

*Research Article***Evaluation of Intralesional Injection of Bleomycin in the Treatment of Plantar Warts****Manal Barakat , Rasha T. Abdel Razik and Mervat S. Mohamed**

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Abstract :

Introduction and Aim of the Work: Warts are scaly, rough, spiny papules or nodules. They are the cutaneous manifestation of human papilloma virus (HPV) infection. The aim of the present work is to evaluate the efficacy of intralesional injection of bleomycin in the treatment of plantar warts, based on clinical and dermoscopic observations. **Patients and Methods:** The present study included 46 patients having plantar warts attending the dermatology outpatient clinic, Minia University Hospital over a period of 18 months, from June 2014 to November 2015. **Results:** The present study was conducted on 46 patients having plantar warts. Patients were classified into 2 groups. **Discussion:** Warts are caused by human papillomaviruses (HPVs) which infect keratinocytes. Warts are the most common viral infection of the skin, affecting 7-10% of the general population (Weber and Hoffman, 2013). **Summary and Conclusion:** Warts are caused by human papillomaviruses (HPVs) which infect keratinocytes.

Keywords: Intralesional injection, bleomycin, Plantar Warts**Introduction and Aim of the Work**

Warts are scaly, rough, spiny papules or nodules. They are the cutaneous manifestation of human papilloma virus (HPV) infection. They appear in various forms, on different sites of the body, including verruca vulgaris, flat warts, plantar warts, filiform warts, periungual and anogenital warts (Lipke, 2006).

Plantar warts appear on the sole of the foot and typically resemble a cauliflower, with tiny black petechiae in the center. Pinpoint bleeding may occur when these are scratched. Plantar warts may be painful when standing or walking (Habif, 2009).

Treatment of plantar warts is difficult and requires multiple treatments and they are more refractory to treatment than common warts. In addition, treatments used for plantar warts are often painful e.g. electrosurgery, cryotherapy; and not always effective (James et al., 2006; Lipke, 2006).

Bleomycin is a complex of related glycopeptide antibiotics from *Streptomyces Verticillus*. It inhibits DNA metabolism and is used as an antineoplastic, especially for solid tumors

(Lewis and Nydorf, 2006). Intralesional bleomycin has been used to treat various skin conditions as hemangiomas, vascular malformations, telangiectasias, lesions of leishmaniasis cutis and several types of cutaneous malignancies. It has been also used in the treatment of warts with varying degrees of success (Saitta et al., 2008).

Dermoscopy has been regarded as a safe and rapid diagnostic tool that assists in clinical examination and management decision in dermatology, as the stethoscope does for diagnosing heart, lung or abdominal problems. As a consequence, the dermoscope is considered the dermatologists' stethoscope (Zalaudek et al., 2013).

In plantar warts, dermoscopy helps diagnosis by allowing a physician to visualize the structure of a wart and to distinguish it from corn, calluses, trauma or foreign bodies (Lee et al., 2009).

The aim of the present work is to evaluate the efficacy of intralesional injection of bleomycin in the treatment of plantar warts, based on clinical and dermoscopic observations.

Patients and Methods

The present study included 46 patients having plantar warts attending the dermatology outpatient clinic, Minia University Hospital over a period of 18 months, from June 2014 to November 2015. A written informed consent was taken from all the patients and ethical clearance was obtained from appropriate authorities of the college.

The patients were classified into 2 groups as follows:

Bleomycin group: 26 patients treated with intralesional bleomycin.

Control group: 20 patients treated with intralesional normal saline solution.

Inclusion criteria:

- 1- Patients aged 15-60 years old.
- 2- Patients who had never received any treatment for their warts.

Exclusion criteria:

- 1- Pregnant or lactating females.
- 2- Patients with history of Raynaud's or any other systemic disease.
- 3- Patients with warts on the plantar surface of the toes.

All patients were subjected to the following:

- 1- History taking and clinical examination.
- 2- Baseline evaluation of the studied warts at the first visit. A graphical wart map was prepared for each patient and location of warts along with data regarding wart size and type were recorded on it.
- 3- Photography of the studied warts for clinical assessment. It was performed before starting treatment, at every session and 2 weeks after stopping treatment.

Results

The present study was conducted on 46 patients having plantar warts. Patients were classified into 2 groups:

Bleomycin group: included 26 patients, 19 males (73%) and 7 females (27%) (**Fig. 1**). Their ages ranged from 15-50 years old with a mean \pm SD of 26 \pm 9.7 years. At time of examination, the duration of their warts ranged from 1-10 months with a mean \pm SD of 6.1 \pm 3.2 months. In this group, patients received 1-4 treatment sessions, according to response, with a mean \pm SD of 3.8 \pm 0.7. There was 2 weeks interval between sessions (**Table 1**).

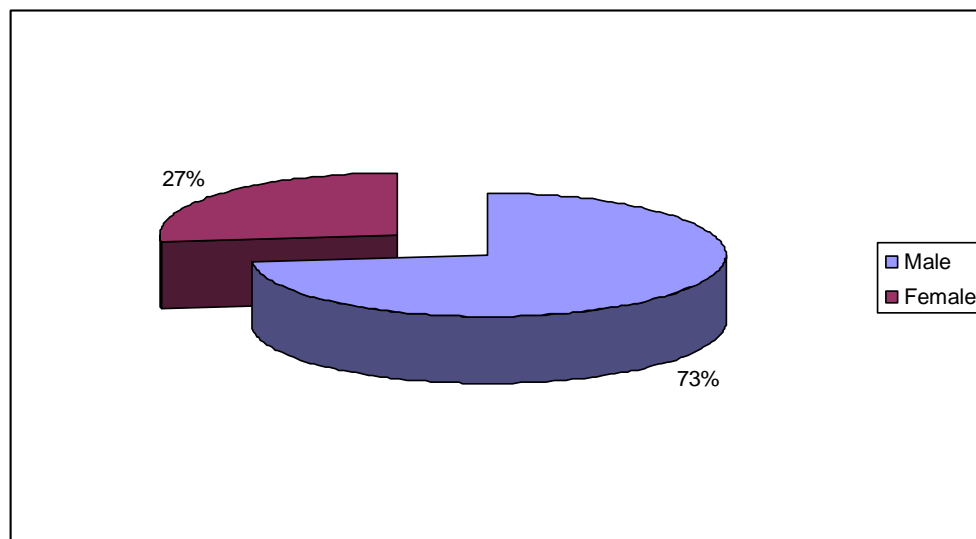


Fig. (1): Sex distribution of bleomycin group.

(Table 1): Clinical and dermoscopic scores of bleomycin and control groups.

Response of plantar warts to treatment	Score	Bleomycin group 26 patients	Control group 20 patients
Clinical & dermoscopic clearance	3	18 (69.3%)	0
Clinical clearance only without dermoscopic clearance	2	5 (19.2%)	0
Clinical improvement	1	2 (7.7%)	1 (5%)
No clinical response	0	1 (3.8%)	19 (95%)
<i>P</i>		< 0.0001	

Discussion

Warts are caused by human papillomaviruses (HPVs) which infect keratinocytes. Warts are the most common viral infection of the skin, affecting 7-10% of the general population (Weber and Hoffman, 2013).

Spontaneous regression is known to occur in warts due to the development of cell-mediated immunity (CMI) to the virus and such lesions demonstrate prominent lymphocytic infiltration in the dermis (Sterling et al., 2001). However, wart treatment is indicated for numerous reasons including irritation, pain, cosmetic embarrassment and risk of transmission (Weber and Hoffman, 2013).

Local destruction of the warts is a commonly employed treatment modality. However, it is not practical for multiple lesions, palmo-plantar and facial lesions because of associated scarring or pigmentation and may be associated with frequent recurrences (Sterling et al., 2001).

The treatment of warts can be very challenging, especially the treatment of plantar warts which tends to be time consuming, costly and painful. There is no single wart treatment that is 100% effective. There is a vast array of treatment modalities and the success rates vary significantly (Weber and Hoffman, 2013).

Bleomycin is derived from 'Streptomyces verticillus' and has antitumor, antiviral, and

antibacterial activities related to its ability to bind DNA and cause strand scission. Since 1970s, numerous reports have been published on the use of intralesional bleomycin for the treatment of warts, with cure rates ranging from 14% to 99%. According to the modified evidence based medicine system, bleomycin has been regarded as level one strength of evidence for the treatment of warts (Lewis and Nydorf, 2006).

Summary and Conclusion

Warts are caused by human papillomaviruses (HPVs) which infect keratinocytes. Treatment of plantar warts is difficult and requires multiple treatments and they are more refractory to treatment than common warts and recurrence is common.

Bleomycin is derived from 'Streptomyces verticillus' and has antitumor, antiviral, and antibacterial activities related to its ability to bind DNA and cause strand scission. Since 1970s, numerous reports have been published on the use of intralesional bleomycin for the treatment of warts, with cure rates ranging from 14% to 99%.

In the present study, the response of plantar warts to the treatment with intralesional injection of bleomycin was evaluated both clinically and by the dermoscope. Forty six patients having plantar warts, with no history of previous treatments were divided into 2 groups;

bleomycin group included 26 patients were treated with bleomycin and control group included 20 patients treated with normal saline solution. There was no statistical difference between the 2 groups regarding the ages of the patients ($p= 0.9$) or the duration of their warts ($p= 0.1$).

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