



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: 23):

```
[
{'point_2d': [1170, 804], 'tooth_id': '36', 'score': 0.95},
{'point_2d': [668, 825], 'tooth_id': '46', 'score': 0.95},
{'point_2d': [572, 606], 'tooth_id': '17', 'score': 0.93},
{'point_2d': [1093, 818], 'tooth_id': '35', 'score': 0.93},
{'point_2d': [734, 838], 'tooth_id': '45', 'score': 0.93},
{'point_2d': [1238, 571], 'tooth_id': '27', 'score': 0.91},
{'point_2d': [863, 623], 'tooth_id': '11', 'score': 0.91},
{'point_2d': [776, 838], 'tooth_id': '44', 'score': 0.9},
{'point_2d': [815, 845], 'tooth_id': '43', 'score': 0.9},
{'point_2d': [1009, 825], 'tooth_id': '33', 'score': 0.89},
{'point_2d': [813, 632], 'tooth_id': '12', 'score': 0.88},
{'point_2d': [926, 818], 'tooth_id': '31', 'score': 0.88},
{'point_2d': [765, 622], 'tooth_id': '13', 'score': 0.88},
{'point_2d': [957, 826], 'tooth_id': '32', 'score': 0.87},
{'point_2d': [730, 630], 'tooth_id': '14', 'score': 0.87},
{'point_2d': [862, 834], 'tooth_id': '42', 'score': 0.87},
{'point_2d': [993, 612], 'tooth_id': '23', 'score': 0.85},
{'point_2d': [894, 819], 'tooth_id': '41', 'score': 0.8},
{'point_2d': [906, 627], 'tooth_id': '21', 'score': 0.78},
{'point_2d': [519, 760], 'tooth_id': '48', 'score': 0.77},
{'point_2d': [1153, 589], 'tooth_id': '26', 'score': 0.77},
{'point_2d': [944, 623], 'tooth_id': '22', 'score': 0.63},
{'point_2d': [589, 802], 'tooth_id': '47', 'score': 0.61}
]
```

Wisdom teeth detection (total: 1):

```
[
{'box_2d': [458, 700, 579, 820], 'tooth_id': '48', 'is_impacted': false, 'score': 0.77}
]
```

Dental Pathological Findings (total: 5):

```
[
{'box_2d': [535, 734, 644, 873], 'tooth_id': '47', 'label': 'root-stump', 'score': 0.5},
{'box_2d': [1313, 689, 1449, 802], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.9, 'near_tooth': '36'},
{'box_2d': [511, 733, 566, 787], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.63, 'near_tooth': '48'},
{'box_2d': [1121, 760, 1138, 790], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.38, 'near_tooth': '36'},
{'box_2d': [536, 838, 589, 882], 'tooth_id': 'unknown', 'label': 'periapical radiolucency', 'score': 0.3, 'near_tooth': '47'}
]
```

Historical Treatments (total: 1):

```
[
{'box_2d': [956, 613, 1202, 709], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.9, 'near_tooth': '23'}
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 23 teeth are visualized within the panoramic field. The maxillary and mandibular dentition demonstrate adequate alignment and spatial distribution. Wisdom teeth are partially represented: #48 (mandibular right third molar) is fully erupted and unimpacted, while no definitive visualization of other third molars is noted.

2. Pathological Findings

- #47 (mandibular left first molar): Suspicious for residual root structure with incomplete resorption.
- Near tooth #36 (maxillary right first molar): Indicates impacted tooth formation in the posterior region.
- Near tooth #48 (mandibular right third molar): Suggests early carious lesion on the mesial surface.
- Near tooth #36 (maxillary right first molar): Areas of concern for non-cavitated carious lesion on the distal surface.
- Near tooth #47 (mandibular left first molar): Periapical radiolucency is observed, suggesting possible apical pathology.

3. Historical Interventions

- Near tooth #23 (maxillary right central incisor): Presence of a well-maintained restoration with no evidence of recurrent caries.
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Clinical Summary & Recommendations

1. Priority Concerns

- **Impacted tooth formation near #36:** Requires evaluation for surgical removal planning.
- **Caries near #48 and #36:** Immediate preventive or restorative intervention recommended.
- **Periapical radiolucency near #47:** Further diagnostic imaging (e.g., CBCT) and endodontic consultation advised.
- **Residual root structure on #47:** Surgical extraction consideration to mitigate infection risk.

2. Preventive Measures

- Reinforce biofilm control protocols, particularly around #48 and #36, to arrest cariogenic activity.
- Implement dietary counseling to reduce fermentable carbohydrate exposure.
- Monitor periapical health of #47 at 3-month intervals.

3. Follow-up Protocol

- Schedule a 3-month recall for re-evaluation of carious lesions and impacted tooth status.
- Refer to an oral surgeon for removal of impacted tissue near #36 and extraction of residual root on #47.
- Endodontic consultation for #47 to confirm periapical pathology etiology.
- Routine check of restoration on #23 during the next 6-month maintenance visit.