

Appendix

	CONCEPT I	AND	CONCEPT II	AND	CONCEPT III
MeSH term	Recurrent respiratory papillomatosis Respiratory tract infections Papillomavirus infections		Solid-state lasers Gas lasers Dye lasers		Ambulatory surgical procedures Operative surgical procedures Operating rooms
EMTREE term	Larynx papillomatosis Benign respiratory tract tumor		Potassium titanyl phosphate laser Carbon dioxide laser Pulsed dye laser Dye laser Laser coagulation Laser surgery Otorhinolaryngology microdebrider Debridement Local excision		Ambulatory care Operating room
Keywords	Laryngeal papilloma Laryngeal papillomas Respiratory tract infection Papillomavirus infection Benign respiratory tract tumors		KTP laser KTP lasers Solid-state laser Potassium Titanyl Phosphate Lasers Carbon dioxide lasers Gas laser CO2 laser CO2 lasers Pulsed dye lasers Laser surgeries Microdebrider Cold knife excision		Office Office visit Office visits Office procedure Office procedures Ambulatory surgical procedure Ambulatory surgery Ambulatory surgeries Outpatient surgery Outpatient surgeries Office surgery Office surgeries Day surgery Day surgeries Operating rooms Operative surgical procedure

Table 1a. Search strategy by concept for Pubmed and EMBASE on outcomes of RRP treated in the office vs outcomes of RRP treated in the operating room

Search Strategies Performed for the Systematic Review:

PubMed/MEDLINE

Date searched: 10/4/2019

Applied Database Supplied Limits: Humans

Number of Results: 2165

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser

coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

EMBASE (Ovid)

Date searched: 10/4/2019

Applied Database Supplied Limits: n/a

Number of Results: 42

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

Biological Abstracts

Date searched: 10/4/2019

Applied Database Supplied Limits: n/a

Number of Results: 34

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory

care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

Biosis Citation Index

Date searched: 10/4/2019

Applied Database Supplied Limits: n/a

Number of Results: 6

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

CINAHL

Date searched: 10/4/2019

Applied Database Supplied Limits: n/a

Number of Results: 11

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

Cochrane Library

Date searched: 10/4/2019

Applied Database Supplied Limits: n/a

Number of Results: 16

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

Web of Science

Date searched: 10/4/2019

Applied Database Supplied Limits: n/a

Number of Results: 133

Full Search Strategy:

(recurrent respiratory papillomatosis OR laryngeal papilloma OR laryngeal papillomas OR respiratory tract infection OR respiratory tract infections OR papillomavirus infection OR papillomavirus infections OR larynx papillomatosis OR benign respiratory tract tumor OR benign respiratory tract tumors) AND (KTP laser OR KTP lasers OR solid-state laser OR solid-state lasers OR potassium titanyl phosphate laser OR potassium titanyl phosphate lasers OR carbon dioxide laser OR carbon dioxide lasers OR gas laser OR gas lasers OR CO2 laser OR CO2 lasers OR pulsed dye laser OR pulsed dye lasers OR dye laser OR dye lasers OR laser coagulation OR laser surgery OR laser surgeries OR microdebrider OR otorhinolaryngology microdebrider OR debridement OR cold knife excision OR local excision) AND (office OR office visit OR office visits OR office procedure OR office procedures OR Ambulatory Surgical Procedures OR Ambulatory surgical procedure OR ambulatory surgery OR ambulatory surgeries OR outpatient surgery OR outpatient surgeries OR day surgery OR day surgeries OR ambulatory care OR operating room OR operating rooms OR operative surgical procedures OR operative surgical procedure OR ambulatory care OR office surgery OR office surgeries)

Principal author & year	Selection	Comparability	Outcome
Awad 2019	***		*
Burns 2007	**		**
Del Signore 2016	*		*
Elo 1988	**		**
Franco 2002	**		**
Hao-Chun 2017	**		**
Koufman 2007	*		**
Kuet 2013	**		***
Long 2003	*		**
Miller 2017	***	**	**
Mouadeb 2007	**		**
Ossoff 1991	**		**
Papaspyrou 2016	**		***
Rees 2007	***	*	***
Shapshay 2001	**		*
Strong 1976	**		**
Uloza 2000	**		**
Valdez 2001	**		**

Table 2a. Newcastle-Ottawa Assessment Scale for assessing the quality of non-randomized studies in a systematic review on outcomes of RRP treated in the office vs outcomes of RRP treated in the operating room

Principal author & year	Treatment Setting and Modality	Sample Size	Percent Female (%)	Measures of Voice Outcome	Average age of patient	Mean Follow-up Period	Disease Severity	Adjuvant Therapy Received
Awad 2019	OR: coblation	14	13.3	Pretreatment vs posttreatment Voice Handicap Index (VHI): 47 vs 23.39 (p = 0.01198) Grade, Roughness, Breathiness, Asthenia, Strain (GRBAS) score: 46.6% of patients were initially severely dysphonic; at final assessment 21.4% were severely dysphonic, 50% improved, 38.7% remained the same, and 14.3% worsened post-procedure	55	18 months	6.7% current smokers, 20% former smokers 40% with laryngopharyngeal reflux Pretreatment Reflux Symptom Index (RSI): 12.86 Posttreatment RSI: 14.14 (p = 0.7029)	none
Burns 2007	OR: cold knife followed by KTP laser	37	43.2	not mentioned		18 months	93% with bilateral and anterior commissure involvement	not mentioned
Del Signore 2016	Office: KTP laser, Pulsed dye laser (PDL)	34		not mentioned		4 years (retrospective chart review)		not mentioned

Elo 1988	OR: CO2 laser	24		not mentioned				<p>8 received Isoprinosine (ISO) post-op, with RRP recurrence in 4/8 (50%)</p> <p>10 received ISO 2 days prior to surgery and for 8 more days post-op, with RRP recurrence in 3/10 (30%)</p>
Franco 2002	OR: cold resection and/or CO2 laser vs PDL	23	47.8	not mentioned			90% with bilateral disease 66% with anterior commissure involvement	not mentioned
Hao-Chun 2017	Office: CO2 laser	6		not mentioned		5 months		not mentioned
Koufman 2007	OR: CO2 laser, PDL, thulium: yttrium-aluminum-garnet laser	61		not mentioned		4 years (retrospective chart review)		not mentioned
Kuet 2013	Office: KTP laser, PDL	17		<p>Pretreatment VHI vs posttreatment VHI: 24.6 vs 15.3 (p = 0.03)</p> <p>Pretreatment vs posttreatment GRBAS: 8.4 vs 4.7 (p = 0.004)</p>		18 months	<p>Pretreatment Derkay score: 4.9</p> <p>Posttreatment Derkay score: 2.5 (p = 0.0005)</p> <p>Pretreatment vs posttreatment GRBAS: 8.4 vs 4.7 (p = 0.004)</p>	<p>4 received cidofovir</p> <p>$\frac{3}{4}$ of these patients had dramatic reduction of papilloma with 4-5 injections of cidofovir at 2-week intervals</p>

Long 2003	OR: CO2 laser	4	0	not mentioned	44	6 years (retrospective chart review)	Glottic site disease Average age of onset of RRP: 42	none
Miller 2017	OR: microdebrider Office: PDL	17	94.12	not mentioned	62			cidofovir not routinely injected during OR procedure
Mouadeb 2007	Office: PDL	21		Pretreatment vs posttreatment VHI-10 (including non-RRP patients): 21 vs 14 (p=0.001)		2 years (retrospective chart review)		not mentioned
Ossoff 1991	OR: CO2 laser	8		not mentioned		4 years (retrospective chart review)		not mentioned
Papaspyrou 2016	OR: CO2 laser, cold knife	60	31.7	not mentioned	50	63 months	86.2% HPV-positive	adjuvant therapy received during initial treatment and during follow-up: 4 received photodynamic therapy, 4 cidofovir, 3 interferon-alpha, 2 mitomycin, 1 HPV vaccination
Rees 2007	OR: laser Office: PDL	OR: 6 Office: 7		not mentioned	56	3 years (retrospective chart review)		excluded
Shapshay 2001	OR: PDL	12	25	not mentioned	34			not mentioned
Strong 1976	OR: CO2 laser	29		not mentioned				not mentioned

Uloza 2000	OR: endolaryngeal microsurgery	57		not mentioned		2 years	35% with a single papilloma, 65% with multiple papillomas, 5.3% with respiratory distress Average age of onset: 34	not mentioned
Valdez 2001	OR: PDL	8	12.5	not mentioned	34	11 months		not mentioned

Table 3a. Available patient demographics from the 18 included studies on outcomes of RRP treated in the office vs outcomes of RRP treated in the operating room

Recurrence

1. Operating Room (OR)

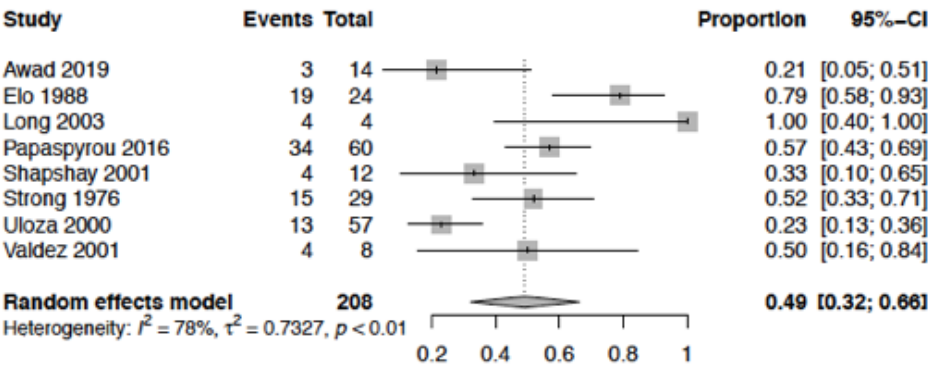


Figure 1a. Weighted recurrence rate of RRP in patients who underwent treatment in the OR only (due to lack of recurrence data on office-based treatment)

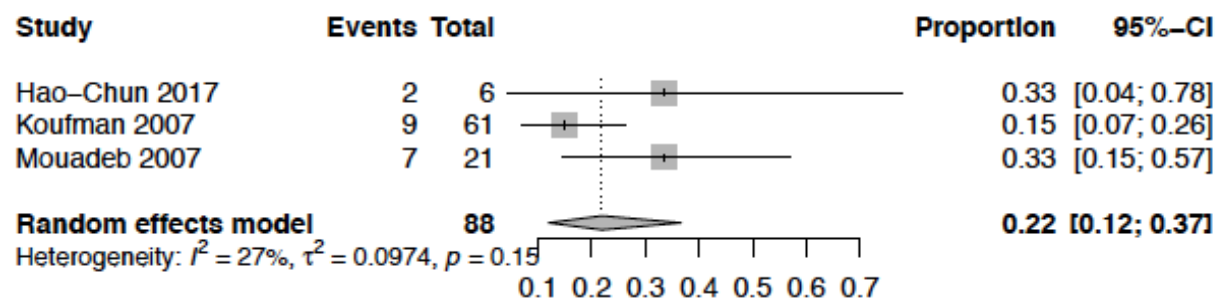


Figure 2a. Weighted mean complication rate for an office procedure undertaken for RRP that was too bulky to be treated in the office and required surgical treatment in the OR