

The Incomplete Cone in Carcinoma *in situ* of the Cervix

A Prospective Study in a Developing Country

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SUMMARY

The diagnostic procedures and treatment of carcinoma *in situ* and severe dysplasia of the cervix are becoming more conservative. In a developing country special problems make such an approach more hazardous. During a 15-month period the diagnosis in 25 of 206 patients (12,1%) with a smear positive for carcinoma *in situ* could not be confirmed histologically at Tygerberg Hospital. A prospective study of 147 cases (71,4%) in which the diagnosis was confirmed revealed that they were mostly young patients of relatively high gravidity. The difficulty of assessing the completeness of a cervical cone and of evaluating a postconization smear is confirmed. The danger of a too conservative approach in our patients is confirmed by the fact that only 8,2% of patients came for regular follow-up examinations and that 34,7% did not return for follow-up smears. The high incidence of total hysterectomy (51,7%) as the definitive form of treatment is defended, and a more conservative future approach of confirming the diagnosis and reducing the incidence of cervical conization is suggested.

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The various diagnostic procedures and methods of treatment for carcinoma *in situ* and severe dysplasia of the cervix are still markedly controversial in gynaecological circles.¹⁻⁶ Approaches vary from the ultraconservative^{4,5,7-13} to the excessively radical.^{2,14-16}

We realized that our approach to this problem at the Department of Obstetrics and Gynaecology, Tygerberg Hospital, could be considered too radical. With this in mind we did a prospective study of all patients with smears positive for carcinoma *in situ* or severe dysplasia of the cervix as reported by the cytology laboratories of the hospital over a 15-month period. We followed a predetermined policy for histological confirmation of the diagnosis and for treatment of these patients, and employed specially trained nursing staff to explain to these patients the importance of diagnosis, treatment and regular follow-up smears. Our aim was to analyse follow-up attendances over a minimum period of 1 year after completion of treatment to determine whether the patients who attend our clinic allowed for a more conservative approach in future.

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PATIENTS AND METHODS

During the period October 1975 - December 1976 the cytology laboratories at Tygerberg Hospital examined 48 422 smears of which 1,23% were reported as positive for severe dysplasia or carcinoma *in situ* of the cervix. In most of these patients immediate repeat smears were done and during this period our policy was to do a conization of the cervix for histological confirmation of the diagnosis whenever possible.

An analysis of the 206 patients who fit into this category is presented in Table I. Conization was performed in 172 patients (83,5%). In 25 patients (12,1%) the histological diagnosis could not be confirmed because the patients could either not be traced or refused any form of investigation, while in 9 (4,4%) a more conservative colposcopically directed punch biopsy was performed because of pregnancy or other reasons. Of the 172 patients in whom conization was performed, the diagnosis was confirmed in 147 (85,5%), while 6 (3,5%) had a more severe lesion and 19 (11,0%) a less severe lesion.

TABLE I. ANALYSIS OF 206 PATIENTS WITH SMEARS POSITIVE FOR CARCINOMA *IN SITU* OR SEVERE DYSPLASIA OF THE CERVIX

Conization		
Diagnosis confirmed	147	} 172 (83,5%)
Micro-infiltration (< 5 mm)	4	
Infiltrative lesion (>5 mm)	2	
Mild or moderate dysplasia	19	
Punch biopsy only		
Diagnosis confirmed	5	} 9 (4,4%)
Mild or moderate dysplasia	2	
Chronic cervicitis	2	
Diagnosis not confirmed	25	(12,1%)

A more detailed analysis, with specific reference to the aims of this prospective study, was made of the 147 cases of confirmed severe dysplasia or carcinoma *in situ* of the cervix on conization.

The patients came from three different race groups. The ratio was Coloured 24 : White 4 : Black 1. The corresponding ratio for the total number of women admitted to Tygerberg Hospital during the same period was 5,5 : 3 : 1. This shows an obvious preponderance of women of Cape Coloured descent among our patients.

The ages of the patients varied from 18 to 73 years (Fig. 1). Of particular interest is the fact that 74,9% of the patients were under 39 years of age while only 2,7% were over the age of 60. The gravidity of the 147 patients also varied tremendously (Fig. 2). Only 2,0% were nulligravidae, while 42,8% had had five pregnancies or more. Hence, although we were dealing with a relatively young group of patients, they were mostly of fairly high gravidity.

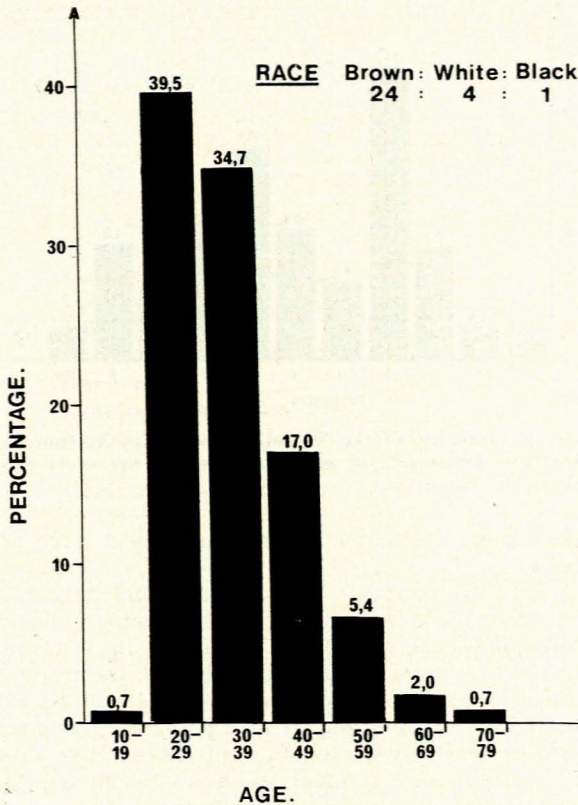


Fig. 1. Age incidence of the 147 patients with cervical cones positive for severe dysplasia or carcinoma *in situ* of the cervix.

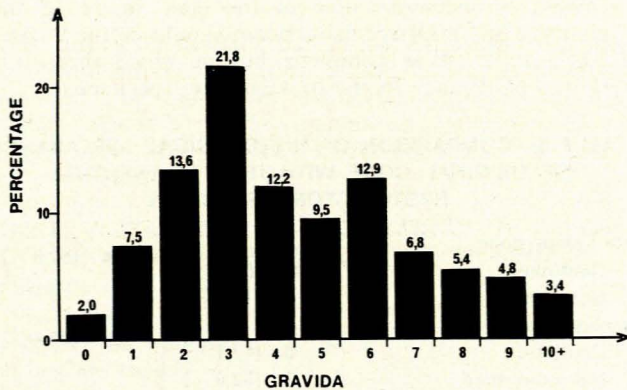


Fig. 2. Gravidity of the 147 patients with cervical cones positive for severe dysplasia or carcinoma *in situ* of the cervix.

Cervical Cone

The conizations were all done in a prescribed manner. After an iodine test in theatre to define the extent of the lesion on the vaginal portion of the cervix, two haemostatic sutures are inserted into the cervix at 3 and 9 o'clock. These sutures are left long so as to be used as retractors. Conization is done with a cold knife, and care is

taken not to disturb the epithelium. Once the cone is removed it is cut through at 12 o'clock, opened and pinned onto foam rubber for fixing in formalin. The conization is followed by a Strumdorff repair of the cervix. The average stay in hospital of the 147 patients was 3 days, and the immediate complication rate (bleeding and sepsis) was 2,0%.

In the pathology laboratory all these cones were sectioned in 2 - 3 mm segments in a clockwise manner, with an average of 13,2 segments per cone. From each segment at least 2 sections were made for microscopic examination. On average, 27,2 sections from each cone were examined. The number of segments was counted in each cone in which the lesion was present (Fig. 3). In 11,6% of the patients the exact total was not known. Of the remaining 88,4% the lesion was limited in 32%, since it was present in only 1 - 3 segments. In another 32% the lesion was present in 6 or more segments.

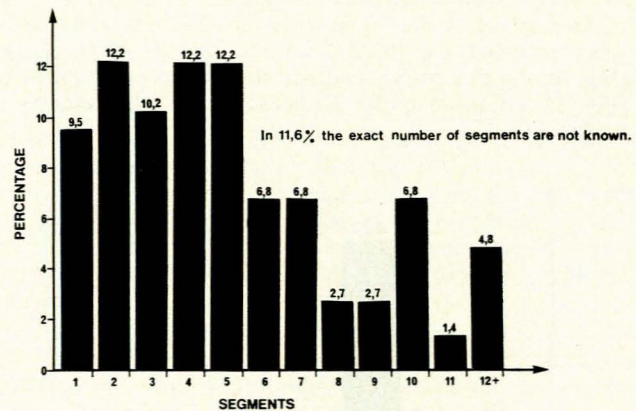


Fig. 3. Number of segments of the cervical cones affected by carcinoma *in situ* or severe dysplasia, examined by the pathologist.

In 10,9% of the cones the lesion was still in the severe dysplasia phase. The large cell variety comprised 70,1%, while the mixed cell variety (12,9%) and the small cell variety (6,1%) were much less common.

Whenever possible, the histopathologist endeavoured to give a definite answer as to whether the cut edge of the cone was clear of lesion or not (Table II). Whenever the pathologist was convinced that the lesion had been completely removed, the cone was described as 'complete'. In an 'incomplete' cone there was no doubt that a residual lesion was present. When in doubt about the completeness or incompleteness of the cone it was described as '? complete' or '? incomplete'. It is obvious from Table II that in only 63,3% of the cones the pathologist was convinced that the lesion had been removed completely. In 36,7% of the cones the pathologist was either sure about a residual lesion or in doubt about the completeness of the cone.

Further Treatment

As soon as the results of conization were available we advised patients about future therapy, depending on age, gravidity, extent of the lesion, and whether the lesion was

TABLE II. HISTOPATHOLOGIST'S OPINION ON WHETHER THE LESION WAS COMPLETELY REMOVED OR NOT

Complete	93 (63,3%)
Incomplete	32 (21,9%)
? complete	19 (12,9%)
? incomplete	3 (2,0%)

thought to be completely removed or not. Total hysterectomy (abdominal or vaginal, depending on the circumstances) was advised 6 weeks after conization or conization was considered to be the definitive treatment. All patients were advised that regular and strict follow-up examination would be essential. This entailed a postoperative examination at 6 weeks, followed by regular 3-monthly ecto- and endocervical smears for 2 years. If the smears remain negative for 2 years, the patient should report back annually as any other patient. Of the 147 patients in this series 76 (51,7%) had a total hysterectomy, and in 71 (48,3%) conization was the definitive treatment.

An analysis of the 76 patients who had a total hysterectomy revealed that 63,2% were under 40 years of age (Fig. 4) and that 86,8% had had three or more pregnancies (Fig. 5). Of those under 30 years of age who underwent

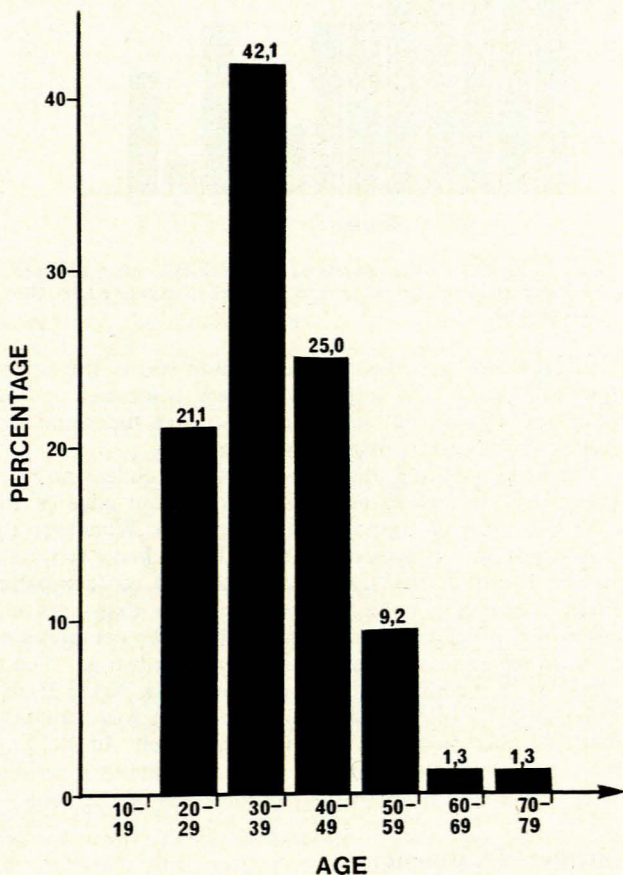


Fig. 4. Age incidence of the 76 patients with hysterectomy and definitive treatment for carcinoma *in situ* or severe dysplasia of the cervix.

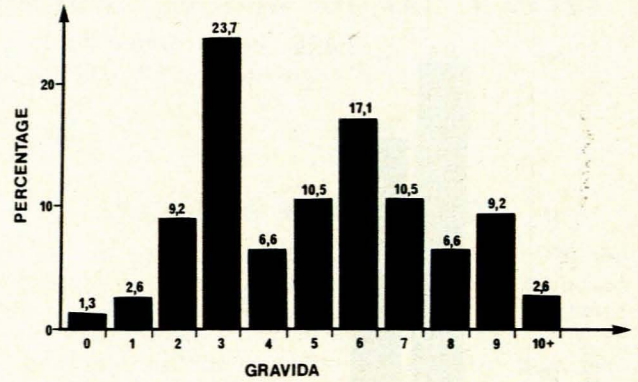


Fig. 5. Gravidity of the 76 patients with hysterectomy as definitive treatment for carcinoma *in situ* or severe dysplasia of the cervix.

hysterectomy, 9 (56,0%) had had more than three pregnancies.

Despite the fact that all patients should have had a smear after conization and before hysterectomy, this was unfortunately not done in 27 patients. In 4 of these (14,8%) there were residual pathological lesions in the eventual hysterectomy specimens. Of the 49 smears available, 39 were negative and 10 were positive for carcinoma *in situ* or severe dysplasia. In 4 of the negative smears (10,3%) there were residual lesions in the hysterectomy specimens, of which none was infiltrative.

The histological appearances of the original cone and the eventual hysterectomy specimen are compared in Table III. From this it can be concluded that the original histological pattern was not completely accurate regarding completeness or incompleteness of the cone in 21 of the patients (27,6%). Of special concern should be the 9 cases (11,8%) reported as complete, but in which there was residual malignancy in the hysterectomy specimen.

TABLE III. COMPARISON OF HISTOLOGICAL APPEARANCE OF ORIGINAL CONE WITH THAT OF EVENTUAL HYSTERECTOMY SPECIMEN

Complete cone		
Confirmed	39 (88,6%)	44 (57,9%)
Not confirmed	5 (11,4%)	
Incomplete cone		
Confirmed	8 (47,1%)	17 (22,4%)
Not confirmed	9 (52,9%)	
? complete cone		
Confirmed complete	7 (63,6%)	11 (14,5%)
Not confirmed	4 (36,4%)	
? incomplete cone		
Confirmed incomplete	1 (25,0%)	4 (5,3%)
Not confirmed	3 (75,0%)	

Cytological Follow-up Examination

The minimum follow-up period until January 1978 in the 147 patients in this study was 1 year. The aim was to see how regularly patients came for follow-up smears if

TABLE IV. FOLLOW-UP ATTENDANCES OF THE 147 PATIENTS AFTER COMPLETION OF THE DEFINITIVE TREATMENT (MINIMUM PERIOD 1 YEAR)

Conization only (total 71)			
One smear		30	(42,3%)
Early	18		(60,0%)
Later	12		(40,0%)
Two smears		9	(12,7%)
Three or more smears		5	(7,0%)
No smears		27	(38,0%)
Conization and hysterectomy (total 76)			
One smear		32	(42,1%)
Early	27		(84,4%)
Later	5		(15,6%)
Two smears		9	(11,8%)
Three or more smears		7	(9,2%)
No smears		28	(36,9%)
All cases of carcinoma <i>in situ</i> (total 147)			
Three or more smears		12	(8,2%)
No smears		55	(37,4%)

requested to do so. Of the 71 patients with conization as definitive treatment, 30 (42,3%) returned for one smear (Table IV). Of these, 18 (60,0%) did so at their postoperative visit, but did not return for subsequent smears. Only 5 (7,0%) returned three or more times for follow-up examinations and 27 (38,0%) did not return at all.

Of the 76 patients who had undergone hysterectomy, 32 (42,1%) returned for one smear — 27 (84,4%) at the postoperative visit but not subsequently (Table IV). Only 7 (9,2%) returned three or more times for follow-up examinations and 28 (36,9%) did not return for a smear. Of 147 patients with carcinoma *in situ* or severe dysplasia of the cervix 55 (37,4%) were not followed up cytologically (Table IV) and only 12 (8,2%) came for regular smears.

A further analysis of the 71 patients with conization as definitive treatment revealed that the original cone was reported to be complete in 50 (70,4%) and incomplete in 21 (29,6%) (Table V). In the complete and incomplete groups 34,0% and 47,6% respectively did not return for follow-up examinations.

TABLE V. FOLLOW-UP ATTENDANCES OF 71 PATIENTS WITH CONIZATION AS DEFINITIVE TREATMENT

Complete cone			
No follow-up	17 (34,0%)	} 50 (70,4%)	
One - three smears	33 (66,0%)		
Incomplete cone			
No follow-up	10 (47,6%)	} 21 (29,6%)	
One - three smears	11 (52,4%)		

DISCUSSION

From the results obtained in this prospective study of 206 patients with a smear positive for severe dysplasia or carcinoma *in situ* of the cervix, it is obvious that we were confronted by various problems. Firstly, the diagnosis could not be confirmed histologically in 25 patients (12,1%), because they could either not be traced at their original address or refused any form of investigation. This is a very disturbing figure, because most of these patients

were also lost to follow-up examination.

In view of the more conservative approach to diagnosis^{5,7,8,10,11} and treatment^{4,7,9,11,13} of this condition, the 147 cases of confirmed carcinoma *in situ* or severe dysplasia were analysed to decide whether we could be more conservative in our future approach. The fact that we were dealing with a relatively young group of patients would be in favour of a more conservative approach, but, conversely, most of the patients in this group were of high gravidity.

From our figures it was clear that evaluation of the postconization smear could be very difficult, especially in patients in whom a Strumdorff repair of the cervix was done. According to the literature the interpretation of whether the cone removed the lesion completely or not is very difficult, and a residual lesion in the remaining cervix could be present in 23 - 60% of patients.^{1,2,8,12,14} This was confirmed in our study where a comparison of the histological appearances of the original cone and eventual hysterectomy specimen revealed an inaccuracy of 27,6%.

All advocates of the more conservative approach^{4,5,7,9,13,17,18} are unanimous that long and intensive follow-up examination is essential. The fact that only 8,2% of our patients returned for follow-up examinations regularly and the fact that 37,4% did not have any cytological follow-up examination at all are very disturbing. These poor figures were reached in a prospective study, despite the fact that specially trained staff motivated these patients and telephoned, wrote to, and paid personal visits to them, with no positive response.

It is therefore propounded that a more conservative approach under our present circumstances could border on negligence. The hysterectomy rate of 51,7% could be defended, because we were dealing with a group of patients who, although young, were of relatively high gravidity, and apart from treatment of the cervical lesion needed a form of birth control. Hysterectomy could serve a double purpose.

It is realized that patients can still develop vaginal lesions after hysterectomy,^{3,6} but the chances are more

remote than after more conservative forms of therapy.¹⁵ Hysterectomy would therefore seem a sensible form of definitive treatment in our patients once they have completed their families, although Kolstad and Klem⁶ do not agree that hysterectomy reduces the chances of recurrence.

Realizing that a more conservative approach to the treatment of this condition in our patients would be too hazardous, it was decided that we could be more conservative in confirming the diagnosis histologically. This approach should reduce the number of patients lost before confirmation of the diagnosis (12,1%) and also the number who need conization of the cervix for diagnostic purposes. Our present policy is to refer all patients with a smear positive for carcinoma *in situ* or severe dysplasia to our cervical evaluation clinic where a colposcopically directed punch biopsy is done.^{6,17} If the histological appearance of the punch specimen confirms the cytological diagnosis and the patient has completed her family, total hysterectomy, without preceding conization, is advised. If after colposcopically directed punch biopsy a discrepancy between the cytological and histological patterns is evident, hysterectomy should be preceded by conization.⁵ If her family is not completed, conization is still the best way of diagnosis and treatment of these patients under our special

circumstances. In all patients with an unsatisfactory colposcopy, conization still remains the correct approach.

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