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 vulgaris, 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.1 Sennertus was apparently the first to use the term “verruca” meaning “the steep place” and likening them to little hill.2 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, palmpomplantar warts, condyloma accimnata and epidermdysplasi verruciformis.3,4 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 HPV4.3 The selection of treatment depends upon number of lesions, size, site, age of patient and immunological status of patient.7 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 1st May 1996 to 31st 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 acuminate | 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.\(^6\)

Over the past 25 years, CO\(_2\) 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.\(^7\) 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.\(^8\) 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 result in sensory loss and also from the above economic points of view; the use of cryosurgery in outpatient is greatly restricted.\(^9,10\)

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 scarring or nail dystrophy and most important patient does not require staying away from work.

**CONCLUSION**

The therapeutic effectiveness of formic acid 80% by intraleisional 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 vagaries.

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the institutional ethics committee

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