

# ROLE OF COLPOSCOPY IN THE DIAGNOSIS AND OUTPATIENT TREATMENT OF CERVICAL INTRAEPITHELIAL NEOPLASIA

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## ABSTRACT

One hundred and seventy nine women with abnormal smears referred for colposcopy to the Samaritan Hospital were studied. After confirming CIN on repeat smear, colposcopy and histology, cone biopsy was carried out. One hundred and twenty one patients (68%) had treatment either with electrical loop diathermy under local anaesthesia (105 patients, 59%) or laser excision of transformation zone under general anaesthesia as a day case (16 patients, 9%). Cone biopsy was done in 121 patients (32%). We conclude that colposcopy is a valuable tool in combination with cytology and histology for diagnosis and delineating the extent of CIN, thus avoiding unnecessary cone biopsies particularly in women of child bearing age. The majority of patients were treated by an outpatient procedure, which is easy to learn, safe, effective and inexpensive (JPMA 43:86, 1993).

## INTRODUCTION

Preinvasive cervical carcinoma was first described by Sir John Williams in 1886<sup>1</sup>, long before exfoliative cytology was introduced. 'WHO classification<sup>2</sup> of mild, moderate, severe dysplasia and carcinoma in situ has been replaced with CIN 1, CIN 2, CIN 3. This system of grading is well established and persists for the time being. It is convenient for treating patients. Hinselmann<sup>3</sup> in 1925 first introduced the colposcope which made it easier to diagnose the preinvasive stages. Although cytology was introduced long after colposcopy, it was used widely for detecting preinvasive lesions well before colposcopy became a routine method of assessment for woman with abnormal cervical smears. Early diagnosis of CIN is suggested by cytology using the method described by Papanicolaou and Traut<sup>4</sup> and may be confirmed by colposcopic examination. If required biopsy can be undertaken using colposcopic control for histopathology. In places where colposcopic expertise is not available, the standard management of an abnormal smear is still knife cone biopsy. When a colposcope is accessible, it is an invaluable aid to approach the clinical problem of CIN in which there are no symptoms or clinical findings on naked eye inspection of the cervix. Over the past 20 years the number of young women with GEM has increased dramatically<sup>5-7</sup> in the UK. With the help of the colposcope it has become easier, not only to reduce the number of conizations, but also to treat patients with a cone biopsy tailored according to the extent of the lesion as an outpatient procedure. In this study we report our experience of outpatient colposcopy in the management of CIN using a protocol which allows for accurate diagnosis of cervical lesions with treatment tailored to each case as required. The methods are easy to learn, safe and well accepted.

## PATIENTS AND METHODS

One hundred and seventy nine patients with abnormal Samaritan Hospital's colposcopy clinic over a period of 6 months from January - June, 1991. The referring smear was CIN1 in 55 patients (30.5%), CIN2 in 70 patients (39%) and CIN3 in 54 patients (30%). Colposcopy was performed in the outpatient

clinic by colposcopists with experience ranging from 1-10 years, using a Zeiss colposcope OPMI 1 FC. Video attachment was helpful in demonstrating to the patient if she wished. The cervix was exposed with a Cusco's speculum and a repeat Papanicolaou smear was taken. The cervix was then examined through the colposcope to see any abnormal vascular pattern, before cleaning it with cotton ball soaked in 3% acetic acid solution. The transformation zone should be seen clearly and in cases where it was not visible, Kaurihaura forceps were used to visualize the canal and upper limit of the lesion. Following colposcopy, Lugol's iodine was applied to the cervix to demarcate the abnormal area. Eppendorfer or Pistofidis forceps were used to take a punch biopsy from any visible suspicious areas for histology. All biopsies were serially sectioned and histologically evaluated. Urgent histology results were obtained in 24 hours and the rest in a week's time. The patient was informed of the results in 2-3 weeks time. A management plan was made depending on the smear results, colposcopy and histology findings. CIN1 was generally not treated, whereas CIN2 and CIN3 were treated within 1-2 months. Colposcopy was described as satisfactory when the transformation zone was seen fully including the upper limit of the lesion. It was deemed unsatisfactory if the squamo columnar junction or upper limit of the lesion was not visible. Where colposcopy was satisfactory, large loop excision of the transformation zone was carried out with electrical loop diathermy under local anaesthesia using a dental syringe with 27 gauge needle, three 2.2 ml ampoules of Xylotox (lidocaine hydrochloride 24.7 mg/ml and adrenaline 22.7 mcg/ml) were injected at 6,9, 12 and 3 o'clock position. No other systemic or oral analgesic was given. Where colposcopy was unsatisfactory, laser cone excision was performed under general anaesthesia as a day case. The cone biopsy was fixed in formalin and sent for histology. Women with CIN1 were followed every 6 months by smear and colposcopy. The majority returned to normal and after 2 normal smears they were discharged back to the general practitioner for yearly smears. Women with consistent CIN1 smears were offered the option of either treatment or further follow-up. After treatment women were seen at 4 and 10 months for colposcopy and cytology. With two normal smears they were referred back to their general practitioner for yearly smears for 5 years.

## RESULTS

The age of the patients ranged from 18-78, mean age was 31.6 years. Fifty nine percent of the patients were under the age of 30 years. Eighty percent of the patients had no living children. Parity ranged from zero to nine, average being 1.6. Colposcopic examination was satisfactory in 157 patients (88%) and unsatisfactory in 22 patients (12%). Outpatient treatment with large loop excision of transformation zone under local anaesthesia was done in 105 patients (59%). Inpatient treatment with laser excision of transformation zone under general anaesthesia was carried out in 16 patients (9%). The total number of patients treated was 121 patients (68%) (Table I).

**TABLE I. Outcome of all patients referred to the colposcopy clinic.**

	Number of patients	Satisfactory colposcopy	Outpatient treatment	Inpatient treatment	Total treated	Discharged - no treatment
CIN 1	55	51 (93*)	15 (27)	0 (0)	15 (27)	40 (73)
CIN 2	70	63 (90)	45 (64)	7 (10)	52 (83)	18 (26)
CIN 3	54	43 (80)	45 (83)	9 (17)	54 (100)	0 (0)
Total	179	157 (88)	105 (59)	16 (9)	121 (68)	58 (32)

\*figures in brackets are percentages

Punch biopsy was carried out in 156 patients (87%). CIN1 was in 29 patients (18.58%), CIN2 in 42 patients (26.92%), CIN3 in 45 patients (28.84%) and no GIN in 40 patients (25.64%) (Table II).

**TABLE II. Punch biopsy results compared with referral smear.**

Referral smear	Number	Histology of punch biopsy				
		CIN 0	CIN 1	CIN 2	CIN 3	Microinvasive
CIN 1	41	14	14	11	2	0
CIN 2	64	15	13	24	12	0
CIN 3	51	11	2	7	31	0
Total	156	40	29	42	45	0

Punch biopsy, when compared with the final cone biopsy agreed in 91 patients (75%) with one degree above or below (Table III).

**TABLE III. Histology of cone biopsy compared with previous punch biopsy.**

Punch biopsy	Total	Histology of cone biopsy				
		CIN 0	CIN 1	CIN 2	CIN 3	Microinvasive
CIN 1	21	5	8	7	1	0
CIN 2	42	6	10	22	4	0
CIN 3	41	2	2	5	30	2
Negative	17	4	1	4	7	0
Total	121	17	21	38	43	2

Seventeen patients (14%) had no GIN on cone biopsy. Two patients had an unsuspected focus of micro invasion. Cytology had shown severe dyskaryosis and a punch biopsy in each case had revealed CIN3 only. Invasion extended to 1.1 mm in one case and 3.5 mm in depth and 1.1 mm horizontally in the other case. Both lesions were completely excised. They were of 33 and 24 years age with no living children. No further treatment has been given and follow-up has been normal. It is worthwhile seeing patients with persistent GIN 1 smears as in our series, 10 out of 15 had GIN 1 or worse on cone biopsy (Table IV). Excision was complete in 111 patients (91.73%) and incomplete in 11 patients (9.0%). In 6 patients lesion extended up to the endocervical margin and in 5 it extended up to the ectocervical margin. The majority of the patients tolerated the procedure quite well, no case was abandoned because of pain. No patient had excessive bleeding needing transfusion or was readmitted for secondary haemorrhage. One 70 year old patient had an unsatisfactory colposcopy. The vagina and cervix was atrophic and the cervix was flush with the vagina. Laser cone was not possible, hence cold cone knife biopsy was resorted to. The pouch of Douglas was opened accidentally and vaginal hysterectomy was carried out. Two patients who had complete excision of CIN3 showed recurrence of CIN2 confirmed on repeat cone biopsy at 10 months follow-up.

## DISCUSSION

Colposcopy is a recognized useful clinical method in the early diagnosis of preclinical carcinoma of the cervix when used in conjunction with cytology. It compensates greatly for any error of cytology<sup>8</sup>. Cytology alone, gives no idea of the site and size of the lesion which can vary from a very small abnormality to a lesion extending to the vaginal fornices. Colposcopy can help in selecting patients with an abnormal smear of significance and can define the extent of the lesion. Patients with abnormal cervical cytology should have a colposcopically directed biopsy from the most significant area of their lesions before embarking on definitive treatment. Random punch biopsies may fail to determine the

extent and severity of the disease<sup>9</sup>. The error of these random punch biopsies range from 6 to 34%<sup>10,11</sup>. A high degree of accuracy has been reported when using colposcopically directed punch biopsies to diagnose CIN<sup>12-15</sup>. Because of varying skills of the colposcopist the biopsy can be unreliable and hence to improve accuracy multiple punch biopsy should be taken from suspicious areas. Widelyvarying discrepancies in correlation of colposcopic appearance and histopathology have been reported and this is attributed to different levels of expertise. Colposcopic appearance alone may have a poor analytical value. Surprisingly in our series 26% of punch biopsies had no CIN and in 14% of cases the histology of cone biopsy was negative. The flaw of treating patients based on colposcopic appearances alone cannot be over emphasised<sup>16</sup> Recognising microinvasive carcinoma or early invasion is not easy as colposcopic features for it are not specific or diagnostic<sup>17-18</sup>. Choo<sup>19</sup> in 1984 on reviewing 26 patients with microinvasion found that only 27% were correctly recognised at colposcopy. Bender<sup>20</sup> reported a 15.9% failure to recognise microinvasion and 10.4% of occult invasive carcinoma by colposcopy. Biopsy taken should be big enough for a reliable opinion<sup>21</sup>. In our series 2 patients had GIN 3 on biopsy and colposcopic evaluation but on cone biopsy were found to have microinvasion. The main aim of the treatment should be to exclude invasion as failure to recognize may lead to under treatment. Under diagnosis is a more serious problem than over diagnosis. The only reliable way to exclude invasion is by excision biopsy<sup>22</sup>. This not only gives the whole specimen for examination and assessment but it is a safe and reliable way of curing the disease<sup>23</sup>. There are many ways of treating CJN such as cryotherapy, coagulation electrodiathermy, cold coagulation, laser vaporisation, excision of transformation zone either by LLETZ or laser excision. The method of treatment can be chosen according to the available facilities in different countries. In places where colposcopy is not available the knife cone biopsy is still the standard procedure carried out in patients with abnormal pap smear, although it carries its own hazards of hospitalisation, general anaesthesia and late complications. Knife conization when compared with laser conization had more blood loss during the operative, early and late postoperative period. In Larsson's series the blood loss during the operation was 0.4 to 155.4 mls in laser conization group and 5.6 to 1,570.9 mls in cold knife group. The incidence rate for bleeding complications requiring surgical intervention was 14.6% for knife cone and 1.8% for laser conization<sup>24</sup>. Stenosis after knife cone was 4.7% and after laser cone was 0.8% in Larsson's series<sup>25</sup>. In Luesley's series, 6% had primary and 7% had secondary haemorrhage, stenosis was in 17% and infertility in 4% of cases who had cone biopsies. Complication rate is greatly influenced with the size of the cone biopsy<sup>26</sup>. Davies in 1972 reviewed 400 consecutive cold knife conization and reported 11% morbidity and 9% incidence of significant bleeding. Gold cone biopsy may, however, be required in cases of post menopausal cervix totally flushed with vagina. Where colposcopy is available the initial step should be colposcopic assessment and not a knife cone biopsy. Cartier has long advocated low voltage diathermy loop as a means of investigating and treating CIN. LLETZ is being used more frequently now because it is a quick procedure, easy to learn and can be performed in the outpatient under local anaesthesia. It is well accepted by the patients and is generally pain free. Laser cone biopsy on the other hand takes longer to learn and perform. Treatment should be carried out carefully by an expert colposcopist after vigilant assessment of the patient. The objective in treating the patient with an abnormal cervical smear is to treat her as a priority safely and in-expensively. In these days the rising costs and busy operating lists have increased the importance of safe outpatient treatment. In conclusion colposcopy should be used as an intermediate step between cytology and histology for evaluating GIN. Correctly performed, colposcopy and colposcopic cone biopsy are important aids in the diagnosis and treatment of GIN allowing the identification of patients with insignificant changes only and avoids unnecessary treatment of these patients. In our study cone biopsy was avoided in 58 patients (32%). The extent of the abnormality is delineated by colposcopy was many of these patients can be safely treated on an outpatient basis only.

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