MEDICAL PRACTICE

*Hospital Topics***Impact of introduction of colposcopy to a district general hospital**

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Abstract

During the first 18 months of operation of a new colposcopy clinic, established in a district general hospital, 608 women were seen. Most (568 (93.0%)) were referred from within the local district, on the whole by their general practitioner. In 466 cases a repeat cervical smear was taken, and all women underwent colposcopic examination together with directed punch biopsy of any abnormal area. Positive cytology was seen in 356 women, but 85 (23.9%) of these were found to have no histological evidence of malignancy or premalignancy and were consequently discharged from the clinic. Cervical intraepithelial neoplasia was confirmed histologically in 379 women, of whom 259 were under 35 and 175 nulliparous. As a result of the use of colposcopy and local destructive methods of treatment only 42 patients (11.1%) were required to undergo cone biopsy. The initial overall incidence of success in the treatment of cervical intraepithelial neoplasia was 86.2% for cone biopsy, 88.5% for diathermy, and 81.1% for laser ablative treatment.

Colposcopy has an important role in the management of cervical neoplasia in the district general hospital.

Introduction

The next few years will probably continue to see a rapid increase in the incidence of premalignant disease of the uterine cervix. Indeed, a 117% increase in the incidence of carcinoma in situ was recorded between 1973 and 1979 with only an 11% increase in the number of women screened.¹ Because of the increase in the

number of young women now being diagnosed as having premalignant cervical intraepithelial neoplasia, screening may be assumed simply to be holding in check a much larger potential increase in the incidence of invasive cancer in this group. The recent disquiet concerning the safety of oral contraceptive steroids² will lead inevitably to a greater demand for screening services. These are primarily of a cytological nature.

Colposcopy, with its illuminated and magnified vision of the cervix, is now part of the routine evaluation to which all women with an abnormal smear should have access. An associated punch biopsy can provide an accurate histological diagnosis of the premalignant lesion, most of which in turn can be destroyed by conservative local destructive techniques such as cryotherapy, diathermy, or laser evaporation.³ These methods avoid the more radical cone biopsy with its inherent short and long term consequences for younger women.⁴ Sharp and Jordan reported, however, that only about two in three women in the United Kingdom with an abnormal smear are able to avail themselves of a colposcopic diagnostic service.⁵ Introduction of colposcopic services to many centres is therefore clearly and urgently needed. Indeed, Jordan has recommended that "any hospital with two or more consultant gynaecologists should be able to offer a colposcopy service."⁶

The district general hospital would seem to be the ideal centre in which to have a colposcopy service. Initially such services were confined to large teaching and university centres. We present here our experience in the running of such a service over 18 months in a large suburban district general hospital in an area with a high incidence of cervical premalignant disease. One of us (AS) had wide experience in colposcopy and was immediately able to offer training in the technique to other members of staff, both consultant and junior, as well as a referral service for general practitioners in the area covered by the hospital.

Patients and methods

From July 1981 to December 1982, 608 patients were referred to a designated colposcopy clinic within a district general hospital. A repeat cervical smear was taken before most colposcopic examinations and a

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directed punch biopsy specimen was taken from any abnormal area within the cervical area containing the premalignant epithelium. Colposcopic examination was deemed to be unsatisfactory either when the lesion extended into the cervical canal and could not be seen in its entirety or if the colposcopic appearance suggested early invasive cancer. Patients with histologically confirmed cervical intraepithelial neoplasia and satisfactory colposcopy were treated with local destructive techniques, which included, initially, electrocoagulation diathermy under general anaesthesia and, more recently, carbon dioxide laser vaporisation. All patients were

Histological evidence of cervical intraepithelial neoplasia by direct punch biopsy was found in 379 (63%) cases. Table II shows the correlation between the results of our cervical cytological examination at presentation and the tissue diagnosis made from colposcopically directed biopsies. The two methods produced similar results in 44 (30%), 19 (30%), and 95 (66%) instances in patients with type 1, type 2, and type 3 cervical intraepithelial neoplasia respectively.

Table III shows the prevalence of cervical intraepithelial neoplasia in each five year grouping from the age of 16. The peak incidence was in the

TABLE I—Indications for and sources of referral. (Values represent numbers of women referred)

Indications for referral	No of cases	Sources of referral			
		General practitioner	Family planning clinic	Colleague	Other districts
Abnormal smears:					
Type CIN 1	121	80	20	19	2
Type CIN 2	55	30	14	6	5
Type CIN 3	111	72	20	12	7
Type not stated	194	147	26	15	6
Total No (%)	481	329 (68.4)	80 (16.6)	52 (10.8)	20 (4.2)
Clinically suspicious cervix	55	42		10	3
For evaluation after treatment for cervical intraepithelial neoplasia elsewhere	32	4		24	4
Vulvar/vaginal warts	17			4	13
Total	585*	375	80	90	40

CIN=Cervical intraepithelial neoplasia.

*Twenty three of the 608 women in the total study group were excluded from this table because of incomplete information.

TABLE II—Correlation between results of cytological investigation and colposcopically directed biopsy

Cytology	Histology						
	Normal	Wart virus infection	CIN 1	CIN 2	CIN 3	Micro-invasive cancer	Invasive cancer
Negative (n=99)	76	3	8	6	6	1	
CIN 1 (n=145)	34	16	44	18	32		
CIN 2 (n=66)	12	4	9	19	22		
CIN 3 (n=145)	8	4	9	23	95	3	3
Wart virus infection (n=5)		5					
Malignant cells (n=6)	2				2		2
Smear not repeated (n=134)	44	2	17	12	57		2
Total (n=600)*	176	34	87	78	214	4	7

CIN=Cervical intraepithelial neoplasia.

*Eight women were excluded from this table because of incomplete information.

TABLE III—Age distribution of patients with cervical intraepithelial neoplasia (CIN) according to type of lesions. (Age was not recorded in 13 cases)

Diagnosis	No in five year age group							
	16-19	20-24	25-29	30-34	35-39	40-44	45-49	≥50
CIN 1 (n=77)	3	23	22	15	8	5	0	1
CIN 2 (n=78)	4	22	18	16	10	5	3	0
CIN 3 (n=209)	2	28	54	52	38	20	10	7
Total (n=366)	9	73	94	83	56	30	13	8

group aged 25 to 29. Of the 366 patients shown to have cervical intraepithelial neoplasia and for whom information about age was available, 259 (70.8%) were aged less than 35 and 176 (48.1%) less than 30. Information about parity was available in 352 patients with cervical intraepithelial neoplasia, and, of these, 175 (49.7%) were nulliparous.

In 85 (23.9%) of the 356 patients with positive cytology, there was no evidence of cervical intraepithelial neoplasia either on colposcopy or in histological samples from directed punch biopsies. Another 91 (15.2%) of the 600 women referred did not show any colposcopic evidence of cervical intraepithelial neoplasia, and repeat cytology was negative. These 176 patients were discharged from the clinic.

Of the 379 women with histologically confirmed cervical intraepithelial neoplasia, 270 (71.2%) were subsequently treated by us. The rest were awaiting treatment at the time of writing or had been treated elsewhere. Table IV shows treatment given. Thirty cone biopsies (71.4%) were carried out in women aged over 36 and only six (14.3%) in patients who were nulliparous. The success rate after one treatment, as judged by two or more negative cytological and colposcopic examinations in a 12 month follow up period, was 86.2% for cone biopsy (25 of 29 cases), 88.5% for electrocoagulation diathermy (69 of 78 cases), and 81.1% for carbon dioxide laser vaporisation (43 of 53 cases).

Discussion

Our results show that the colposcopy clinic at this district general hospital served, as was intended, the local population, with

TABLE IV—Treatment regimens for cervical intraepithelial neoplasia (CIN). (Values are numbers of women receiving treatment)

Diagnosis	Cone biopsy	Diathermy	Laser evaporation	Cryotherapy	Hysterectomy	Treated elsewhere	Waiting list
CIN 1 (n=87)		11	13	2	0	1	60
CIN 2 (n=78)		16	32	1	0	0	29
CIN 3 (n=214)	42	79	73	0	1	5	14
Total No (%) of affected women (n=379)	42 (11.1)	106 (28.0)	118 (31.1)	3 (0.8)	1 (0.2)	6 (1.6)	103 (27.2)

followed up every four months in the first year by both cytological examination and colposcopy. Patients with no evidence of cervical intraepithelial neoplasia were discharged from the clinic to be followed up with cytology by their general practitioners. Two negative smears and satisfactory "clear" colposcopy were required before discharge.

Results

Eight women were excluded from analysis because of incomplete information. Table I shows the indications for and sources of referrals. Repeat cervical smears showed 356 patients to have positive cytology.

most women being referred by their own general practitioners. Most of the women were young, with 176 (48.1%) of those possessing a premalignant lesion of cervical intraepithelial neoplasia being less than 30 years old and 175 (49.7%) being nulliparous. These figures reflect the national trend, which shows an increased incidence of positive cytology reports among younger women.^{1,7}

Colposcopy and directed biopsy allow more conservative methods of local destruction to be used in young women, in whom preservation of reproductive capacity is so important.³ Cone biopsy, although an effective method of diagnosing and treating

cervical intraepithelial neoplasia,⁸ has recognised complications associated with pregnancy.⁴ Employing colposcopy and local destructive methods of treatment, only 42 (11%) of our patients were required to undergo cone biopsy; of these, 12 (29%) were less than 35 years old and only six (14.3%) were nulliparous. This reduction in the incidence of cone biopsy in itself would be enough to justify the use of colposcopy in all young women with abnormal cytology.

Nearly one quarter (85) of our 356 patients with positive cytology were found not to have any cervical abnormality either on colposcopy or histological examination of directed punch biopsy specimens. Another 91 patients from the total of 600 women referred did not show any colposcopic abnormality, and repeat smear was negative. These two groups of patients were discharged from the clinic and were thus spared both unnecessary and frequent cytological follow up without a definite diagnosis being made and the anxiety that is so much a feature of women in this position.

Most (224 (83%)) of the 270 patients so far treated have been treated with local destructive methods: either electrocoagulation diathermy under general anaesthesia as a day case admission to hospital or with carbon dioxide laser vaporisation under local anaesthesia in the outpatient department. The laser evaporation took on average about 10 minutes with minimal complications. The success rates for one treatment of 88% for diathermy and 81% for laser evaporation were comparable with results reported by other groups.³ In addition, our recent experience has shown that, of those patients with residual or persistent lesions, most (over 90%) will be cured with one further treatment.

The main cost associated with the introduction of a colposcopy service relates to the initial capital outlay for equipment. The colposcope and camera attachment cost £4500 and associated gynaecological instruments another £500. The apparatus for local destructive treatment with either cryotherapy or laser vaporisation is expensive. A cryotherapy outpatient unit can be installed for £400; a carbon dioxide laser costs about £20 000. Such a laser was given to this unit as a result of a "raise a laser" charity appeal and is now used for over 90% of all lesions of cervical intraepithelial neoplasia diagnosed in our patients. Nearly all the laser machines used in similar units in this country have been purchased in this manner. Servicing equipment for either cryotherapy or laser vaporisation has little impact on revenue; servicing and running costs of our carbon dioxide laser have been £250 per annum.

If colposcopy with local destructive methods of treatment is employed rather than the standard gynaecological treatment for

cervical intraepithelial neoplasia type 3 (that is, cone biopsy under general anaesthesia) the district makes a substantial financial saving. The unit cost for a new gynaecological outpatient appointment in this district has been estimated at £40, and a new colposcopy patient appointment will be slightly more than this because a longer time is spent with each patient (roughly 15-20 minutes). When local destructive treatment such as laser vaporisation is considered for cervical intraepithelial neoplasia lesions type 3, the unit cost for this treatment if given in outpatient clinics is equivalent to that of a new outpatient appointment—that is, £40. If inpatient treatment by local destructive methods under anaesthesia is required (at present about 15% of patients) the patient may be admitted as a day case at a cost of £70. A cone biopsy procedure, even if admission time is restricted to 72 hours, costs £345, and many units keep patients in hospital for up to five days. If complications arise, as they may do in up to 15% of cone biopsy operations, the overall costs rise even higher. Follow up for patients treated by local methods or cone biopsy is similar. Therefore once the capital outlay for equipment has been made there are substantial savings for the district general hospital in the introduction of a colposcopy clinic.

In conclusion, we think that colposcopy plays an important part in the management of cervical premalignancy. Its introduction into a district general hospital should not be difficult, and its impact can be recognised almost immediately. With increasing numbers of consultants and junior staff attending courses organised by the Royal College of Obstetricians and Gynaecologists and the British Society of Colposcopy and Cervical Pathology, it is only a matter of time before colposcopy can be offered to all women in the United Kingdom who present with abnormal cervical cytology. This would indeed be a success story for the National Health Service.

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(Accepted 31 July 1984)

What percentage of women menstruate in the first three months of pregnancy? Is there any hormonal or any other explanation for this and has this any relation to the placenta which is formed after three months of pregnancy?

Vaginal bleeding occurs in the first trimester of up to 25% of pregnancies.¹ In over half these cases the bleeding is followed by miscarriage,² but in the remainder the pregnancy continues normally despite the "threatened abortion." The reason for the bleeding in these normal pregnancies is not clear, and there is probably a variety of causes. Strictly speaking, "menstruation" refers to cyclical bleeding in the non-pregnant woman, but a similar process of endometrial shedding in response to falling plasma steroid concentrations could occur in pregnancy. During the first trimester the conceptus does not fill the whole uterine cavity and therefore some uterine lining could be shed without disturbing the pregnancy. Transient falls in plasma progesterone concentration normally occur twice in early pregnancy: just before the first missed period, when the corpus luteum begins to fail before being "rescued" by chorionic gonadotrophin,³ and at around six weeks' gestation, when final failure of the corpus luteum begins and the placenta takes over production of progesterone.⁴ Thereafter plasma progesterone steadily increases, but day to day variation in placental progesterone synthesis could lead to unpredictable transient falls. Menstruation normally occurs only after plasma progesterone falls—over several consecutive days—to a mean level of 2 ng/ml, and in pregnancy the mean progesterone concentration, even at the nadir of a transient fall, remains well above this level. Endometrial shedding therefore seems unlikely—though decidualisation might alter the responsiveness of the endometrium, making it

more susceptible to small hormonal fluctuations. Ultrasound investigations¹ have identified various sources of bleeding in cases of threatened abortion (including, for example, a blighted twin), and although subchorionic bleeding has been seen in about 20% of cases, the cause of the bleeding in most cases is not clear. Threatened abortion does not lead to fetal abnormalities, though there may be an increased risk of subsequent obstetric complications such as prematurity. There is no proof that treatment with progesterone helps in these cases.—JAMES OWEN DRIFE, senior lecturer in obstetrics and gynaecology, Leicester.

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Are there any toxic side effects of an accidentally ingested but unpassed new penny coin in a 13 month old baby?

The new penny coin is an alloy of copper (97%), zinc, and tin. It is highly resistant to corrosion by gastric acid and should still be intact even if present several months after ingestion. In the unlikely event of absorption of any of the constituents the amounts present in the coin should not produce a heavy metal poisoning. The main problem from a new penny coin would be due to mechanical obstruction, so treatment is the same as that after ingesting any foreign body.—MARY E BOLAND, research registrar (poisons), London.