

## Research Article

# Study the efficacy of intralesional formic acid-80% in verruca vulgaris

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### ABSTRACT

**Background:** Warts have been recognized for thousands of years. A wart an epidermal outgrowth develops due to infection with human papilloma virus (HPV) belongs to the papova viridae group. Various treatment modalities have been tried for warts but none are uniformly effective. The present experimental study with formic acid 80% was undertaken. The objective was to study the verruca vulgaris in relation to age, sex and site and efficacy of intraregional formic acid 80% in verruca vulgaris.

**Methods:** Patients were treated with formic acid - 80% intralesionally on every alternate day till lesions become flat. But the number of application was restricted to ten, after which the treatment was considered as a failure. Then follow up every monthly. Failure was considered if there was recurrence of any lesion and if lesions did not respond to intraregional formic acid.

**Results:** In the present study, out of 67 patients of verruca vulgaris, 64 patients showed complete disappearances of verruca vulgaris before the period of 10 application of formic acid 80%. The overall success rate of treatment of verruca vulgaris with 80% formic acid is 82%.

**Conclusions:** The overall success rate of treatment of verruca vulgaris with formic acid was 82%. Thus the formic acid-80% is effective in the treatment of verruca vagaries.

**Keywords:** Verruca valgaries, Formic acid-80%, Efficacy

### INTRODUCTION

Warts have been recognized for thousands of years. They were known to Greeks and Romans. Celsus (AD-25) in her *De- Medicina* described their types of warts viz Acrochordon, Thymiom (Thyme plant) and a painful Myrmecia. He coined the term "myrmecia" (anthill) to depict the subterranean, cavernous plantae warts and thymiom to depict common warts.<sup>1</sup> Sennertus was apparently the first to use the term "verruca" meaning "the steep place" and likening them to little hill.<sup>2</sup> A wart an epidermal outgrowth develops due to infection with human papilloma virus (HPV) belongs to the papova viridae group. Until now more than 70 types of HPV's

have been isolated. HPV causes different types of warts like filiform, flat, common warts, palmoplantar warts, condyloma accminata and epidermodysplasi verruciformis.<sup>3,4</sup> Common warts are mainly spread by direct contact and their transmission may be facilitated by break in the skin barrier. Common warts are caused by the specific human papilloma virus strains such as HPV2 and HPV4.<sup>3</sup> The selection of treatment depends upon number of lesions, size, site, age of patient and immunological status of patient.<sup>5</sup> Various treatment modalities have been tried for warts but none are uniformly effective. With the above in mind, the present experimental study with formic acid 80% was undertaken for the therapeutic trial in treatment of warts.

**METHODS**

This study was carried out amongst patients with verruca vulgaris attending OPD of Skin, STD and Leprosy department of J. N. Medical College and Hospital, Belgaum, Karnataka, India for a period of one and half year from 1<sup>st</sup> May 1996 to 31<sup>st</sup> October 1997. Written informed consent was taken. All patients having warts were included in the study. There were no specific exclusion criteria. The name, age, sex and occupation with the address of patient along with a detailed history, cutaneous examination, systemic examination and routine investigation were done. All the patients were examined in detail in well lighted room. Patients were treated with formic acid-80% intralesionally on every alternate day till lesions become flat. But the number of application was restricted to ten. After which the treatment was considered as a failure. The entire patients after treatment were followed up once a month for the next three months. The response to therapy, presence of secondary infection, hypopigmentation and hyperpigmentation were noted. All patients were asked to report if there was any recurrence of lesion during follow up period of three months. Failure was considered if there was recurrence of any lesion at the same site within 3 months after the completion of treatment.

**RESULTS**

Out of 17,623 cases visiting to the outpatient department of skin, STD and leprosy, 224 cases of warts were taken for the study. The total incidence of warts was 1.27%.

The commonest wart was verruca vulgaris accounting to 43.31%. The incidence of palmoplantar wart was less that is 10.71% (as shown in Table 1).

**Table 1: Types of warts and their percentage.**

Type of Wart	No. of cases	Percentage
Verruca vulgaris	97	43.31
Filiform warts	46	20.54
Verruca plana	28	12.50
Palmoplantar wart	24	10.71
Condyloma accuminata	29	12.94
Total	224	100

As Table 2 shows that 64 of 67 cases responded to formic acid treatment accounting for 95.52%, while 3 cases were non responders accounting for 4.48%.

**Table 2: Response to treatment of formic acid -80%.**

Response	No. of cases	Percentage
Responders	64	95.52
Non Responders	3	4.48
Total	67	100

Table 3 shows that 17 out of 67 cases required 4 applications of formic acid accounting for 25%, 15 cases required 3 applications accounting to 22.39% and 13 cases required 5 applications accounting to 19.38. Only one case required one application (1.49%) and 4 cases (5.97%) required 8 application.

**Table 3: Number of applications of formic acid -80%.**

No. of applications	No. of cases	Percentage
1	1	1.49
2	2	2.98
3	15	22.39
4	17	25.38
5	13	19.38
6	7	10.45
7	5	7.46
8	4	5.97
9	-	-
10	-	-
Above 10	3	4.48
Total	67	100

Table 4 shows recurrence of verruca vulgaris at the same site accounting to 14.06%, while 55 cases showed no recurrence accounting to 85.94%.

**Table 4: Recurrence rate.**

Recurrence	No. of cases	Percentage
Present	9	14.06
Absent	55	85.94
Total	64	100

Table 5 showed the efficacy of treatment that 55 out of 67 cases were successfully treated with formic acid accounting to 82% while in 12 out of 67 cases formic acid treatment was not effective (including recurrence) accounting to 18%.

**Table 5: Efficacy of formic acid treatment.**

Treatment efficacy	No. of cases	Percentage
Treatment effective	55	82
Treatment non effective	12	18
Total	67	100

**DISCUSSION**

In the present study, out of 67 patients of verruca vulgaris 64 patient showed complete disappearance of verruca vulgaris before the period of 10 application of formic acid 80%, while 3 patients required more than 10 application viz 12, 15, 16 for complete disappearance. Almost all age groups as well as those have verruca vulgaris of short and longer duration responded well with formic acid 80%.

In our study, only 3 patients did not show response to the treatment with formic acid-80%, up to 10 applications and in 9 cases there was recurrence of verruca vulgaris at the same site during follow up period of 3 months. Thus the overall success rate of treatment of verruca vulgaris with 80% formic acid is 82%. Formic acid 80% can be applied easily intralesionally without local anesthesia. Formic acid leads to denaturalization and coagulative necrosis of virally infected cell leading to cell death. There is no scarring at the site, so cosmetically acceptable by the patients.<sup>6</sup>

Over the past 25 years, CO<sub>2</sub> laser has been used frequently for the treatment of all types of warts, but because of the cost involved, the use has been restricted to recalcitrant warts only.<sup>7</sup> Disadvantage to the use of laser include cost, potential for increase healing time, post treatment scarring and generation of potentially infectious particles in laser fumes as well as possible residual deformity after treatment of periungual warts.<sup>8</sup> Though cryosurgery is one of the commonly performed office procedures for the treatment of warts it is still not widely used in India. Cryosurgery on the sides of digits may results in sensory loss and also from the above economic points of view; the use of cryosurgery in outpatient is greatly restricted.<sup>9,10</sup>

On the contrary, the use of formic acid-80% does not require any expensive equipment, it is economical, can be used even in a village set up in India, can be used to treat multiple warts. It does not require local anesthesia and even children can tolerate it. There is no scaring or nail dystrophy and most important patient does not require staying away from work.

## CONCLUSION

The therapeutic effectiveness of formic acid 80% by intralesional injection was evaluated in 67 patients of verruca vulgaris. Formic acid 80% was applied every alternate day, total applications were not more than ten. The patients were followed up monthly for 3 months. The overall success rate of treatment of verruca vulgaris with

formic acid was 82%. Thus the formic acid-80% is effective in the treatment of verruca vulgaris.

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