Table SI. PRISMA 2020 Checklist.

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	p. 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	p. 1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	p. 1–2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	p. 2
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	p. 2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	p. 2
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	p. 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	p. 2
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	p. 2
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	p. 2
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	p. 2
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	p. 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	p. 2
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	p. 3
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	-
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	p. 3
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	p. 2
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	-
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	-
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	p. 2
Certainty	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	p. 2

Section and Topic	Item #	Checklist item	Location where item is reported
assessment			
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Fig. 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	p. 3
Study characteristics	17	Cite each included study and present its characteristics.	Table I
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Fig. 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Fig. 3–5
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	p. 5
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	p. 3, 5
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	-
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	-
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	p. 5, Fig. S2
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Table SV–VII
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	p. 5–6
	23b	Discuss any limitations of the evidence included in the review.	p. 9
	23c	Discuss any limitations of the review processes used.	P. 9
	23d	Discuss implications of the results for practice, policy, and future research.	p. 9
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	p. 2
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	-
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	-
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	-
Competing interests	26	Declare any competing interests of review authors.	p. 9
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	-

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

Table SII. Summary of complete and partial response data of included studies

Study	Arm	N (number of patients)	complete response n	partial response n
Nasr et al., 2023(23)	*Candida*	25	15	2
	Vitamin D3	25	12	4
	Digoxin and furosemide	25	7	0
Fawzy et al., 2023(19)	*Candida*	20	8	8
	Candida+Cervarix	20	4	12
	Candida+Gardasil	20	12	4
	Saline	20	0	2
Chaudhary et al., 2023(16)	MMR	25	15	-
	PPD	25	18	-
	Candida	25	20	-
	Vitamin D3	25	0	-
Youssef et al., 2023(35)	*Candida* (1/100 concentration)	35	31	4
	Candida (1/1000 concentration)	35	26	4
	Zinc sulfate	35	24	5
Tawfik et al., 2022(34)	PPD	40	29	3
	Candida	40	34	9
Nofal et al., 2022[a](27)	*Candida*	50	42	5
	PPD	50	28	14

	Saline	20	1	1
Eldahshan et al., 2022(17)	MMR	30	22	5
	BCG	30	21	6
	Candida	30	13	6
Nassar et al ., 2022[a](24)	*Candida*	30	19	3
	Bivalent HPV vaccine	30	15	9
	Saline	15	0	1
Nassar et al., 2022[b](26)	*Candida*	60	24	12
	Saline	30	0	3
Nofal et al., 2022[b](28)	MMR	15	11	3
	Candida	15	12	2
	Saline	10	1	5
Nofal et al., 2022[c](30)	Zinc sulfate	38	20	14
	Vitamin D3	38	34	4
	Candida	38	25	12
	Saline	38	8	14
Abdel Razik et al., 2021(13)	*Candida*	30	23	5
	Vitamin D3	30	6	9
	Saline	20	0	0
Abdelaal et al., 2021(14)	vitamin D3	20	8	6
	Candida	20	9	6
	Candida	30	24	6

Rageh et al., 2021(33)	MMR vaccine	30	8	6
Nofal et al., 2021(29)	PPD	50	35	9
	Candida	50	40	6
	MMR	50	37	8
Amer et al., 2021(15)	*Candida*	23	16	7
	Varicella zoster vaccine	23	15	8
Hodeib et al., 2021(20)	*Candida*	20	12	4
	Bleomycin	20	17	6
	5 -FU	20	9	5
Marei et al., 2020[a](21)	*Candida*,	30	24	4
	Saline	20	3	4
Nassar et al., 2020(25)	methylene blue and intense pulsed light	13	6	5
	Candida	13	8	3
	Saline	13	0	0
Fawzy et al., 2020(5)	PPD	40	22	6
	Candida	40	18	8
	MMR	40	25	10
Nofal et al., 2020[a](32)	PPD	36	22	4
	Candida	38	14	20

	alternating therapy of PPD and *Candida*	34	24	4
	Saline	35	3	1
Nofal et al., 2020[b](31)	PPD	28	9	9
	Candida	29	12	9
Marei et al., 2020[b](22)	*Candida*	20	8	3
	combined therapy *candida* + Cervarix vaccine	20	14	5
Fathy et al., 2019(18)	Vitamin D3	lesion numbers 20	Excellent + very good 6	good 0
	Candida	20	14	3
	Saline	20	6	0

Table SIII. [Summary of distant response data of included studies.]

Study	Arm	N (patients had distant warts)	complete response n
Nasr et al., 2023(23)	*Candida*	3	1
	Vitamin D3	4	0
	Digoxin and furosemide	4	2
Chaudhary et al., 2023(16)	MMR	25	15
	PPD	25	18
	Candida	25	20
	Vitamin D3	25	0
Youssef et al., 2023(35)	*Candida* (1/100 concentration)	32	29
	Candida (1/1000 concentration)	31	25
	Zinc sulfate	30	21
Nofal et al., 2022[a](27)	*Candida*	10	8
	PPD	12	6
	Saline	9	1
Eldahshan et al., 2022(17)	MMR	30	15
	BCG	30	12
	Candida	30	9
Nassar et al ., 2022[a](24)	*Candida*	30	21
	Bivalent HPV vaccine	30	12
	Saline	30	1

Nassar et al., 2022[b](26)	*Candida*	44	17
	Saline	20	0
Nofal et al., 2022[c](30)	Zinc sulfate	6	0
	Vitamin D3	10	6
	Candida	8	8
	Saline	8	0
Abdel Razik et al., 2021(13)	*Candida*	10	7
	Vitamin D3	8	2
	Saline	6	0
Rageh et al., 2021(33)	*Candida*	12	5
	MMR vaccine	8	1
Nofal et al., 2021(29)	PPD	10	7
	Candida	15	13
	MMR	18	15
Fathy et al., 2019(18)	Vitamin D3	lesion numbers 20	7
	Candida	20	4
	Saline	-	-

Table SIV. Adverse effects of intralesional injection agents from the included studies.

Study	Intervention	Sample size	Adverse effects (number)
Nasr et al., 2023(23)	*Candida* Vitamin D3 D+F	25/25/25	Pain:25/25/25 Burning sensation:25/25/0 Edema:13/10/2 Hypopigmentation:5/3/1 Erythema:7/4/0 Vasovagal attack:0/1/0
Fawzy et al., 2023(19)	*Candida* C+Cercarix C+Gardasil Saline	20/20/20/20	Pain:20/20/20/20 Itching:5/6/6/0 Anaphylaxis:0/1/1/0
Chaudhary et al., 2023(16)	MMR PPD *Candida* Vitamin D3	25/25/25/25	Mild swelling and erythema:0/1/0/0 Swelling:0/0/1/0 Pain(injection):0/0/0/23 Pain and swelling:0/0/0/2 Ulcers:0/1/0/0
Youssef et al., 2023(35)	*Candida* 1/100 *Candida* 1/1000 Zinc sulfate	35/35/35	Pain:13/10/32 Itching:2/0/1 Peeling:2/1/0 Regional lymphadenitis:3/2/0 Flu like symptoms:10/14/0 Swelling:6/5/2 Hypopigmentation:0/0/2 Hyperpigmentation:0/0/2 Erythema:4/5/0 Hematoma:1/1/0 Headache:1/1/0
Tawfik et al., 2022(34)	PPD *Candida*	40/40	Mild pain and burning sensation few minutes after procedure:40/40

			Itching and erythema lasting for 2 days : 2/- Erythema and edema:-/5
Nofal et al., 2022[a](27)	*Candida* PPD Saline	50/50/20	Pain during injection:50/50/20 Erythema and desquamation:6/2/- Blisters at the injection site:3/1/- Edema/induration:5/2/- Flu-like symptoms:3/1/-
Eldahshan et al., 2022(17)	MMR BCG *Candida*	30/30/30	Pain:30/30/30 Itching:8/20/5 Flu like symptoms:13/10/2 Edema:4/12/3 Induration:0/14/0 Ulceration:0/3/0 Erythema:19/18/6
Nassar et al ., 2022[a](24)	*Candida* HPV 2 Cryo Saline	30/30/30/15	transient edema, induration, and flu-like symptoms were higher in the *Candida* antigen group. bivalent HPV vaccine was associated with the least side effects in the form of transient erythema and edema at the injection site.
Nassar et al., 2022[b](26)	*Candida* Saline	60/30	Pain: 60/7 Edema and induration at the injection site:43/- erythma：17/- flu-like symptoms：36/- severe headache : 6/- vomiting: 1 /-
Nofal et al., 2022[b](28)	MMR *Candida* Saline	15/15/10	Flu-like symptoms：4/-/- Localized erythema and/or edema：-/3/-
Nofal et al., 2022[c](30)	Zinc sulfate Vitamin D3	38/38/38/38	Pain during injection : 38/38/38/38

	Candida normal saline		Erythema, burning sensation, and edema : statistically higher in intralesional zinc sulfate group than other groups. Flu-like symptoms:-/-/3/-
Abdel Razik et al., 2021(13)	*Candida* Vitamin D3 Saline	30/30/20	Pain:30/30/20 Swelling:7/6/- Erythema and tenderness:8/6/- Vasovagal attack:-/1/-
Abdelaal et al., 2021(14)	Vitamin D3 *Candida*	20/20	No：12/8 Pain：8/2 Flu like symptoms：0/5 Pain, Erythema & edema：0/5
Rageh et al., 2021(33)	*Candida* MMR	30/30	Mild transient pain on the day of injection：25/5 Redness：22/7 Swelling：25/3 Flu-like symptoms：11/- Ecchymosis：-/2
Nofal et al., 2021(29)	PPD *Candida* MMR	50/50/50	Erythema and edema:4/6/3 Flu-like symptoms:3/5/2
Amer et al., 2021(15)	*Candida* VZV	23/23	most common side effect was tolerable pain that persisted at site of injection for a few minutes after injection. tenderness and flu-like symptoms. mild erythema, numbness and burning sensation that disappeared after 1 day of injection: -/few
Hodeib et al., 2021(20)	*Candida* Bleomycin 5-FU	20/20/20	Fever : 4/1/- Erythema : -1/- Edema: 7/1/-

			Flu-like symptoms : 5/1/- Lymphadenitis -/1/- Hyperpigmentation: -/11/3 Hypopigmentation : 1/-/3 Pain during injection :20/20/20 Pain within the day of injection 4/3/3 Persistent pain after the day of injection: -/-/- Itching : -/-/5 Scarring:-/-/1
Marei et al., 2020[a](21)	*Candida* Saline	30/20	Pain during injection:30/ Flu-like symptoms:8/- Edema and erythema:9/-
Nassar et al., 2020(25)	photodynamic *Candida* Saline	13/13/13	Pain:5/2/8 Pain and swelling:-/10/5
Fawzy et al., 2020(5)	PPD *Candida* MMR	40/40/40	tolerable pain : 40/40/40 erythema and edema : 3/5/4 flu-like symptoms : 2/6/3
Nofal et al., 2020[a](32)	PPD *Candida* alternating therapy Saline	36/38/34/35	Adverse effects were insignificant in the studied groups
Nofal et al., 2020[b](31)	PPD *Candida*	28/29	Pain 28/29 Erythema & Edema 0/1 Itching 0/2 Burning sensation 3/2 Flu like symptoms 1/0
Marei et al., 2020[b](22)	*Candida*	20/20	Tolerable pain during injection:20/20 Edema/induration:+/+

	Combined therapy (*Candida*+HPV2)		Erythema:+/+ flu-like symptoms:+/+
Fathy et al., 2019(18)	Vitamin D3 *Candida* Saline	20/20/20	pain:+/+/+ perilesional edema and erythema:-/+/-

Table SV. GRADE of complete response.

Certainty assessment						
Participants (studies) Follow-up	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Publication bias**	**Overall certainty of evidence**
Complete response: *Candida* vs Saline						
585 (11 RCTs)	serious[a]	not serious	not serious	serious[b]	publication bias strongly suspected[c]	⨁◯◯◯ Very low
Complete response: *Candida* vs MMR						
380 (6 RCTs)	not serious	serious[d]	not serious	serious[b]	none	⨁⨁◯◯ Low
Complete response: *Candida* vs PPD						
541 (7 RCTs)	not serious	serious[d]	not serious	serious[b]	none	⨁⨁◯◯ Low
Complete response: *Candida* vs Vit D3						
316 (6 RCTs)	not serious	serious[d]	not serious	serious[b]	none	⨁⨁◯◯ Low
Complete response: *Candida* vs bivalent HPV						
100 (2 RCTs)	serious[a]	not serious	not serious	serious[e]	none	⨁⨁◯◯ Low
Complete response: *Candida* vs Zinc sulfate						
146 (2 RCTs)	not serious	not serious	not serious	serious[e]	none	⨁⨁⨁◯ Moderate

CI: confidence interval; **RR:** risk ratio

Explanations

a. More than one-third of the included studies had a high risk of bias due to their methodology
b. Total number of events is less than 300
c. Egger's test for a regression intercept gave a p-value of 0.000
d. $I^2 > 50\%$, considerable heterogeneity
e. Only two studies with events

Table SVI. GRADE of partial response.

Certainty assessment						
Participants (studies) Follow-up	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Publication bias**	**Overall certainty of evidence**
Partial response - *Candida* vs Saline						
583 (11 RCTs)	serious[a]	serious[b]	not serious	serious[c]	none	⨁◯◯◯ Very low
Partial response - *Candida* vs MMR						
330 (5 RCTs)	not serious	not serious	not serious	serious[c]	none	⨁⨁⨁◯ Moderate
Partial response - *Candida* vs PPD						
491 (6 RCTs)	not serious	serious[b]	not serious	serious[c]	none	⨁⨁◯◯ Low
Partial response - *Candida* vs Vit D3						
266 (5 RCTs)	not serious	not serious	not serious	serious[c]	none	⨁⨁⨁◯ Moderate
Partial response - *Candida* vs bivalent HPV						
100 (2 RCTs)	serious[a]	not serious	not serious	serious[d]	none	⨁⨁◯◯ Low
Partial response - *Candida* vs Zinc sulfate						
146 (2 RCTs)	not serious	not serious	not serious	serious[d]	none	⨁⨁⨁◯ Moderate

CI: confidence interval; **RR:** risk ratio

Explanations

a. More than one-third of the included studies had a high risk of bias due to their methodology
b. $I^2 > 50\%$, considerable heterogeneity
c. Total number of events is less than 300
d. Only two studies with events

Table SVII. GRADE of distant response.

Participants (studies) Follow-up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence
Distant response: *Candida* vs Saline						
160 (5 RCTs)	serious[a]	not serious	not serious	serious[b]	none	⨁⨁◯◯ Low
Distant response: *Candida* vs MMR						
163 (4 RCTs)	not serious	not serious	not serious	serious[b]	none	⨁⨁⨁◯ Moderate
Distant response: *Candida* vs PPD						
97 (3 RCTs)	not serious	not serious	not serious	serious[b]	none	⨁⨁⨁◯ Moderate
Distant response: *Candida* vs Vit D3						
133 (5 RCTs)	not serious	serious[c]	not serious	serious[b]	none	⨁⨁◯◯ Low
Distant response: *Candida* vs bivalent HPV						
60 (1 RCT)	serious[a]	serious[c]	not serious	serious[d]	none	⨁◯◯◯ Very low
Distant response: *Candida* vs Zinc sulfate						
76 (2 RCTs)	not serious	serious[c]	not serious	serious[d]	none	⨁⨁◯◯ Low

CI: confidence interval; **RR:** risk ratio

Explanations

a. More than one-third of the included studies had a high risk of bias due to their methodology
b. Total number of events is less than 300
c. $I^2 > 50\%$, considerable heterogeneity
d. Only one study or two studies