

CO₂-Laser vaporization of human papillomavirus (HPV)-induced abnormal cervical smears. A simple and effective solution to a recurrent clinical problem

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Summary: Fifty women with human papillomavirus (HPV)-induced abnormal cervical smears were randomly allocated to either CO₂-laser vaporization or routine control. The success rate at the 6 months check was 100% after laser treatment compared to that of 72% in the control group ($p < 0.05$). Although longer follow-up is needed to fully establish the efficacy of the treatment, the method seems appropriate to this large group of women at risk of developing cervical intraepithelial neoplasia.

Key words: CO₂-laser vaporization and abnormal cervical smears.

INTRODUCTION

During recent years we have experienced an increasing number of women being referred to our out-patient clinic due to abnormal cervical smears. In many of these patients, the directed punch biopsy and the endocervical curettage reveal only koilocytosis, indicative of human papillomavirus (HPV) infection. This group of patients present a therapeutical problem, because the patients may continue to present pathological smears and thus, a need for repeated biopsies and curettage which is a resource-demanding procedure for the clinic and uncomfortable for the patient. Follow-up of the patient is, however, man-

datory, as more than one third may progress to cervical intraepithelial neoplasia (CIN) ^(1, 2).

Prompted by this clinical dilemma we have conducted a prospective randomized trial to evaluate the effect of CO₂-laser vaporization of the cervical transformation zone.

MATERIALS AND METHODS

Fifty consecutive patients, admitted to our out-patient clinic because of abnormal cervical smears, were randomly allocated into two groups of women comparable with regard to age, smoking, socioeconomic status, sexual habits and contraceptive methods. At the histological examination the cervical biopsies of all the women presented koilocytotic changes or flat condyloma, while the endocervical curettage showed no changes. At colposcopy, the entire transformation zone was fully visualized.

Because the distinction between HPV-induced changes and CIN 1 is difficult ⁽³⁾, women

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Table 1. - *Histological findings in directed punch biopsies from 50 women with abnormal cervical smears.*

	Laser treatment (n=25)	Control group (n=25)
Koilocytosis	19	25
Flat condyloma	6	0
Concomitant CIN 1	11	9

Table 2. - *Cytological findings at 6 months' follow-up in relation to treatment.*

	Laser treatment	Control group
Normal smear	25	18
Abnormal smear	0	7
Total	25	25

with concomitant CIN 1 lesions were also recruited into the study. The range of histological abnormality preceding laser treatment is summarized in Table 1.

The cervical transformation zone of the 25 women, who were randomized to CO₂ laser treatment (Sharplan 733, 12 watt, continuous beam), was evaporated to a depth of 4-5 mm.

The patients reported to the out-patients clinic in the morning. No anaesthesia or analgesia was necessary during the operation. The patients left immediately after the operative procedure and could all proceed with their normal daily activities. The only complaint was vaginal discharge for up to 3 weeks after the operation.

The follow-up examinations included colposcopy and cervical smears. The first follow-up visit was at 3 months after entrance into the study. No punch biopsy was taken in the control group in order not to affect the natural history of the HPV lesion.

The efficacy of the treatment was evaluated using the chi-squared statistic with Yates' correction on the disappearance of abnormal smears.

RESULTS

The results at 6 months' follow-up are summarized in Table 2 and the histological findings at the pretreatment examination are given in Table 1. It appears from Table 2 that no abnormal smears were

found in the women treated by laser vaporization. So the success rate of CO₂-laser vaporization was 100% compared to the spontaneous regression rate of 72% ($p < 0.05$).

DISCUSSION

Earlier reports have claimed the treatment efficacy of CO₂ laser vaporization of cervical intraepithelial neoplasia (^{4, 5}), with success rates between 80% and 90% relating CIN 1. Most of these investigations, however, were uncontrolled or even retrospective studies. In randomized studies the patients were allocated to either laser or cryo therapy.

No reports have until now, in a prospective and randomized manner, concentrated on the problem concerning the treatment of HPV-induced lesions of the cervix, associated or not with CIN 1. Our results showed a convincing cure rate of 100% after laser treatment compared to the spontaneous regression rate of 72%. At six months follow-up, all the women treated by laser evaporation of the transformation zone presented negative cytology. Although the observation period has so far been short, earlier work indicates (¹) that aggravation and regression appears between the 3rd and the 6th month of follow-up. Furthermore, the area from which dysplasia may develop has been destroyed.

Thus, in our experience laser treatment is a simple and well-tolerated procedure with a high cure rate in a large group of women presenting recurrent HPV-induced abnormal PAP smears and a well-documented risk of developing CIN.

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