INITIAL EXPERIENCE IN TREATMENT OF FEMALE GENITAL WARTS AND CERVICAL INTRAEPITELIAL NEOPLASIA WITH LASER

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SYNOPSIS

Laser therapy was introduced at Kandang Kerbau Hospital, Singapore, in October 1986. Between the period October to December 1986, we treated 48 patients at A Unit, Kandang Kerbau Hospital. Forty laser vapourisation and 8 laser excisional cone biopsies were carried out under local anaesthesia. The average time taken for vapourisation was 22 minutes and 19 minutes for conisation. Two cases of primary haemorrhage and 5 cases of secondary haemorrhage and sepsis were encountered. These cases responded well to simple conventional therapy. There were no cases of cervical stenosis. During the first 6 months of follow up, there was 1 case of residual cervical warts, and 2 cases of residual CIN I. All cone biopsy specimens were free of disease at the margins.

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INTRODUCTION

An increasing number of young woman have cervical neoplasia detected by cytologic screening, with a peak incidence of carcinoma-in-situ at 25 to 29 years and less severe grades of cervical intraepithelial neoplasia (CIN) are diagnosed at even younger ages(1). The colposcope is now widely used in Singapore. With it the whole transformation zone can be demonstrated in over 75% of young women who have CIN(2). In such patients hysterectomy for CIN is over-treatment and even cone biopsy may jeopardize cervical function and fertility. Local ablation therapy by various methods have been assessed, and success rate between 87% to 98% for cryotherapy(3), cold coagulation(4), electrodiathermy(5), and laser vapourization(6 – 9) have been reported.

Human papillomavirus (HPV) or 'wart virus' is associated with cervical and lower female genital neoplasia(10). Whether this association is causal or casual is open to debate. However, laser vapourization is undoubtly an effective mode of therapy for such lesions.

Kandang Kerbau Hospital acquired a laser machine in October 1986 and we began laser therapy for our patients. Between the period October to December 1986, we treated 48 patients with laser at A Unit, Kandang Kerbau Hospital, and presented here is our experience after the initial 6 months of follow-up.

PATIENTS AND METHODS

In October 1986, Kandang Kerbau Hospital acquired a Carbon Dioxide Laser and we began laser therapy for our patients attending our colposcopy clinic. Between the period October to December 1986, we treated 48 patients at A Unit, Kandang Kerbau Hospital. These patients were closely followed up at our colposcopy clinics, with Papanicology smears and colposcopic examinations, within 6 months after the laser therapy. Subsequently the patient would be followed up for life.

Forty-six of the patients were referred for assessment of doubtful or abnormal Pap smears while 2 were referred for pruritus vulvae and were subsequently found to have vulval warts.

All the patients had colposcopic examinations and colposcopically directed punch biopsies of their lesions. Diagnosis were confirmed by histology. 46 patients had their transformation zone completely visualised and invasion excluded. In 2 patients the upper margin of the transformation zone were not accessible to colposcopic examination and thus had laser excisional cone biopsies.

A Sharplan 1040 CO2 laser attached via a micromanupulator to a Zeiss OPMI 6-CFC colposcope was used. A Laservac 1000 suction machine with Walker Filtration system was used to remove the smoke.

Standard techniques were used. The patients were first colposcoped in the operating theatre to reconfirm the findings and ascertain the limits of the lesion. A Schiller's test was then performed. The cervix was then anaesthetized by local infiltration of lignocaine in the form of a "ring block" using a dental syringe with a fine gauge needle. Adrenaline was added as a vasoconstrictor. The power of the laser used range from 20 to 36 W/cm2. A continuous mode was used and the spot size employed was 1.5 to 2.0 mm. The cervix was vapourized to a depth of 7 mm and the depth measured with a marked swab stick. For exisional laser cone biopsy, a circumferential laser incision, using a spot size of 1.5 mm, was made approximately 3 mm beyond the margin of the lesion and to a depth of 4 mm initially. (this large spot size is useful in controlling the bleeding from the rich subepithelial vascular network). The spot size was then changed to 0.5 mm and the incision deepened as required. By manipulating the cervix with the aid of a skin hook, the angle of incision could be changed to obtain the required size and shape of cone biopsy. Bleeding which was not controlled by the laser was managed with either a vaginal pack or stitched with catgut. For vulval lesions, local infiltration with lignocaine and adrenaline was given before laser vapourization.

The patients were reviewed at 6 weeks and again at the colposcopy clinic within 3 to 6 months after the laser therapy. Thereafter the patient would require life-long follow-up.

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RESULTS

The mean age of the patients was 36 years, with a range from 22 to 56 years. The 56 years old lady presented with pruritus vulvae and vulval warts. The mean gravidity was 3.2 with a range from 0 to 10. The mean parity was 2.5 with a range from 0 to 7.

Table 1 shows the distribution of the various lesions and the mode of laser therapy given.

Forty of the patients had laser vapourisation of their lesions, including 2 patients with CIN III. 8 patients had laser excisional cone biopsies, of which 6 had CIN III lesions while the remaining 2 had transformation zones which were not accessable to complete colposcopic examination. Subsequent histology of the specimens from these 2 patients showed CIN II lesions. All laser excisional cone biopsy specimens were free of lesions at their margins.

The average duration laser vapourisation was 22 minutes, with a range from 10 to 52 minutes. The case requiring 52 minutes to complete was due to primary haemorrhage which required stitching with catgut to arrest haemorrhage. The average time taken for laser cone biopsy was 19 minutes, with a range from 8 to 35 minutes.

Complications encountered are tabulated in Table 2. The 2 cases of primary haemorrhage were from vapourisation of large multiparous cervix. Bleeding was controlled by vaginal packing in 1 while the other required stiching with catgut. 4 cases of laser vapourisation developed sepsis and secondary haemorhage. None of the cone biopsies encountered primary haemorrhage, although 1 developed subsequent sepsis and secondary haemorrhage. All the cases of secondary haemorrhage and sepsis responded well to conservative therapy with antibiotics and vaginal packing.

All the cases were done under local anaesthesia and none required general anaesthesia. Discomfort felt was slight and rapidly abated when an interval of a minute or so to allow the heat to dissipate was allowed before the procedure was continued.

The patients were followed up and had a Pap smear and a colposcopic examination 3 to 6 months after the laser therapy. 5 patients failed to return after therapy. The results of the remaining patients are tabulated in Table 3.

One patient with cervical viral warts and 2 patients with CIN I had residual lesions after therapy. One case of incomplete colposcopy with laser cone biopsy subsequently showing CIN II, had wart virus detected during follow-up. None of the CIN II and III patients had residual lesions after therapy. One patient, aged 53 years, with CIN III opted for total hysterectomy instead of long term follow up.

In all the cases the squamo-columnar junction were visible at the first colposcopic follow up, 3 to 6 months after the laser therapy.

DISCUSSION

Our initial experience with laser therapy has been encouraging. Of the 43 patients that were followed up, 40 were free of disease after a single laser therapy. The result would be expected to improve with greater experience with this new treatment method. For CIN, with a single laser destruction, cure rates in the region of 94% of selected patients can be expected(11).

The procedures were rapid and our average time taken for vaporisation was 22 minutes and for cone biopsy was 19 minutes. With practice, the operative time can be cut down further.

Bleeding and pain were the most common side effects encountered in Baggish's series of 624 cervical laser treatments. He reported a 10% incidence of minor bleeding but no cases of infection(12). Wright in 1983 reported on 429 cases and found negligible bleeding problems(13). Similiarily, Townsend in 1983 reported no bleeding problems in 100 patients treated with laser(14). In Larsson's report on laser conisation he encountered bleeding in 1.8% of cases which required cervical stitching compared to 14.6% of patients when cold-knife conisation was used(15). In another of Larsson's series of 216 laser conisations he reported that 2.8% of cases had post-

TABLE 1
DISTRIBUTION OF LESIONS AND MODE OF THERAPY

Lesions	No.	Mode
Vulval Warts	3	Vapourisation
Cervical Warts	6	Vapourisation
CIN I	17	Vapourisation
CIN II	12	Vapourisation
CIN III	2	Vapourisation
	6	Laser Cone
Incomplete colposcopy	2	Laser Cone
Total	48	

TABLE 2
COMPLICATIONS

	Vapourisation	Cone Biopsy	Subtotal
Primary haemorrhage	2	0	2
Secondary haemorrhage and sepsis	4	1	5
Subtotal	6	1	7

TABLE 3
RESULTS OF FOLLOW UPS

Lesions	No.	Cured	Remarks
Vulval Warts	2	2	1 residual lesion
Cervical Warts	6	5	1residual lesion
CIN I	17	15	2 residual CIN i
CIN II	8	8	
CIN III	8	8	1 had THBSO
Incomplete Colpo	2	2	1 had viral warts
Total	43	40	

5 patients defaulted follow ups.

operative haemorrhage, 2.3% had infection, and no case of stenosis was encountered(16).

The main complications encountered in our patients were bleeding and sepsis. Two patients had bleeding during vapourisation which were not controlled by laser alone. However, the bleeding was not excessive and was easily controlled by conventional means in both cases. With more experience we would expect to encounter less of this problem. No primary haemorrhage was encountered with our laser conisation.

Five patients had sepsis and secondary haemorrhage despite the fact that laser therapy is sterilizing by itself. This seems to be a perculiar problem with our local population and may be due to higher prevalence of cervical infection in our local population. Preoperative clearance of cervical infection is important. It may be wise to take endocervical swabs for culture in high risk groups such as those with colposcopic evidence of infection, those having multiple partners, or those with metabolic disorders. Our subsequent experience suggests that prophylactic antibiotics either oral or pessaries may decrease the incidence of these complications. However, further studies are required before recommending prophylactic antibiotic therapy for all our patients.

One important advantage of laser therapy observed was that the squamo-columnar junctions were visible in all of our patients after laser therapy. No cervical stenosis was encountered and this reflects the minimal distortion to the cervix with this mode of therapy. This would greatly facilitate the follow-up of this important group of patients. However, while leaving a transformation zone that is easily accessible to examination may facilitate follow-up, it also implies that one is leaving behind a transformation zone exposed to the same vaginal environment which produced

the previous lesion. Hence, one is obligated to ensure close follow-up of these patients who are at risk.

In the initial 6 months of follow-up, residual disease were detected in 3 of our patients and 1 patient had evidence of wart virus infection not previously detected. Jordan reported a series of 711 patients who had laser treatment for CIN and he found residual disease in 120 cases at 4 months, another 30 cases were detected at 10 months, and 11 cases were not suspected of residual disease until more than 12 months after treatment, showing that long term follow-up is obligatory(17). His results also show that most cases of residual disease are picked up by 4 months and 90% of residual lesions are detected within 8 months of primary therapy. Thus initial follow-up of these patients should be by specialists, using cytology and colposcopy. They should be colposcoped again at 12 month and, thereafter, they may have annual cytology either at the specialist clinic or by their family physicians for the rest of their lives.

Two of our patients with CIN III were treated with laser vapourisation. While this is an accepted mode of therapy(6,7–8,9,11,17), we have to be cautious with these patients. In our local context where experience with colposcopy and local ablative therapy therapy for CIN III is relatively new, and where adequate follow-up cannot always be guaranteed, selective cone biopsy of CIN III, which is a proven effective modality, is preferred. In 1984 the Committee of the British Society for Colposcopy and Cervical Pathology initiated a survey within the United Kingdom of all women who had developed invasive carcinoma of the cervix following laser vaporisation for CIN and 6 fully documented cases were reported, giving a rate of about 0.2%(18). However, invasive carcinoma can and does occur after both conization and hysterectomy as well. Coppleson(19) reviewed the world literature and found that 0.3% of CIN treated by conization or amputation and 0.23% treated by hysterectomy subsequently developed invasive carcinoma.

It is generally accepted that treatment of patients with abnormal cervical cytology should not be undertaken unless the patient has first been assessed by a competent colposcopist. The management of pre-malignant disease of the cervix has changed significantly in the last 2 decades. Hysterectomy is no longer necessary as cone biopsy has shown excellent results. Today, cone biopsy itself may be considered over-treatment for the increasing number of young women with CIN. Local ablative therapy is effective, and laser therapy gives the added advantages of rapidity, precision, minimal scarring and stenosis, quick healing, and offers an attractive alternative as an outpatient procedure for the treatment of our patients. However it cannot be overemphasised that the laser therapist must be an expert colposcopist, for the key to good treatment lies in accurate colposcopic assessment, careful selection of patients and adequate follow-up.

As for wart virus infection, the dilemma is whether to treat both partners. The problem is that while over 90% of the patients with pre-malignant disease are successfully treated and yet most of these women will continue to be exposed to the same risks factor by virtue of their partner's untreated HPV lesions, needs to be resolved.

In conclusion it must be stressed that there is no single way to treat CIN. The modality selected must be based on an expert colposcopic assessment taking into consideration other factors such as the patient's age and parity and whether there is other uterine pathology including prolapse. Only by treating each patient as an individual will the best results be obtained.

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