

Supplementary Table S1. Database-specific search strategies and retrieved records

Database	Search date (last search)	Search string (exact syntax)	Fields / controlled vocabulary	Limits	Records retrieved (n)
PubMed/MEDLINE	November 2025	((“Artificial Intelligence”[Mesh] OR “Machine Learning”[Mesh] OR “Deep Learning”[Mesh] OR “artificial intelligence”[tiab] OR “machine learning”[tiab] OR “deep learning”[tiab] OR CNN[tiab] OR “convolutional neural network*”[tiab]) AND (“Root Resorption”[Mesh] OR “root resorption”[tiab] OR “orthodontically induced root resorption”[tiab] OR OIRR[tiab] OR “external root resorption”[tiab]) AND (“Cone-Beam Computed Tomography”[Mesh] OR CBCT[tiab] OR “cone beam computed tomography”[tiab] OR “cone-beam computed tomography”[tiab]) AND (“Orthodontics”[Mesh] OR orthodontic*[tiab] OR “orthodontic treatment”[tiab] OR “orthodontic therapy”[tiab])) TITLE-ABS-KEY((“root resorption” OR resorption OR “external root resorption” OR “external apical root resorption” OR “apical root resorption” OR OIRR OR EARR OR “orthodontically induced root resorption”))	MeSH + Title/Abstract	No language restrictions; n = 587 no date restrictions	
Scopus	November 2025	OR “external apical root resorption” OR “apical root resorption” OR OIRR OR EARR OR “orthodontically induced root resorption”	TITLE-ABS-KEY	No language restrictions; n = 763 no date restrictions	

Database	Search date (last search)	Search string (exact syntax)	Fields / controlled vocabulary	Limits	Records retrieved (n)
Web of Science Core Collection	November 2025	AND (CBCT OR "cone beam" OR "cone-beam" OR "cone beam computed tomography" OR "cone-beam computed tomography" OR "cone beam CT" OR "cone-beam CT") AND ("artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR CNN OR "convolutional neural network*" OR "hierarchical deep learning" OR automati* OR algorithm* OR "computer-aided" OR "computer assisted" OR segmentation OR "image segmentation" OR "tooth segmentation" OR quantif* OR grading OR detection OR diagnos*)) TS=(("root resorption" OR resorption OR "external root resorption" OR "external apical root resorption" OR "apical root resorption" OR OIRR OR EARR OR "orthodontically induced root resorption") AND (CBCT OR "cone beam" OR "cone-beam" OR "cone beam computed tomography" OR "cone-	Topic (TS)	No language restrictions; n = 289 no date restrictions	

Database	Search date (last search)	Search string (exact syntax)	Fields / controlled vocabulary	Limits	Records retrieved (n)
Embase (Elsevier)	November 2025	beam computed tomography" OR "cone beam CT" OR "cone-beam CT") AND ("artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR CNN OR "convolutional neural network*" OR "hierarchical deep learning" OR automati* OR algorithm* OR "computer-aided" OR "computer assisted" OR segmentation OR "image segmentation" OR "tooth segmentation" OR quantif* OR grading OR detection OR diagnos*)) ('root resorption'/exp OR 'root resorption':ti,ab,kw OR 'external root resorption':ti,ab,kw OR 'external apical root resorption':ti,ab,kw OR 'apical root resorption':ti,ab,kw OR oirr:ti,ab,kw OR earr:ti,ab,kw OR 'orthodontically induced root resorption':ti,ab,kw) AND ('cone beam computed tomography'/exp OR cbct:ti,ab,kw OR 'cone beam':ti,ab,kw OR 'cone-beam':ti,ab,kw OR	Emtree + ti,ab,kw	No language restrictions; n = 472 no date restrictions	

Database	Search date (last search)	Search string (exact syntax)	Fields / controlled vocabulary	Limits	Records retrieved (n)
		'cone beam computed tomography':ti,ab,kw OR 'cone-beam computed tomography':ti,ab,kw OR 'cone beam ct':ti,ab,kw OR 'cone-beam ct':ti,ab,kw) AND ('artificial intelligence'/exp OR 'machine learning'/exp OR 'deep learning'/exp OR 'neural network'/exp OR 'convolutional neural network'/exp OR 'image segmentation'/exp OR 'artificial intelligence':ti,ab,kw OR 'machine learning':ti,ab,kw OR 'deep learning':ti,ab,kw OR 'neural network*':ti,ab,kw OR cnn:ti,ab,kw OR 'convolutional neural network*':ti,ab,kw OR 'hierarchical deep learning':ti,ab,kw OR 'automati*':ti,ab,kw OR 'algorithm*':ti,ab,kw OR 'computer-aided':ti,ab,kw OR 'computer assisted':ti,ab,kw OR 'segmentation':ti,ab,kw OR 'image segmentation':ti,ab,kw OR 'tooth segmentation':ti,ab,kw OR 'quantif*':ti,ab,kw OR 'grading':ti,ab,kw OR			

Database	Search date (last search)	Search string (exact syntax)	Fields / controlled vocabulary	Limits	Records retrieved (n)
		detection:ti,ab,kw OR diagnos*:ti,ab,kw) AND (orthodont*:ti,ab,kw OR 'orthodontics'/exp OR 'orthodontic treatment':ti,ab,kw)			