



## 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: 12):

```
[  
{'point_2d': [763, 673], 'tooth_id': '43', 'score': 0.93},  
{'point_2d': [1022, 624], 'tooth_id': '35', 'score': 0.92},  
{'point_2d': [809, 651], 'tooth_id': '42', 'score': 0.91},  
{'point_2d': [944, 648], 'tooth_id': '33', 'score': 0.91},  
{'point_2d': [1149, 414], 'tooth_id': '27', 'score': 0.91},  
{'point_2d': [560, 461], 'tooth_id': '16', 'score': 0.9},  
{'point_2d': [1214, 579], 'tooth_id': '38', 'score': 0.88},  
{'point_2d': [974, 635], 'tooth_id': '34', 'score': 0.87},  
{'point_2d': [674, 656], 'tooth_id': '45', 'score': 0.85},  
{'point_2d': [863, 629], 'tooth_id': '31', 'score': 0.84},  
{'point_2d': [894, 636], 'tooth_id': '32', 'score': 0.83},  
{'point_2d': [835, 640], 'tooth_id': '41', 'score': 0.74}  
]
```

Wisdom teeth detection (total: 1):

```
[  
{'box_2d': [1136, 510, 1292, 648], 'tooth_id': '38', 'is_impacted': false, 'score': 0.88}  
]
```

Dental Pathological Findings (total: 8):

```
[  
{'box_2d': [1183, 379, 1234, 449], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.84, 'near_tooth': '27'},  
{'box_2d': [651, 695, 702, 736], 'tooth_id': 'unknown', 'label': 'periapical radiolucency', 'score': 0.74, 'near_tooth': '45'},  
{'box_2d': [726, 728, 779, 778], 'tooth_id': 'unknown', 'label': 'periapical radiolucency', 'score': 0.73, 'near_tooth': '43'},  
{'box_2d': [477, 415, 532, 478], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.7, 'near_tooth': '16'},  
{'box_2d': [989, 360, 1019, 440], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.66, 'near_tooth': '27'},  
{'box_2d': [1070, 580, 1177, 630], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.62, 'near_tooth': '38'},  
{'box_2d': [1025, 541, 1048, 579], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.52, 'near_tooth': '35'},  
{'box_2d': [1144, 450, 1176, 484], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.46, 'near_tooth': '27'}  
]
```

Historical Treatments (total: 9):

```
[  
{'box_2d': [775, 413, 995, 529], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.9, 'near_tooth': '31'},  
{'box_2d': [527, 470, 696, 550], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.88, 'near_tooth': '16'},  
{'box_2d': [427, 572, 566, 711], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.87, 'near_tooth': '45'},  
{'box_2d': [1037, 358, 1128, 527], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.86, 'near_tooth': '27'},  
{'box_2d': [484, 566, 848, 672], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.86, 'near_tooth': '45'},  
{'box_2d': [854, 325, 921, 501], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.78, 'near_tooth': '31'},  
{'box_2d': [1038, 436, 1114, 525], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.72, 'near_tooth': '27'},  
{'box_2d': [706, 343, 762, 462], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.91, 'near_tooth': '16'},  
{'box_2d': [654, 336, 704, 463], 'tooth_id': 'unknown', 'label': 'implant', 'score': 0.9, 'near_tooth': '16'}  
]
```

## Medical Report

### Teeth-Specific Observations

## 1. General Condition

A total of 12 teeth are visualized, including the maxillary right first molar (#16), mandibular left first molar (#27), and mandibular right third molar (#38). Wisdom tooth #38 is fully erupted and not impacted. Other detected teeth include premolars and molars (FDI codes: #31, #32, #33, #34, #35, #41, #42, #43, #45).

## 2. Pathological Findings

- **Root stumps** are present near #27 (definitive) and suspicious findings near #16 and #38.
- **Periapical radiolucency** is noted near #45 (suspicious) and #43 (suspicious), suggesting possible apical pathology.
- **Caries** are suspicious near #35 and #27, requiring further clinical evaluation.

## 3. Historical Interventions

- **Restorations** are present near #16 and #31.
  - **Root canal-treated teeth** are identified near #27 and #45.
  - A **crown** is located on #27.
  - **Implants** are observed near #16, indicating prior prosthetic rehabilitation.
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## Clinical Summary & Recommendations

### 1. Priority Concerns

- **Root stumps near #27** require evaluation for potential endodontic or surgical intervention.
- **Periapical radiolucency near #45 and #43** suggests possible apical periodontitis; endodontic assessment is warranted.
- **Suspected caries near #35 and #27** necessitate radiographic and clinical correlation.

### 2. Preventive Measures

- Reinforce oral hygiene protocols to mitigate caries progression in #35 and #27.
- Monitor suspicious periapical radiolucencies for changes in size or density.
- Educate on the importance of regular interproximal cleaning around restorations and implants near #16.

### 3. Follow-up Protocol

- Schedule a **6-month recall** for reassessment of caries and periapical lesions.
  - Refer to an **endodontist** for definitive diagnosis and treatment planning for #45 and #43.
  - Consider **panoramic re-imaging** in 3–6 months to monitor root stumps and periapical pathology.
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\*Report generated using FDI tooth numbering system.\*