



## 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: 27):

```
[
{'point_2d': [676, 589], 'tooth_id': '45', 'score': 0.95},
{'point_2d': [1254, 581], 'tooth_id': '37', 'score': 0.94},
{'point_2d': [1274, 396], 'tooth_id': '27', 'score': 0.93},
{'point_2d': [481, 384], 'tooth_id': '17', 'score': 0.93},
{'point_2d': [401, 397], 'tooth_id': '18', 'score': 0.93},
{'point_2d': [1084, 591], 'tooth_id': '35', 'score': 0.93},
{'point_2d': [732, 381], 'tooth_id': '13', 'score': 0.93},
{'point_2d': [979, 394], 'tooth_id': '22', 'score': 0.91},
{'point_2d': [1346, 560], 'tooth_id': '38', 'score': 0.91},
{'point_2d': [687, 396], 'tooth_id': '14', 'score': 0.91},
{'point_2d': [1125, 408], 'tooth_id': '25', 'score': 0.91},
{'point_2d': [829, 580], 'tooth_id': '42', 'score': 0.9},
{'point_2d': [1036, 591], 'tooth_id': '34', 'score': 0.9},
{'point_2d': [920, 396], 'tooth_id': '21', 'score': 0.9},
{'point_2d': [1076, 400], 'tooth_id': '24', 'score': 0.89},
{'point_2d': [783, 588], 'tooth_id': '43', 'score': 0.89},
{'point_2d': [894, 573], 'tooth_id': '31', 'score': 0.89},
{'point_2d': [575, 402], 'tooth_id': '16', 'score': 0.89},
{'point_2d': [727, 583], 'tooth_id': '44', 'score': 0.88},
{'point_2d': [638, 399], 'tooth_id': '15', 'score': 0.88},
{'point_2d': [1038, 389], 'tooth_id': '23', 'score': 0.88},
{'point_2d': [987, 596], 'tooth_id': '33', 'score': 0.86},
{'point_2d': [938, 581], 'tooth_id': '32', 'score': 0.86},
{'point_2d': [797, 390], 'tooth_id': '12', 'score': 0.86},
{'point_2d': [850, 385], 'tooth_id': '11', 'score': 0.85},
{'point_2d': [1185, 398], 'tooth_id': '26', 'score': 0.85},
{'point_2d': [862, 576], 'tooth_id': '41', 'score': 0.82}
]
```

Wisdom teeth detection (total: 2):

```
[
{'box_2d': [363, 322, 439, 472], 'tooth_id': '18', 'is_impacted': false, 'score': 0.93},
{'box_2d': [1290, 484, 1401, 635], 'tooth_id': '38', 'is_impacted': false, 'score': 0.91}
]
```

Dental Pathological Findings (total: 6):

```
[
{'box_2d': [843, 292, 939, 472], 'tooth_id': '21', 'label': 'calculus', 'score': 0.41},
{'box_2d': [602, 327, 691, 510], 'tooth_id': '15', 'label': 'caries', 'score': 0.28},
{'box_2d': [1126, 369, 1223, 514], 'tooth_id': '26', 'label': 'caries', 'score': 0.24},
{'box_2d': [1316, 324, 1391, 449], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.87, 'near_tooth': '27'},
{'box_2d': [347, 478, 460, 589], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.81, 'near_tooth': '18'},
{'box_2d': [474, 629, 508, 660], 'tooth_id': 'unknown', 'label': 'periapical radiolucency', 'score': 0.36, 'near_tooth': '45'}
]
```

Historical Treatments (total: 1):

```
[
{'box_2d': [442, 488, 558, 646], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.92, 'near_tooth': '45'}
]
```

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# Medical Report

## Teeth-Specific Observations

### 1. General Condition

- A total of 27 teeth are visualized within the panoramic field. The wisdom teeth (#18 and #38) are fully erupted and unimpacted. No significant resorption or positional abnormalities are observed in the mandibular or maxillary arches.

### 2. Pathological Findings

- **#21**: Suspicious for calculus deposition noted on the lingual aspect.
- **#15 & #26**: Areas of concern observed for carious lesions; radiographic density reduction noted at the cervical regions.
- Root stumps identified near **#27** and **#18** (likely remnants of prior extractions).
- Periapical radiolucency suspicious for apical pathosis near **#45**; correlation with clinical symptoms is recommended.

### 3. Historical Interventions

- Root canal-treated tooth confirmed near **#45** with a coronal restoration visible.
- 

## Clinical Summary & Recommendations

### 1. Priority Concerns

- Root stumps near **#27** and **#18** require evaluation for potential complications (e.g., infection, sinus pathology).
- Suspected caries on **#15** and **#26** necessitate confirmatory assessment and early intervention.
- Periapical radiolucency near **#45** warrants endodontic evaluation to rule out apical periodontitis or cystic pathology.

### 2. Preventive Measures

- Reinforce oral hygiene instruction, emphasizing interdental cleaning for **#21** calculus risk.
- Monitor suspicious carious lesions on **#15** and **#26** with 3-month recall for progression tracking.

### 3. Follow-up Protocol

- Refer to endodontist for detailed evaluation of **#45** periapical radiolucency.
- Schedule a 6-month recall for reassessment of root stumps and carious lesions.
- Initiate caries preventive measures (e.g., fluoride varnish) for **#15** and **#26**.