



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: 9):

```
[
{'point_2d': [678, 609], 'tooth_id': '45', 'score': 0.9},
{'point_2d': [637, 422], 'tooth_id': '15', 'score': 0.88},
{'point_2d': [871, 400], 'tooth_id': '21', 'score': 0.81},
{'point_2d': [810, 612], 'tooth_id': '42', 'score': 0.73},
{'point_2d': [684, 421], 'tooth_id': '14', 'score': 0.72},
{'point_2d': [1013, 397], 'tooth_id': '24', 'score': 0.69},
{'point_2d': [1060, 398], 'tooth_id': '25', 'score': 0.66},
{'point_2d': [843, 600], 'tooth_id': '31', 'score': 0.64},
{'point_2d': [843, 602], 'tooth_id': '41', 'score': 0.6}
]
```

Wisdom teeth detection (total: 0):

```
[
]
```

Dental Pathological Findings (total: 4):

```
[
{'box_2d': [580, 372, 713, 519], 'tooth_id': '14', 'label': 'caries', 'score': 0.21},
{'box_2d': [1145, 493, 1231, 583], 'tooth_id': 'unknown', 'label': 'root-stump', 'score': 0.83, 'near_tooth': '25'},
{'box_2d': [1176, 572, 1209, 599], 'tooth_id': 'unknown', 'label': 'periapical radiolucency', 'score': 0.42, 'near_tooth': '25'},
{'box_2d': [937, 312, 1021, 530], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.19, 'near_tooth': '24'}
]
```

Historical Treatments (total: 29):

```
[
{'box_2d': [945, 309, 994, 481], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.94, 'near_tooth': '24'},
{'box_2d': [949, 516, 989, 575], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.93, 'near_tooth': '31'},
{'box_2d': [535, 339, 619, 511], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.93, 'near_tooth': '15'},
{'box_2d': [1104, 412, 1142, 464], 'tooth_id': 'unknown', 'label': 'restoration', 'score': 0.92, 'near_tooth': '25'},
{'box_2d': [1036, 495, 1147, 653], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.92, 'near_tooth': '25'},
{'box_2d': [990, 509, 1041, 671], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.92, 'near_tooth': '31'},
{'box_2d': [1090, 315, 1161, 465], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.9, 'near_tooth': '25'},
{'box_2d': [989, 508, 1043, 564], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.9, 'near_tooth': '24'},
{'box_2d': [1163, 326, 1247, 468], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.89, 'near_tooth': '25'},
{'box_2d': [456, 362, 543, 517], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.89, 'near_tooth': '15'},
{'box_2d': [543, 442, 619, 510], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.89, 'near_tooth': '15'},
{'box_2d': [567, 524, 655, 672], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.89, 'near_tooth': '45'},
{'box_2d': [911, 527, 951, 588], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.89, 'near_tooth': '31'},
{'box_2d': [755, 324, 797, 496], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.89, 'near_tooth': '14'},
{'box_2d': [657, 454, 713, 501], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.88, 'near_tooth': '14'},
{'box_2d': [465, 448, 543, 518], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.88, 'near_tooth': '15'},
{'box_2d': [894, 314, 940, 488], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.87, 'near_tooth': '21'},
{'box_2d': [1036, 495, 1123, 553], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.87, 'near_tooth': '25'},
{'box_2d': [704, 532, 750, 682], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.86, 'near_tooth': '45'},
{'box_2d': [701, 312, 746, 481], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.83, 'near_tooth': '14'},
{'box_2d': [911, 527, 952, 694], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.83, 'near_tooth': '31'},
{'box_2d': [1165, 420, 1246, 468], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.81, 'near_tooth': '25'},
{'box_2d': [572, 525, 655, 588], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.81, 'near_tooth': '45'},
{'box_2d': [747, 539, 797, 699], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.81, 'near_tooth': '42'},
]
```

```
{'box_2d': [651, 529, 705, 578], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.79, 'near_tooth': '45'},
{'box_2d': [945, 425, 993, 480], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.76, 'near_tooth': '24'},
{'box_2d': [705, 532, 749, 589], 'tooth_id': 'unknown', 'label': 'crown', 'score': 0.74, 'near_tooth': '45'},
{'box_2d': [950, 517, 989, 669], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.72, 'near_tooth': '31'},
{'box_2d': [798, 308, 849, 494], 'tooth_id': 'unknown', 'label': 'rc-treated', 'score': 0.56, 'near_tooth': '21'}
]
```

Medical Report

Teeth-Specific Observations

1. General Condition

A total of 9 teeth were visualized in the panoramic image, distributed across both arches. No wisdom teeth (third molars) were present in the field. The detected teeth included #14, #15, #21, #24, #25, #31, #41, #42, and #45. Overall dental structure appears stable with multiple prior restorative and endodontic interventions documented.

2. Pathological Findings

- **Tooth #14:** Suspicious for caries involving the tooth.
- **Near tooth #25:** Clear indication of a root stump.
- **Near tooth #25:** Suspicious for periapical radiolucency, suggesting possible apical pathology.
- **Near tooth #24:** Suspicious for caries adjacent to the region.

3. Historical Interventions

- **Near tooth #24:** Presence of a crown and root canal treatment.
 - **Near tooth #25:** Crown, root canal treatment, and restoration documented.
 - **Near tooth #15:** Root canal treatment and crown placed.
 - **Near tooth #14:** Root canal treatment and crown noted.
 - **Near tooth #31:** Multiple crowns and root canal treatments observed.
 - **Near tooth #45:** Root canal treatment and crown identified.
 - **Near tooth #21:** Root canal treatment documented.
-

Clinical Summary & Recommendations

1. Priority Concerns

- **Deep caries suspicion on #14 and near #24:** Requires immediate evaluation for potential operative intervention.
- **Root stump near #25:** Indicates prior extraction or resorption; assess for infection risk.
- **Periapical radiolucency near #25:** Suggests apical pathology; endodontic re-evaluation is warranted.

2. Preventive Measures

- Reinforce oral hygiene education, emphasizing interproximal cleaning for caries-prone regions (e.g., near #24).
- Monitor for calculus accumulation in areas with prior restorative work (e.g., near #25, #31).

3. Follow-up Protocol

- Schedule a 6-month recall for radiographic assessment of suspicious caries and apical pathology.
 - Referral to an endodontist for further evaluation of the periapical radiolucency near #25.
 - Prophylactic review of root canal-treated teeth (#15, #24, #25, #31, #45) to detect secondary caries or apical involvement.
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Generated report adheres to clinical standards and diagnostic data provided.