

# The Efficacy of Intralesional Measles, Mumps, Rubella Vaccine for the Treatment of Common Warts in Children and Adolescents Study From A Tertiary Care Centre: Rims Ranchi

Dr. Apeksha Singh<sup>1</sup>, Dr. (Prof) D.K Mishra<sup>2</sup>, Dr. Rajeev Kumar<sup>3</sup>

1. Junior Resident, Department Of Dermatology, Venereology and Leprosy, Rims Ranchi.

2. Professor, Department Of Dermatology, Venereology and Leprosy, Rims Ranchi

3. Junior Resident, Department Of Dermatology, Venereology and Leprosy.

Corresponding Author- Dr. Apeksha Singh

## Abstract

**Background** majority of therapeutic modalities for common warts are unsatisfactory. **Objectives:** to evaluate efficacy and safety of intralesional MMR vaccine in treatment of common wart in children and adolescents. **Patients and method:** 45 patients (M:F =26:19) patients of age group 08-19 years having 01 to 60 warts over dorsum of hands, feet, palms, soles and periungual skin for 1 to 2 years. MMR vaccine 0.3ml was injected intralesionally in the largest wart and repeated at 3 weeks interval until maximum of 4 doses. The outcome was evaluated as complete clearance, excellent, good or unsatisfactory response on visual analog scale at every visit and at every 3 weeks for 6 weeks during follow up. **Results:** only 38 patients completed the study and 30 patients (78.98%) showed complete clearance of wart, 01 patient (2.63%) showed excellent response, 04 patients (10.52%) showed good response and 03 patients (7.89%) showed poor response. No recurrence of wart was noted during follow up period of 6 weeks after clearance of warts. **Conclusion:** despite variable results, intralesional MMR vaccine immunotherapy appears a good, safe and effective treatment option for common warts in children and adolescents. However well designed controlled study on large number of patients is desirable to make any recommendations.

**Keywords:** Human papilloma virus, immunotherapy, verruca vulgaris, warts

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## I. Introduction

Common warts are caused by human papilloma virus (HPV), also called verruca vulgaris, can occur in any age group more common in children and young adults, in children frequently occurs on hands. It is self resolving, may take longer time or years. So, faster resolution occurs with interventions like cauterization, salicylic acid, excision, trichloroacetic acid, podophyllin, cryosurgery, immunotherapies. Treatment with contact sensitizers, imiquimod, intralesional interferon and oral levamisole, cimetidine or zinc sulfate has been tried with variable success.<sup>(1-4)</sup> Various immunotherapies like (BCG VACCINE, MMR, VITAMIN-D) given intralesionally have also been tried with encouraging results<sup>(5,6)</sup>. The exact mechanism of how MMR vaccine is not known, but perhaps employs the ability of the immune system to recognize viral antigen, that induces a delayed type hypersensitivity reaction not only to antigen but also against the HPV, thereby increasing the ability of immune system to recognize and clear HPV.<sup>(7)</sup> Consequent to this, the stimulated immune response clears all lesions on other body sites along with locally treated lesions.<sup>(5)</sup> Immunotherapy using intralesional MMR vaccine has been found useful in treating common warts particularly in children.<sup>(8-10)</sup>

## II. Aim Of Study

To evaluate the efficacy of intralesional MMR vaccine in treatment of common warts in children and adolescents.

## III. Material And Methods

The study was done on total 45 children and adolescents aged (8-19 yrs) with common warts, counseled for number of sittings required, clinical examination for site and number was done. Photographs prior to treatment and after every sitting was taken. Simultaneously no other treatment modality for warts was used. Patient of less than 8 yrs, who received treatment for warts during last 2 months, with infections, or immunosuppression, asthma, allergic skin disorders, meningitis, or convulsion were excluded. Routine viral serology was done before starting treatment along with random blood sugar level and BT, CT.

#### IV. Treatment Protocol

Freeze dried MMR vaccine (tresivac)vial was used ,stored at 2<sup>o</sup>-8<sup>o</sup>C.the vaccine was reconstituted with 0.5ML of distilled water just before intralesional MMR injection .this was used for once and unused vaccine was discarded. The lesion or the site to be injected was cleaned with normal saline each time before injection. The patients received intralesional injection of 0.3ml of reconstituted MMR vaccine in largest wart with 30G insulin syringe. The injections were given every 3week interval until complete clearance or maximum of 4 doses, accompanied by clinical evaluations, colored photograph at each session ,with proper note down of improvement of treated wart and distant warts,any improvement like decrease in number or size,or any immediate or late side effects .The clinical response was graded as complete clearance, excellent response, good response, or unsatisfactory response based on visual analog scale score at each session for 4 sessions. After completion of treatment period ,patient were also followed up every 3weeks for 6weeks

#### V. Results

The study included 45 patients, of which 19 were female and 26 male aged between 8 -19yrs, having multiple wart (with 1 patient had approx.60 number)warts were localized mainly on dorsal of hands and feet( 30 ), palms and soles( 11 ) , periungual skin( 1) and multiple sites in the same patient together(3). 37 (81%) of patient were of age group 10-16yrs.Table 1. Depicts therapeutic outcome in 38 patients who completed study, Seven( 7) patients were lost during follow up and results showed 30 (78.98%) patients had complete clearance of wart ,excellent response was seen in 01 patient(2.63%),07(18.41%) patients showed partial (good to unsatisfactory response) after completion of study period. Majority of patients (48%) had complete clearance after 4doses and after 3 doses in (15%) patients and in (8%) warts resolved after1st dose of MMR vaccine itself ,other patients didn't completely resolve and were not really satisfied. Almost all patients complained of slight injection pain during intralesional injection of MMR. No significant other side effects like scarring, edema, infection, pigmentation, systemic adverse effect was noted.

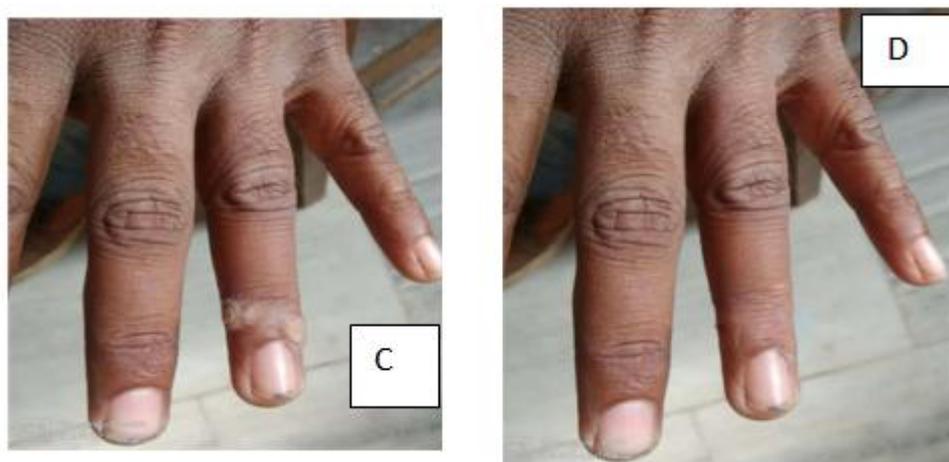
**Table1. Evaluation of clinical improvement and patients satisfaction level at the end of study period**

Grades of clinical improvement	Definition	Number of patients completed study
<b>Complete clearance (VAS Score = 100%)</b>	Complete disappearance of wart Including distant warts and skin texture back to normal	30 (78.98%)
<b>Excellent response (VAS score 75-99%)</b>	Reduction in number with few residual warts still visible	01 (2.63%)
<b>Good response (VAS score 50-74%)</b>	Some reduction in size but no decrease in number	04 (10.52%)
<b>Poor response (VAS score &lt;50%)</b>	No significant change in size and number of warts	03 (7.89%)

No recurrence was seen during period of follow up till 6weeks.



**Figure1.** Multiple common warts over dorsum of hand A) before B) Complete clearance of treatment after 4weeks of treatment. The largest lesion on right index finger treated with intralesional MMR vaccine



**Figure 2.** shows common wart on ring finger C) before D) after 4 sessions of intralesional MMR vaccine, on ring finger.



**Figure 3.** shows multiple common wart on thumb and dorsum of hand in a 8 years old child, E) before F) after 4 sessions of MMR vaccine intralesional .

## VI. Discussion

No single treatment modality is completely efficacious in 100% patients. Considering this intralesional MMR vaccine injection can be considered as good modality specially in multiple common warts in children, with minimal injection site pain as side effect in majority of the patient, MMR can be considered safe treatment option, with no scarring and or pigmentation as from other wart removal destructive therapies in this age group. A significant epidermal and dermal influx of CD4 T lymphocytes in spontaneously regressing warts suggest immune system, particularly the cell mediated immunity plays a significant role in pathogenesis and persistence of warts.<sup>(11-12)</sup> This conceptualized intralesional immunotherapy using different antigens to stimulate cell mediated and humoral immunity and accelerated clearance of virus and viral infected cells leading to clearing of intralesionally treated and distant warts with variable success rates.<sup>(8,9,11,12)</sup> MMR vaccine acts as immunotherapy i.e stimulate cell mediated immunity to accelerate clearance of viral load from the lesion injected with MMR and also from distant sites, though results may be variable from individual to individual, various studies used various dose, sessions and duration of treatment. However, there seems no consensus for a minimum dose of MMR vaccine dosing, frequency, and duration of therapy to treat warts.<sup>(8-10,13-20)</sup> MMR Vaccine has been found to be effective in treating common warts particularly in children. In this study no recurrence was seen at the end of study (including follow up period up to 6 weeks).

## LIMITATIONS

Small number of patients, lack of placebo control group, short follow up period are some of the limitation of our study.

## VII. Conclusion

Although variable results of intralesional MMR vaccine immunotherapy seems to be possible and It is safe treatment option in children and adolescents with multiple common warts. Advantage being single lesion infiltration, no scarring or hyperpigmentation as from cautery or other destructive procedure and low recurrence ,also regression of distant site lesions but multiple sittings ,long duration, frequent follow ups, injection site pain, incomplete clearance after initial sittings, slow response makes patient's compliance and satisfaction poor.

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Nil.

## CONFLICTS OF INTEREST

There are no conflicts of interest.

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