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A Comparative Study of Hyfrecator Ablation to that of Cryosurgery in the Management of Benign Skin Growths.

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Abstract: *605 patients in a Tertiary care center during a period of one year with benign skin growths were treated with either Electro surgery or Cryo surgery. 314 were treated with Hyfrecator and 291 were treated with Cryo surgery. Both procedures were done as op procedures without much complications and they were very much cost effective. There were no recurrences in both groups with a follow up period of 30 days. Hyfrecator scores slightly better compared to Cryo-surgery in this study with regards to scar formation and costwise.*

I. Introduction

Both hyfrecator and the Cryosurgery are used extensively by dermatogists for the ablation of common skin conditions like Acrochordons, Verucous lesions (viral warts and seborrheic warts) and Dermatosis papulosa Nigra which are all having a high cosmetic value from the patient's point of view. These hyfrecator is considered as "poor man's LASER" or cold cautery[1]. The word *hyfrecator* is a portmanteau derived from "**hi**gh-**fre**quency eradi**cator**"[2]. The hyfrecator is a specialised electrocauterisation unit operating in Fulguration mode. This is a highly specialised inexpensive surgical unit used extensively by dermatologists. This unit has adjustable power settings and it does produce a visible spark when the tip of the Hyfrecator is close enough to the skin. The level of precision is as high as an electrocauterisation unit[3]. It is an effective and cheaper tool in the treatment of various skin conditions, which would otherwise need to be handled by expensive ablative lasers[1]. Similarly Cryosurgery is also compartively cheaper and practized for approximately 100 years[4]. Irreversible damage in treated tissue occurs because of intracellular ice formation. The degree of damage depends on the rate of cooling and the minimum temperature achieved. Inflammation develops during the 24 hours after treatment, further contributing to destruction of the lesion through immunologically mediated mechanisms[4]. Though many articles had been published about these procedures and their efficacy in various dermatological coditions, there were not many studies which had compared both. Few comparative studies available for certain specific conditions like Xanthelasma[3], dental lesions[5] and nail matrix surgery[6] etc. not much with more common skin conditions.
So we planned for this study.

II. Materials And Methods

After getting informed consent from 605 patients attended the skin OPD of Sree Mookambika Institute of Medical Sciences, a tertiary care centre in South India during a period of one year (January 2016 to December 2016) with the complaints of skin tags (Acrochordans), Veruca lesions (viral warts and seborrheic warts) and Dermatosa pappulosa Nigra in both sexes between ages of 11 to 60 years, as very young chidren might need general anesthesia for even simple procedures. People with coagulation defetcts, Uncontrolled Diabetes Mallitus, some other active skin infections and also people with more than 6 lesions (as they might need more than one sitting) were exculded from this study. Among these 605 patients enrolled in this study, 314 were treated with Hyfrecator (Figure 1) and another 291 were treated with Cryosurgery (Figure 2) as per their own preference after explaining the procedure.

In Hyfrecator patients almost all patients were treated with loacla anesthesia whereas in Cryosurgery we used Liquid Nitrogen as the Freezing agent without local anesthesia. All patients in both groups were prescribed Mupirocin ointment for topical application and were advised to come for follow up at the end of 1st week, 2nd week and after one month.

III. Results

Among the 605 patients enrolloed in this study 314 were treated with electric Hyfrecator and another 291 were received cryo surgery as per their own preference.

Among these 314 treated with Hyfrecator, 142 were males and 172 were females whereas in the group of Cryosurgery of 291, 126 were men and 165 were women.

Table 1: Hyfrecator group:

Achrochordons	Veruca lesions	Dermatosis Papulosa Nigra
190 (60.5%)	65 (20.7%)	59 (18.7%)

Table 2: Cryosurgery group:

Achrochordons	Veruca lesions	Dermatosis Papulosa Nigra
171(58.8%)	62 (21.3%)	58

In the Hyfrecator group, 32 (10%) came with mild secondary infection during their 1st follow up after 7days and were treated with a course of systemic antibiotic. 64 (20%) had developed a hyper-pigmented scars over the treated area 4 weeks after the procedure, observed during the follow up. In the Cryosurgery group, 117 (40%) patients developed blistering associated with slight pain during the first follow up. Among these, 35 (12%) had secondary infection. A course of systemic antibiotic relieved this problem without any difficulty. In this group, 43 (14.8%) had hyperpigmented scars and another 30 (10.3%) developed depigmented scars.
In the Hyfrecator group, 10 (3%) were lost to followup during the first follow up and only 289 (92%) were completed the third follow up. In the Cryosurgery group, 15 (5%) were lost to follow up and only 234 (81%) patients were able to complete the follow up.No recurrences was found in both groups up to 4 weeks follow up in both groups.

IV. Discussion

In benign skin growths, both Hyfrecator and Cryosurgery techniques are simple, cost effective out-patient procedures without much complications and recurrences. In Hyfrecator surgery alternating current energy is converted to heat because of tissue resistance. The treatment electrode is cold as heat generation occurs within the tissue. Electrode contact with the skin causes superfiscial tissue dehydration. Furthermore,depending on the voltage of currentused, the degree of tissue cutting and coagulation can be modified[7]. It is an office-based procedure, performed under local anesthesia, with minimal complications. It has the advantage of having both cut and coagulation modes of operation, making the surgery easy and fast. It is an effective and cheaper tool in the treatment of various skin conditions, which would otherwise need to be handled by expensive ablative lasers. Similarly with Cryosurgery also, the preparation time is short, and treatment requires no expensive supplies or injectable anesthesia. In addition, the risk of infection is low, wound care is minimal, and suture removal is not needed.[4]

In our study women outnumbered men in both the groups indicating that women were seeking more help for their cosmetic aspects even though both sexes have their concern about the same. In both groups number of patients with Achrochordons were more than that of Verucous lewsions and Dermtosa papulosa nigra In both the groups there were no recurrences even after their one month follow up. Incidence of secondary infections following the procedures have no marked differences(32% and 35%) whereas scar formation and blistering were more common with Cryo (25%) rather than Electrosurgery (20%). Especially the depigmented scars associated with Cryo surgery made the patients more upset than with the patients of Electrosurgery.
More over the electro surgery is more precise procedure as we have control over the voltage through adjustment knobsand in removing the lesions. Cryo has some limitations as it needs more masterly activity in deciding the duration of application (5-30 seconds or more) and repeating of the procedures by cooling and thawing, patients would have a feeling of stinging etc. Moreover Cryo needs a recurring expenditure of procuring Liquid Nitrogen, and difficulty in storing and its loss during storage, We feel electrosurgery wth Hyfrecator scores over the Cryosurgery with regards to its efficacy, more precise ablation, costwise and lesser complications (scar formation).

V. Conclusion

Both Hyfrecator and Cryo surgery measures are eaqually effective in treating benign skin conditions like achrochordons, veruca lesions and Dermatosa pappilosa Nigricans. They are rapid and simple office procedures with least recurrences and complications. Hyfrecator is more precise, more effective a with less scar formation and less expensive in the long run.

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