

Supplementary Table S1. Detailed searching strategy.

Database	Search String
Pubmed	<p>(((((root canal therapy[MeSH Terms]) OR (canal)) OR (endodontic)) AND (((((((micro ct, x ray[MeSH Terms])) OR (X Ray Microtomography)) OR (MicroCT)) OR (MicroCTs)) OR (Microcomputed Tomography)) OR (Tomography, Microcomputed)) OR (computed tomography))) AND (((((((therapeutic irrigation[MeSH Terms]) OR (irrigation)) OR (irrigations)) OR (Lavage)) OR (Lavages)) OR (Douching)) OR (Douchings))) AND (((((hard tissue debris) OR (ahtd)) OR (htd)) OR (debris)) OR (debridement))</p>
Web of Science	<p>(TS=(Canal) OR TS=(endodontic)) AND (TS=(X Ray Microtomography) OR TS=(Microtomography, X-Ray) OR TS=(MicroCT) OR TS=(MicroCTs) OR TS=(Microcomputed Tomography) OR TS=(Tomography, Microcomputed) OR TS=(computed tomography)) AND (TS=(Therapeutic Irrigation) OR TS=(Irrigation, Therapeutic) OR TS=(irrigation) OR TS=(irrigations) OR TS=(Lavage) OR TS=(Lavages) OR TS=(Douching) OR TS=(Douchings)) AND (TS=(hard tissue debris) OR TS=(AHTD) OR TS=(HTD) OR TS=(debris) OR TS=(debridement))</p>
Embase	<p>('endodontic procedure'/exp OR 'canal' OR 'endodontic') AND ('micro-computed tomography'/exp OR 'micro-ct' OR 'microct' OR 'microcts' OR 'micro-cts' OR 'microcomputed tomography' OR 'micro computed tomography') AND ('lavage'/exp OR 'irrigation' OR 'irrigations' OR 'lavage' OR 'lavages' OR 'douching' OR 'douchings') AND ('dental surgery'/exp OR 'hard tissue debris' OR 'ahtd' OR 'htd' OR 'debris' OR 'debridement')</p> <p>#1 MeSH descriptor: [Root Canal Therapy] this term only</p> <p>#2 Canal or Endodontic</p> <p>#3 #1 or #2</p> <p>#4 MeSH descriptor: [Therapeutic Irrigation] this term only</p> <p>#5 Therapeutic Irrigation or Irrigation, Therapeutic or irrigation or irrigations or Lavage or Lavages or Douching or Douchings</p> <p>#6 #4 or #5</p>
Cochrane	<p>#7 MeSH descriptor: [X-Ray Microtomography] this term only</p> <p>#8 micro-ct or micro-cts or microct or microcts or microcomputed tomography or micro computed tomography or micro-computed tomography</p> <p>#9 #7 or #8</p> <p>#10 MeSH descriptor: [Smear Layer] this term only</p> <p>#11 hard tissue debris or ahtd or htd or debris or debridement or gutta percha or guttapercha or gutta-percha or ultrafil or thermafil</p> <p>#12 #10 or #11</p> <p>#13 #3 and #6 and #9 and #12</p>
Scopus	<p>(ALL (Canal OR endodontic) AND ALL (irrigation OR irrigations OR lavage OR lavages OR douching OR douchings) AND ALL (micro-ct OR micro-cts OR microct OR microcts OR "microcomputed tomography" OR "micro computed tomography" OR "micro-computed tomography") AND ALL ("hard tissue debris" OR ahtd OR htd OR debris OR debridement))</p>

Supplementary Table S2. Grading of the evidence.

№ of studies	Study design	Risk of bias	Certainty assessment				№ of patients		Effect		Certainty	Importance
			Inconsistency	Indirectness	Imprecision	Other considerations	New Comparison	placebo	Relative (95% CI)	Absolute (95% CI)		
SAI vs PUI												
4	observational studies	not serious	not serious	not serious	not serious	none	47	47	-	MD 6.01 lower (22.68 lower to 10.66 higher)	⊕⊕○○ Low	IMPORTANT
SAI vs PUI - EA vs PUI												
2	observational studies	not serious	not serious	not serious	not serious	none	20	20	-	MD 1.04 lower (23.59 lower to 21.52 higher)	⊕⊕○○ Low	IMPORTANT
SAI vs PUI - EDDY vs PUI												
3	observational studies	not serious	not serious	not serious	not serious	none	27	27	-	MD 9.06 lower (35.2 lower to 17.08 higher)	⊕⊕○○ Low	IMPORTANT
Mechanical vs PUI												
5	observational studies	not serious	not serious	not serious	serious ^a	none	90	90	-	MD 13.3 lower (33.84 lower to 7.24 higher)	⊕○○○ Very low	IMPORTANT
Mechanical vs PUI - XPF vs PUI												
4	observational studies	not serious	not serious	not serious	not serious	none	50	50	-	MD 1.37 higher (10.08 lower to 12.83 higher)	⊕⊕○○ Low	IMPORTANT
Mechanical vs PUI - EasyClean vs PUI												
2	observational studies	not serious	not serious	not serious	serious ^a	none	20	20	-	MD 23.46 lower (41.74 lower to 5.17 lower)	⊕○○○ Very low	IMPORTANT
Mechanical vs PUI - SAF vs PUI												
2	observational studies	not serious	not serious	not serious	serious ^a	none	20	20	-	MD 52.61 lower (59.75 lower to 45.48 lower)	⊕○○○ Very low	IMPORTANT
LAI vs PUI												
2	observational studies	not serious	not serious	not serious	serious ^a	none	50	50	-	MD 18.38 higher (5.76 higher to 31 higher)	⊕○○○ Very low	IMPORTANT
LAI vs PUI - PIPS vs PUI												
2	observational studies	not serious	not serious	not serious	serious ^a	none	30	30	-	MD 8.26 higher (3.48 higher to 13.04 higher)	⊕○○○ Very low	IMPORTANT
LAI vs PUI - SWEEPS vs PUI												
1	observational studies	not serious	not serious	not serious	not serious	none	20	20	-	MD 33.45 higher (28.96 higher to 37.93 higher)	⊕⊕○○ Low	IMPORTANT
EV vs PUI												
2	observational studies	not serious	not serious	not serious	serious	none	22	22	-	MD 3.63 lower (17.35 lower to 10.08 higher)	⊕○○○ Very low	IMPORTANT
SNI vs PUI												
5	observational studies	not serious	not serious	not serious	not serious	none	57	57	-	MD 27.89 higher (14.61 higher to 41.17 higher)	⊕⊕○○ Low	IMPORTANT

(CI: confidence interval; MD: mean difference; a. One study only report the volume of debris obtained before (A) and after (B) the final irrigation, the percentage debris reduction (red%) was calculated according to the following formula: $\text{red\%} = 100 * (A - B) / A$.