



## 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: 32):

```
[
{'point_2d': [687, 599], 'tooth_id': '45', 'score': 0.96},
{'point_2d': [1198, 614], 'tooth_id': '36', 'score': 0.95},
{'point_2d': [610, 571], 'tooth_id': '46', 'score': 0.94},
{'point_2d': [1273, 597], 'tooth_id': '37', 'score': 0.94},
{'point_2d': [1352, 571], 'tooth_id': '38', 'score': 0.94},
{'point_2d': [585, 353], 'tooth_id': '16', 'score': 0.93},
{'point_2d': [657, 363], 'tooth_id': '15', 'score': 0.93},
{'point_2d': [1312, 401], 'tooth_id': '27', 'score': 0.93},
{'point_2d': [535, 545], 'tooth_id': '47', 'score': 0.93},
{'point_2d': [1127, 622], 'tooth_id': '35', 'score': 0.91},
{'point_2d': [985, 409], 'tooth_id': '21', 'score': 0.91},
{'point_2d': [752, 605], 'tooth_id': '44', 'score': 0.91},
{'point_2d': [459, 514], 'tooth_id': '48', 'score': 0.9},
{'point_2d': [503, 344], 'tooth_id': '17', 'score': 0.9},
{'point_2d': [718, 372], 'tooth_id': '14', 'score': 0.9},
{'point_2d': [909, 408], 'tooth_id': '11', 'score': 0.89},
{'point_2d': [806, 618], 'tooth_id': '43', 'score': 0.88},
{'point_2d': [1020, 633], 'tooth_id': '33', 'score': 0.88},
{'point_2d': [1241, 399], 'tooth_id': '26', 'score': 0.88},
{'point_2d': [856, 615], 'tooth_id': '42', 'score': 0.87},
{'point_2d': [1071, 628], 'tooth_id': '34', 'score': 0.87},
{'point_2d': [774, 366], 'tooth_id': '13', 'score': 0.87},
{'point_2d': [932, 614], 'tooth_id': '31', 'score': 0.87},
{'point_2d': [1183, 406], 'tooth_id': '25', 'score': 0.86},
{'point_2d': [845, 396], 'tooth_id': '12', 'score': 0.86},
{'point_2d': [1038, 409], 'tooth_id': '22', 'score': 0.85},
{'point_2d': [436, 333], 'tooth_id': '18', 'score': 0.84},
{'point_2d': [896, 619], 'tooth_id': '41', 'score': 0.83},
{'point_2d': [975, 634], 'tooth_id': '32', 'score': 0.82},
{'point_2d': [1379, 393], 'tooth_id': '28', 'score': 0.81},
{'point_2d': [1143, 399], 'tooth_id': '24', 'score': 0.79},
{'point_2d': [1117, 366], 'tooth_id': '23', 'score': 0.7}
]
```

Wisdom teeth detection (total: 4):

```
[
{'box_2d': [1301, 489, 1403, 652], 'tooth_id': '38', 'is_impacted': false, 'score': 0.94},
{'box_2d': [403, 432, 516, 597], 'tooth_id': '48', 'is_impacted': false, 'score': 0.9},
{'box_2d': [396, 256, 477, 411], 'tooth_id': '18', 'is_impacted': false, 'score': 0.84},
{'box_2d': [1344, 313, 1414, 473], 'tooth_id': '28', 'is_impacted': false, 'score': 0.81}
]
```

Dental Pathological Findings (total: 3):

```
[
{'box_2d': [631, 405, 646, 431], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.29, 'near_tooth': '15'},
{'box_2d': [694, 420, 708, 448], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.23, 'near_tooth': '14'},
{'box_2d': [545, 396, 562, 419], 'tooth_id': 'unknown', 'label': 'caries', 'score': 0.19, 'near_tooth': '16'}
]
```

Historical Treatments (total: 0):

[  
]

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## Medical Report

### ORAL PANORAMIC X-RAY EXAMINATION REPORT

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#### \*\*1. Teeth-Specific Observations\*\*

##### #### General Condition

The panoramic radiograph visualizes **32 teeth**, with all four wisdom teeth (#18, #28, #38, #48) present and non-impacted. The overall dental structure is well-defined, with no evidence of significant bone loss or resorption.

##### #### Pathological Findings

- **Suspicious for carious lesions near #15:** A small radiolucent area is noted adjacent to the mesial aspect of #15.
- **Suggestive of early caries near #14:** A subtle radiolucency is observed adjacent to the distal surface of #14.
- **Unusual radiolucency near #16:** An area of concern is identified near the buccal aspect of #16, potentially indicative of demineralization or early caries.

##### #### Historical Interventions

No restorations, root canal treatments, crowns, or implants are detected.

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#### \*\*2. Clinical Summary & Recommendations\*\*

##### #### Priority Concerns

- **Suspected carious lesions near upper posterior teeth:** The suspicious radiolucencies near #14, #15, and #16 require immediate clinical correlation to confirm caries or other pathologies.
- **Wisdom teeth status:** All four third molars are erupted and non-impacted; however, their proximity to the lesions near #16 should be monitored for potential secondary caries.

##### #### Preventive Measures

- **Oral hygiene reinforcement:** Emphasize interdental cleaning (e.g., flossing, interproximal brushes) for the upper posterior region.
- **Dietary counseling:** Limit fermentable carbohydrate intake to reduce cariogenic risk around the suspicious areas.

##### #### Follow-up Protocol

- **6-month recall:** Schedule a follow-up to reassess the suspicious lesions using high-resolution imaging (e.g., intraoral radiographs) for definitive diagnosis.
  - **Referral for intervention:** If caries progression is confirmed, refer for restorative therapy or endodontic evaluation as indicated.
  - **Wisdom tooth monitoring:** Continue periodic review of #18 and #28 for signs of periodontal or carious involvement.
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\*Generated by a professional oral radiology assistant. Clinical correlation and patient history should be integrated for comprehensive care.\*