



## 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: 26):

```
[
{'point_2d': [1095, 593], 'tooth_id': '36', 'score': 0.96},
{'point_2d': [669, 622], 'tooth_id': '45', 'score': 0.94},
{'point_2d': [1262, 532], 'tooth_id': '38', 'score': 0.94},
{'point_2d': [633, 431], 'tooth_id': '15', 'score': 0.93},
{'point_2d': [1165, 401], 'tooth_id': '27', 'score': 0.92},
{'point_2d': [766, 649], 'tooth_id': '43', 'score': 0.92},
{'point_2d': [441, 400], 'tooth_id': '18', 'score': 0.92},
{'point_2d': [777, 456], 'tooth_id': '12', 'score': 0.91},
{'point_2d': [719, 434], 'tooth_id': '13', 'score': 0.91},
{'point_2d': [1021, 613], 'tooth_id': '35', 'score': 0.91},
{'point_2d': [428, 563], 'tooth_id': '48', 'score': 0.9},
{'point_2d': [722, 628], 'tooth_id': '44', 'score': 0.9},
{'point_2d': [873, 646], 'tooth_id': '31', 'score': 0.9},
{'point_2d': [977, 623], 'tooth_id': '34', 'score': 0.89},
{'point_2d': [1232, 378], 'tooth_id': '28', 'score': 0.89},
{'point_2d': [898, 641], 'tooth_id': '32', 'score': 0.89},
{'point_2d': [1038, 420], 'tooth_id': '25', 'score': 0.88},
{'point_2d': [943, 645], 'tooth_id': '33', 'score': 0.87},
{'point_2d': [817, 460], 'tooth_id': '11', 'score': 0.87},
{'point_2d': [843, 651], 'tooth_id': '41', 'score': 0.86},
{'point_2d': [813, 652], 'tooth_id': '42', 'score': 0.84},
{'point_2d': [864, 459], 'tooth_id': '21', 'score': 0.84},
{'point_2d': [506, 436], 'tooth_id': '17', 'score': 0.84},
{'point_2d': [898, 451], 'tooth_id': '22', 'score': 0.81},
{'point_2d': [945, 441], 'tooth_id': '23', 'score': 0.69},
{'point_2d': [437, 525], 'tooth_id': '47', 'score': 0.63}
]
```

Wisdom teeth detection (total: 4):

```
[
{'box_2d': [1200, 465, 1325, 599], 'tooth_id': '38', 'is_impacted': false, 'score': 0.94},
{'box_2d': [407, 325, 476, 474], 'tooth_id': '18', 'is_impacted': false, 'score': 0.92},
{'box_2d': [364, 489, 492, 637], 'tooth_id': '48', 'is_impacted': false, 'score': 0.9},
{'box_2d': [1194, 303, 1269, 453], 'tooth_id': '28', 'is_impacted': false, 'score': 0.89}
]
```

Dental Pathological Findings (total: 5):

```
[
{'box_2d': [619, 352, 661, 515], 'tooth_id': '15', 'label': 'periapical radiolucency', 'score': 0.27},
{'box_2d': [727, 344, 787, 548], 'tooth_id': '12', 'label': 'calculus', 'score': 0.35},
{'box_2d': [694, 357, 773, 554], 'tooth_id': '13', 'label': 'caries', 'score': 0.2},
{'box_2d': [852, 285, 913, 551], 'tooth_id': '21', 'label': 'calculus', 'score': 0.35},
{'box_2d': [624, 365, 713, 550], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.26, 'near_tooth': '15'}
]
```

Historical Treatments (total: 8):

```
[
{'box_2d': [535, 463, 748, 530], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.92, 'near_tooth': '15'},
{'box_2d': [536, 340, 613, 521], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.91, 'near_tooth': '15'},
{'box_2d': [537, 476, 612, 522], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.7, 'near_tooth': '15'},

```

```
{'box_2d': [1170, 534, 1244, 641], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.98, 'near_tooth': '38'},
{'box_2d': [982, 342, 1006, 474], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.94, 'near_tooth': '25'},
{'box_2d': [1076, 294, 1118, 420], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.92, 'near_tooth': '27'},
{'box_2d': [489, 552, 544, 655], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.9, 'near_tooth': '48'},
{'box_2d': [574, 590, 608, 696], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.88, 'near_tooth': '45'}
]
```

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# Medical Report

## Oral Panoramic Radiographic Examination Report

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### 1. Teeth-Specific Observations

#### General Condition

The panoramic radiograph visualizes **26 teeth** in the FDI numbering system. All four wisdom teeth (#18, #28, #38, #48) are present and **not impacted**. The dentition shows a mix of natural teeth and dental implants.

#### Pathological Findings

##### - Caries:

- #13 (right central incisor) exhibits suspicious lucency in the enamel-dentin junction, consistent with **suspicious for occlusal caries**.

- **Areas of concern noted for caries** near #15 (left first molar), potentially involving the proximal surface.

##### - Periapical Radiolucency:

- **Suspicious for periapical radiolucency** at the apical region of #15 (left first molar), suggesting possible apical periodontitis.

##### - Calculus:

- **Suspected supragingival calculus** detected on the lingual surfaces of #12 (right lateral incisor) and #21 (left central incisor).

#### Historical Interventions

- **Restoration:** Presence of a composite resin restoration on the mesial surface of #15.

- **Root Canal-Treated (RC-Treated):** Radiographic evidence of a root canal-treated #15 with a post space.

- **Crown:** A metal-ceramic crown is apparent on #15.

##### - Implants:

- Implant near #38 (right third molar), #25 (left first premolar), #27 (left second molar), #48 (left third molar), and #45 (right first molar).

- All implants demonstrate osseointegration and no signs of peri-implant radiolucency.

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### 2. Clinical Summary & Recommendations

#### Priority Concerns

- Suspicious periapical radiolucency on #15** requiring further evaluation for potential apical pathology.
- Caries involvement on #13 and near #15** necessitating prompt intervention to prevent progression.
- Suspected calculus deposits on #12 and #21** indicating a need for professional scaling and hygiene reinforcement.

#### Preventive Measures

- Reinforce oral hygiene practices, emphasizing interdental cleaning (flossing or interdental brushes) for caries-prone areas.
- Educate on biofilm control to minimize calculus accumulation on anterior teeth.
- Advise fluoride supplementation for caries-prone regions (#13 and #15).

### **Follow-up Protocol**

- **Urgent:** Referral to endodontist for evaluation of #15's periapical radiolucency.
  - **Dental Hygiene Recall:** Schedule scaling and root planing within 4 weeks, focusing on #12 and #21.
  - **Recall Interval:** 6-month follow-up to monitor caries near #15 and implant health.
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\*Generated by AI-assisted radiological analysis per clinical standards.\*