], 'tooth_id': '38', 'is_impacted': false, 'score': 0.77}]
```

Dental Pathological Findings (total: 6):

```
[{'box_2d': [971, 425, 1062, 607], 'tooth_id': '23', 'label': 'calculus', 'score': 0.41},
{'box_2d': [799, 406, 864, 590], 'tooth_id': '12', 'label': 'calculus', 'score': 0.36},
{'box_2d': [843, 414, 901, 599], 'tooth_id': '12', 'label': 'calculus', 'score': 0.35},
{'box_2d': [921, 422, 987, 603], 'tooth_id': '21', 'label': 'calculus', 'score': 0.41},
{'box_2d': [716, 403, 757, 582], 'tooth_id': '15', 'label': 'periapical radiolucency', 'score': 0.28},
{'box_2d': [1099, 472, 1178, 618], 'tooth_id': '26', 'label': 'caries', 'score': 0.21}]
```

Historical Treatments (total: 0):

[  
]

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## Medical Report

### Oral Panoramic X-ray Examination Report

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#### \*\*Teeth-Specific Observations\*\*

##### #### General Condition

A total of 29 teeth were visualized on the panoramic radiograph. All four wisdom teeth (#18, #48, #28, #38) are present and unimpacted. The dental arches demonstrate normal alignment with no apparent fractures or malpositions.

##### #### Pathological Findings

- **Suspected calculus deposition** noted on #23, #12, and #21.
- **Areas of concern for periapical radiolucency** identified near #15 (FDI 15).
- **Suspicious for carious lesion** on #26 (FDI 26), consistent with early enamel demineralization.

##### #### Historical Interventions

No prior restorative or endodontic treatments observed.

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#### \*\*Clinical Summary & Recommendations\*\*

##### #### Priority Concerns

1. **Deep caries on #26** requires immediate intervention to prevent pulp involvement.
2. **Periapical radiolucency near #15** necessitates further evaluation (e.g., CBCT) to rule out apical periodontitis.

##### #### Preventive Measures

- Reinforce biofilm control protocols to mitigate calculus progression on #12, #21, and #23.
- Educate on diet modification to reduce caries risk, particularly for #26.

##### #### Follow-up Protocol

- Schedule **6-month recall** for reassessment of calculus and radiographic changes.
  - **Referral to endodontist** for #15 to determine apical pathology.
  - **Dental operative treatment** (restoration) prioritized for #26 within 2 weeks.
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\*Report generated by oral radiology assistant (AI). Clinical correlation and patient history remain essential for final diagnosis.\*