

CRYOSURGERY (COLD CAUTERY) FOR THE TREATMENT OF BENIGN CERVICAL EPITHELIAL DISEASES

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Introduction

Gynaecological Cryosurgery is a modality of therapy that destroys tissues by use of low temperature. It offers a very useful and safe method for the treatment of many benign, and some premalignant lesions of the cervix. The process consists of local tissue destruction by deep freezing of a well circumscribed and localised area which later heals without scarring or any other complications. It has advantage over the conventional hot cautery in that it is painless and causes no bleeding.

Deep freezing of the cervix is effected by touching it with an ultra cool point—the cervical probe—which is in turn cooled by evaporation of liquid gases like CO₂, N₂O, Freon, etc. The depth of cooling of tissues can be controlled by means of a tissue temperature recording device incorporated in the instruments.

Even though Egyptians used this principle in 2500 B.C. in the treatment of trauma, and the anaesthetic properties of

tissue cooling were recognised in the 11th century, it was Arnott, in 1883 who first used cold in the destruction of cancer tissue. In 1930, Lortat, Jacobs and Solente published the first monograph on Cryosurgery using solid carbon-di-oxide as refrigerant.

Wetzer, in 1940, first used Solid CO₂ for cervicitis. Since then other gases were used and also advances were made in the design and portability of the instruments.

Material and Methods

Fifty-two patients attending Gynaecology Department of Sassoon General Hospital and B.J. Medical College were selected and treated with Cryocautery on an outpatient basis without anaesthesia. In each case, diagnosis of chronic cervicitis was made after thorough clinical examination and cytological smear. A wet vaginal smear was studied in all cases to rule out vaginitis.

The cervical lesion was treated with cryocautery using CT-73 model of Frigronics comprising of 2 nitrous oxide cylinders connected by a nylon hose to the cervical probe. The machine also incorporates a cylinder gas pressure gauge and a pyrometer indicating tissue temperature.

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In the present study, the temperature of cervical tissue was maintained at -50°C for 2 minutes. If the erosion was too large to be covered completely by the probe, then 2 separate applications—one to the anterior lip and another to the posterior lip were done. If the patient had endocervicitis, then a special cone shaped probe was used.

No treatment was given to the patient after cauterisation. Those complaining of

pareunia and menorrhagia was present in only 3 cases. All these symptoms of chronic cervicitis were relieved in 89-100% of patients after cauterisation.

Fifty per cent of the patients had creamy mucoid discharge. Watery discharge was associated with chronic cervicitis in 38.4% of cases. However, in all cases, the discharge became profuse watery after cauterisation and gradually reduced by the end of 10 weeks (Table I).

TABLE I
Nature of Discharge

	No. of Patients					% Cured
	Before treatment		After treatment			
	Total	%	1 mth	2 mths	3 mths	
Creamy (mucoid)	26	50	6	1	0	100
Watery	20	38.4	17	8	2	90
Frothy	1	1.9	0	0	0	100
No discharge	5	9.6	7	—	—	—

excessive watery discharge and weakness were given oral potassium as Kesol. Follow up clinical examination was done after one month, and again at the end of second and third months. Repeat cytological smear was obtained at the end of 3 months.

Observations and Results

Majority of patients were from reproductive age group i.e. from 20-30 years of age. Youngest patient was 18 years and the oldest 42 years of age. Large number of patients were from the group of para I & II.

Leucorrhoea was the main presenting symptom in 47 (90.4%). Out of 52, patients, 29 (55.8%) women complained of backache. Two complained of deep dys-

Chronic endocervicitis was present in 34.6% of cases. In the rest erosion of different sizes was associated with cervicitis. Mild to moderate erosion was present in 47 cases. In only 1 case the erosion was more than 8 mm in diameter. Except in this case, the erosion completely disappeared after cryocautery in all cases.

Of the 40 patients having a report of chronic cervicitis, 38 showed reversal to normal after 3 months and smear appropriate to chronic cervicitis persisted in only 2 patients. Of the 9 patients showing mild and moderate dysplasia in addition to chronic cervicitis, 6 showed complete reversal to normal smear and in the remaining 3 dysplasia was eliminated but chronic cervicitis persisted (Table II).

TABLE II
Cytology

Nature of smear	Before treatment No. of patients	After treatment No. of patients with +ve smear	% Cured
Chronic cervicitis	40 (76.8%)	5 (2+3)	87.5
Chronic cervicitis with dysplasia	9 (17.4%)	0 (6+3)	100
Normal	3 (5.8%)	3	—

Complications

Only 3 patients complained of pain in the lower abdomen at the time of cauterisation. None of the patients had any bleeding either during or after cauterisation. One patient required oral treatment with potassium because of weakness.

In 50 patients chronic cervicitis completely disappeared giving a clinical cure rate of 95% while symptomatic and cytological response occurred in 89% and 91% of cases (Table III).

TABLE III
Overall Cure Rate

Total patients	Symptomatic cure	Clinical cure	Cytological cure
52	47 (89%)	50 (95%)	47 (91%)

Discussion

The process involves destruction of the thermolabile enzymes of the cells thereby rendering them biologically dead without the formation of a bleeding wound. This cellular destruction is basically a function of the low temperature. The lower the temperature, the greater is the depth of destruction. It also depends on the refrigerant used and the rapidity of freezing.

Beadling (1971) treated 60 patients complaining of leucorrhoea due to cervical erosion with cryosurgery using Nitrous Oxide and reported a cure rate of 97%.

Townsend (1971) used freon gas as a

refrigerant in 20 patients and reported a cure rate of 90%. 4 out of 11 patients in his series who had dyspareunia were completely relieved.

Ghoneim (1971) treated 96 patients with cryosurgery using Nitrous Oxide, and reported a similar cure rate. He observed endocervical cold cautery alone or combined with cold cautery of ecto cervix gave better results than cauterising ecto cervix alone.

In the present study, of the 52 cases treated 50 were cured of the erosion giving a cure rate of 95%. Symptomatic cure occurred in 89% of the cases. 45 out of 47 patients having leucorrhoea, 29 complaining of backache and 2 of dyspareunia were completely relieved of symptoms after cryosurgery.

In patients complaining of leucorrhoea it was observed that frothy and creamy mucoid discharge gradually turned into thin watery discharge, and then subsequently disappeared after the treatment.

In mild and moderate erosions with a diameter of 1-4 and 5-7 mm, at the end of 3 months the erosions completely disappeared. Eighteen patients with endocervicitis were treated with cryosurgery using the cervical cone probe. Except in one, in all the rest the cervicitis disappeared and regeneration of healthy epithelium occurred at the end of 3 months.

Many reports have been published about the usefulness of cryosurgery in the treatment of dysplasias of the cervix and cancer in situ.

Crisp (1970) noted 90% cure rate in patients of carcinoma in situ after study of 114 cases

Ghoneim (1971) suggested that cryosurgery can replace conisation of cervix and is the ideal treatment in young patients with carcinoma in situ wanting to preserve child bearing function.

Of the 52 cases studied, in 40 patients the smears and biopsy were characteristically those of chronic cervicitis and 9 patients showed mild to moderate dysplasia. In 6 of these patients with dysplasia cytological smear showed complete reversal to normal, and in the remaining 3 cases though the dysplasia was eliminated, yet there was persistence of smear showing chronic inflammation.

Only 3 patients had mild lower abdominal pain during the procedure. None of the patients had any bleeding either during the procedure or postoperatively. Only one patient had profuse watery discharge requiring treatment with oral fluids and potassium salts.

Opinions differ as to the advantages of cryosurgery over the conventional electric cautery, in cases of chronic cervicitis with erosion.

Fergusson and Craft (1974) compared cryosurgery with electric cautery and

observed that while the cure rate was 88.9% with cryosurgery it was 95.8% with electric cautery.

There were no postoperative complications like stenosis or incompetent cervix. Aesthetically also it is preferred as there is no smoke and absence of pungent odour. It can also be used in patients with Cu T in situ, as it does not destroy the nylon thread of the intrauterine device. The overall clinical cure rate of 95% in this study shows that cryosurgery is a simple, safe and effective procedure in the treatment of benign cervical lesions.

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References

1. Armott, J. B. (1845): as cited by Frank. P. Paloucek, Year Book of Gynec. & Obst. 309: 1971.
2. Beadling, L. W.: Obst. & Gynec. News. 6: 15, 1971.
3. Crisp, W. E.: Am. J. Obst. & Gynec. 107: 737, 1970.
4. Fergusson, I. L. C. and Craft, I. L.: J. Obst. Gynaec. Brit. C'wlth. 81: 315, 1974.
5. Ghoneim, M. A.: Obst. & Gynec. News, 6: 20, 1971.
6. Lortat-Jacobs, L. and Solente, G. (1930): as cited by Frank. P. Paloucek. Year Book of Gynec. & Obstet., 309: 1971.
7. Townsend, D. E.: Obstet. & Gynec. News, 6: 16, 1971.
8. Weitzer, K.: Am. J. Surg. 48: 620, 1940.