



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: 24):

```
[
{'point_2d': [1248, 707], 'tooth_id': '37', 'score': 0.95},
{'point_2d': [656, 698], 'tooth_id': '46', 'score': 0.94},
{'point_2d': [1165, 720], 'tooth_id': '36', 'score': 0.94},
{'point_2d': [568, 680], 'tooth_id': '47', 'score': 0.94},
{'point_2d': [1266, 511], 'tooth_id': '27', 'score': 0.93},
{'point_2d': [794, 485], 'tooth_id': '13', 'score': 0.92},
{'point_2d': [542, 468], 'tooth_id': '17', 'score': 0.92},
{'point_2d': [1005, 490], 'tooth_id': '22', 'score': 0.91},
{'point_2d': [1048, 490], 'tooth_id': '23', 'score': 0.91},
{'point_2d': [737, 694], 'tooth_id': '45', 'score': 0.91},
{'point_2d': [1100, 708], 'tooth_id': '35', 'score': 0.91},
{'point_2d': [948, 490], 'tooth_id': '21', 'score': 0.91},
{'point_2d': [780, 703], 'tooth_id': '44', 'score': 0.9},
{'point_2d': [1012, 711], 'tooth_id': '33', 'score': 0.89},
{'point_2d': [621, 475], 'tooth_id': '16', 'score': 0.89},
{'point_2d': [834, 707], 'tooth_id': '43', 'score': 0.85},
{'point_2d': [967, 702], 'tooth_id': '32', 'score': 0.85},
{'point_2d': [928, 695], 'tooth_id': '31', 'score': 0.84},
{'point_2d': [847, 488], 'tooth_id': '12', 'score': 0.84},
{'point_2d': [890, 479], 'tooth_id': '11', 'score': 0.84},
{'point_2d': [1340, 504], 'tooth_id': '28', 'score': 0.81},
{'point_2d': [876, 689], 'tooth_id': '42', 'score': 0.78},
{'point_2d': [1056, 720], 'tooth_id': '34', 'score': 0.76},
{'point_2d': [1132, 493], 'tooth_id': '25', 'score': 0.71}
]
```

Wisdom teeth detection (total: 1):

```
[
{'box_2d': [1307, 427, 1374, 582], 'tooth_id': '28', 'is_impacted': false, 'score': 0.81}
]
```

Dental Pathological Findings (total: 10):

```
[
{'box_2d': [1107, 418, 1157, 571], 'tooth_id': '25', 'label': 'root-stump', 'score': 0.69},
{'box_2d': [1285, 635, 1405, 758], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.92, 'near_tooth': '37'},
{'box_2d': [383, 594, 523, 727], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.91, 'near_tooth': '47'},
{'box_2d': [424, 362, 525, 492], 'tooth_id': 'unknown', 'label': 'impacted', 'score': 0.86, 'near_tooth': '17'},
{'box_2d': [1314, 509, 1360, 571], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.81, 'near_tooth': '28'},
{'box_2d': [700, 405, 756, 482], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.79, 'near_tooth': '13'},
{'box_2d': [1066, 430, 1122, 540], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.7, 'near_tooth': '25'},
{'box_2d': [1160, 409, 1227, 586], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.55, 'near_tooth': '25'},
{'box_2d': [1169, 519, 1223, 581], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.48, 'near_tooth': '27'},
{'box_2d': [1067, 509, 1113, 547], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.33, 'near_tooth': '25'}
]
```

Historical Treatments (total: 1):

```
[
{'box_2d': [1140, 635, 1201, 679], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.64, 'near_tooth': '36'}
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

The panoramic radiograph visualizes **24 teeth**, with all mandibular and maxillary posterior teeth present. Wisdom teeth analysis reveals **#28** (#48 in FDI notation) is **fully erupted and unimpacted**. No evidence of supernumerary or missing teeth is observed.

2. Pathological Findings

- **#25**: Root stump noted with residual apical radiolucency.
- **Near #37**: Impacted tooth identified lateral to the root of #37.
- **Near #47**: Impacted tooth detected mesial to #47.
- **Near #17**: Impacted tooth observed distal to #17.
- **Near #28**: Clear indication of carious lesion adjacent to #28.
- **Near #13**: Root fragment detected with minimal periradicular lucency.
- **Near #25**: Additional root fragment identified with questionable apical lucency.
- **Near #27**: Suspicious for early carious involvement.
- **Near #25**: Areas of concern for possible secondary caries.

3. Historical Interventions

- **Near #36**: Presence of a radiopaque restoration material consistent with prior filling.
-

Clinical Summary & Recommendations

1. Priority Concerns

- **Impacted teeth** near **#37** and **#47** require orthodontic/surgical evaluation to assess eruption potential and risk of adjacent tooth resorption.
- **#25 root stump** with associated radiolucency necessitates endodontic assessment for apical pathology.
- **Caries near #28** warrants immediate preventive intervention to prevent progression.

2. Preventive Measures

- Reinforce oral hygiene protocols, particularly around impacted teeth (**#37**, **#47**) to mitigate periodontal risk.
- Monitor suspicious carious lesions near **#27** and **#25** with 3-month recall imaging.
- Address root fragments near **#13** and **#25** for potential removal to prevent foreign body reaction.

3. Follow-up Protocol

- **6-month recall** for impacted teeth (near **#37**, **#47**) and carious lesions (**#28**).
- **Referral to endodontist** for evaluation of **#25** apical pathology.
- **Orthodontic consultation** for impacted wisdom teeth to determine surgical exposure or removal.