



ROLE OF CRYOTHERAPY IN CERVICAL EROSION

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ABSTRACT A female's multifaceted life undergoes series of physiological changes in each and every phase. Cervical erosion is common condition seen in almost all women of all age group. Cervical erosion if left untreated for long duration may develop into cervical carcinoma. Cryotherapy means controlled destruction of tissue by freezing is widely practiced. It is cheap, easy and safe treatment suitable for both hospital and office-based practice. **OBJECTIVES:** a) To diagnose and to treat cervical erosion. b) To study cryotherapy as treatment modality for cervical erosion with respect to duration of treatment, cure rate, complications and acceptability by patients. **MATERIALS AND METHODS:** Prospective study carried out at tertiary care hospital. Total 196 cases of cervical erosion were treated with cryotherapy. Exclusion criteria was pregnant women, History of use of contraception or HRT or having ovarian tumor, women with HSIL/LSIL and HIV positive patients **RESULTS:** Out of 196 patients 86.22% were in age group of 20-39. 93.88% cases belonged to low socioeconomic class. Leucorrhea was most common symptom. Many patients had vaginitis. Incidence of candidiasis (13.26%) and bacterial vaginosis (14.80%) was found more compare to trichomonas vaginitis(4.5%). Clinical cure rate after cryotherapy first application was found as 84% after second application was 96%, cytological cure rate was 87.15%, Symptomatic cure rate was 78.06%. PAP smear reports before cryotherapy normal were 44.38% and inflammatory were 55.62%. 32 patients needed second application and cervical biopsy in those patients was taken out of which 21 had acute nonspecific cervicitis and 11 had chronic cervicitis. No of patients having cervical erosion were 260, 200 patients accepted cryotherapy as a treatment. So, acceptability was 76.92%. Leucorrhea was most common side effect but resolved on its own after 2 weeks.

KEYWORDS : Cryotherapy; Cervical Erosion; Cervicitis, Benign cervical lesion.

INTRODUCTION:

Cervical erosion is a common condition seen in almost all women of all age group. It is computed that 80% of women are suffering from cervical erosion. It is a condition in which squamous covering of ectocervix is replaced by single layer columnar epithelium which is continuous with the lining of endocervix.^{1,2,3}

Causes of cervical erosion are trauma, chemicals, infections or carcinoma. Symptoms of cervical erosion are vaginal discharge, low backache, lower abdominal pain, intermittent bleeding and spotting, dyspareunia, burning micturition.

Cryotherapy is controlled destruction of tissue by freezing.⁴The benefits of cold have been appreciated for many thousands of years. Over the past 200 years cold treatment has evolved from generalized application such as hydrotherapy to specific focal destruction of tissue that is today's cryotherapy.

It is a double freeze technique⁵ in which the tissue is frozen for a period of 3 minutes thawed for 5 minutes and refrozen for 3 minutes. In order to achieve hypothermia, liquid nitrous oxide is forced through a small hole at a pressure range of 750-900 pounds per square inch (psi).⁶This produces a very low temperature at the surface of the probe due to the Joule-Thompson effect. The temperature at the probe tip can range from -65°C to -85°C. Cell death occurs secondary to crystallization of intracellular water at -20°C to 30°C.⁷

Liquid nitrogen is by far the most popular in current use. Its popularity is due to low temperature achievable (-197°C), which makes it suitable for both benign and malignant lesions. Its effects are predictable and well documented. Nitrous oxide is favored as storage has no problems; cylinders are not easily portable.

Cryotherapy is cheap, easy and safe treatment suitable for both hospital and office-based practice. Cryotherapy causes some discomfort. Most of the feel a sensation of cold and a little of cramps and sometimes sense of warmth spread to upper body and face. Cryotherapy is not adequate treatment if abnormal cells are high in the cervical canal.

AIM:

To study effectiveness of cryotherapy in cervical erosion.

OBJECTIVES:

a) To diagnose and to treat cervical erosion.

b) To study cryotherapy as treatment modality for cervical erosion

MATERIALS AND METHODS:

Prospective study carried out at tertiary care hospital. Total 196 cases of cervical erosion were treated with cryotherapy. Exclusion criteria was pregnant women, History of use of contraception or HRT or having ovarian tumor, women with HSIL/LSIL and HIV positive patients

STUDY POPULATION: This study has been carried out in tertiary care hospital in the department of obstetrics and gynecology from January 2013 to September 2014.

SAMPLE SIZE:

- 1) Patient were selected according to inclusion and exclusion criteria as mentioned below.
- 2) In the present study 260 cases of cervical erosion were offered cryotherapy as a treatment modality only 200 cases accepted it.

STUDY DESIGN:

It is a single Centre, prospective, observational study.

INCLUSION CRITERIA:

Women with symptoms suggestive of cervical erosion like white PV discharge, pain in abdomen, backache, postcoital bleeding, dyspareunia and patients who were having cervical erosion detected by clinical examination.

EXCLUSION CRITERIA:

- 1) Pregnant woman
- 2) Women who are using oral contraceptive pills or on HRT, or having any ovarian tumor.
- 3) Women with HSIL/LSIL or invasive carcinoma
- 4) HIV positive patients

OBSERVATIONS:

AGE-Cervical erosion was common in 20-29 yrs. age group

Table no 1-Age wise distribution

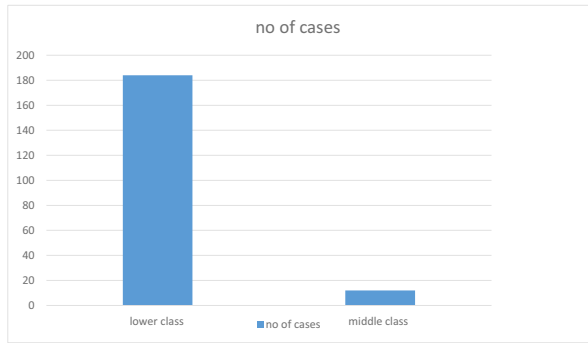
Age(yrs.)	No of cases	Percentage
20-29	95	48.47%
30-39	74	37.75%
40-49	27	13.78%
	Total cases=196	100%

Parity: Incidence of cervical erosion was in order: 3rd para>2nd para>4th para

Table no 2-Parity wise distribution:

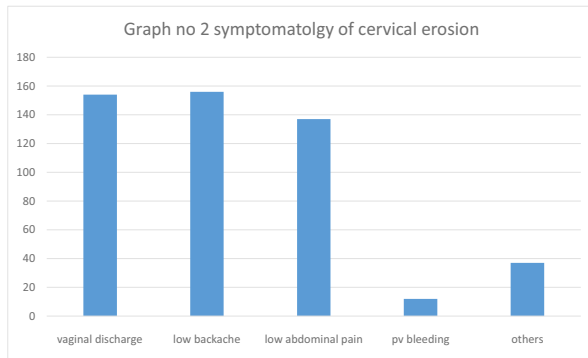
Parity	No. of cases	Percentage
1	29	14.80%
2	54	27.55%
3	59	30.10%
4	34	17.35%
>4	20	10.20%
	Total-196	100%

Socio-economic status: Most of the patients who attended the OPD were from the lower socioeconomic status.



Graph no1: Socio-economic status in cases with cervical erosion:

Symptomatology: Leucorrhoea was the most common symptoms encountered.



Associated infections:

Table no-3 Associated conditions with cervical erosion:

Associated conditions	No. of cases	Percentage
Vaginitis	77	39.28%
Urinary tract infection	12	6.12%

Vaginitis: Incidence of candidiasis and bacterial vaginosis was found more compare to trichomonas vaginitis and nonspecific vaginitis.

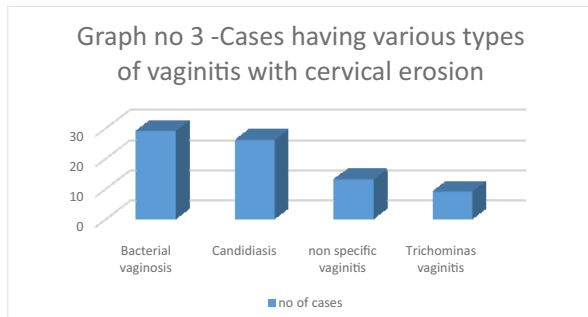
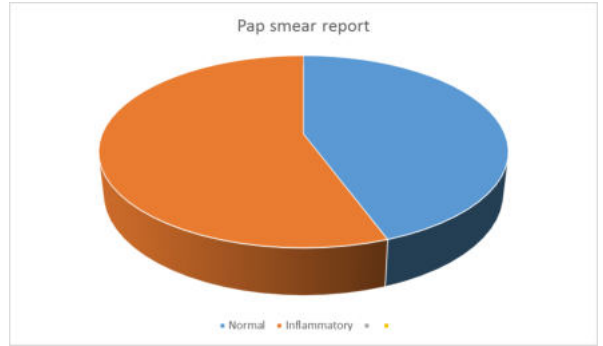
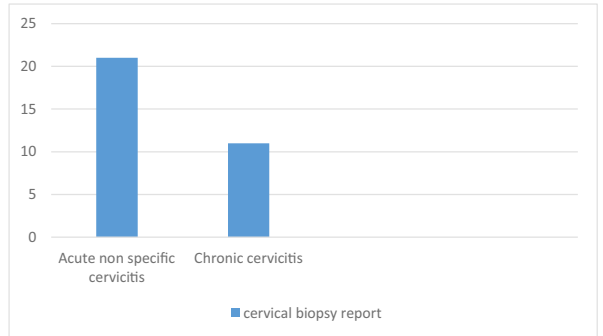


Table no 4-Clinical cure rate of cryotherapy:

	No. of cases cured	Cure rate
Cryo 1 st application	164	84%
Cryo 2 nd application	24	96%
Hysterectomy	8	4%



Graph no 4-Pap smear reports before cryotherapy:



Graph no.5-Cervical biopsy reports in patients requiring second application of cryotherapy:

Cervical biopsy was taken in 32 patients

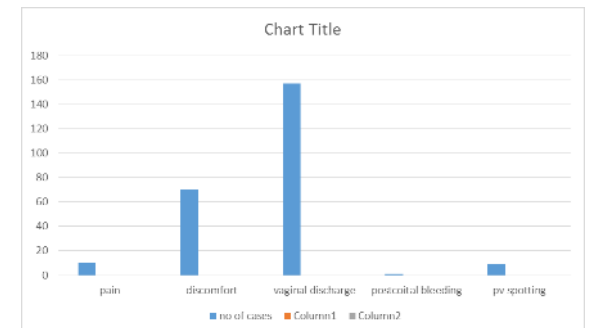
Table no-5A Cytological cure rate:

Nature of smear	Cryotherapy		Percentage	P-value
	Before	After		
Normal	87	87	-	0.001*
Inflammatory	109	14	87.15%	
Cure rate			87.15%	

Table no-5B Symptomatic cure rate:

Symptoms	No Of Cases Having Symptoms		No. of patients cured	p-value	Cure rate
	Before cryo	After cryo			
Pain in abdomen	137	34	103	Chi-sq=110.045 P-value=0.001**	75.1 8%
Backache	156	43	113	Chi-sq =130.326 P-value =0.001**	72.4 3%
Leucorrhoea	154	29	125	Chi-sq=160.143 P value =0.001**	81.1 6%
PV bleeding	12	2	10	Chi-sq =7.407 P value =0.006**	83.3 3%
Patients not having any symptom after cryotherapy. (symptomatic cure rate)			153	Highly significant	78.0 6%

Leucorrhoea was the most common side effect.it was just the thin watery not foul smelling reduced after 2weeks on its own.



Graph no6: Side effect of cryotherapy: leucorrhoea resolved on its own after 2 weeks.

Acceptability:

Table no 6-Acceptability of cryotherapy:

No. of patients having cervical erosion	260
No. of patients accepted cryotherapy	200
Acceptability in percentages	76.92%

Discussion

Present study includes 200 cases out of which 4 cases were follow up lost cases. Total 196 cases included in the study.

Table no 7-Incidence of cervical erosion in different age groups

Authors/Age in years	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Una M. Kroll (1970)	-	-	17.6%	20.2%	14.7%	7%	-

Brij Khurana (1980) incidence is more in patients above 20 years age.....						
Mrs. Mukherjee et Al (1984)	-	1%	27%	34%	32%	42%	2%
Mrs. Shashi Gupta (1985)90%cases of 20-30 years age,10% of case of 34-42 years age.....						
Dr. B. Shilpa Shivanna and et al (2014)	Majority of cases were from 20-30 yrs. of age						
Present study	-	-	48.5%	37.7%	13.8%	-	-

Cervical erosion was more in childbearing age group. Result of present study are matching with the results in studies conducted by Una M. Kroll, Brij Khurana and Mrs. Shashi Gupta.

Table no- 8 Symptoms of cervical erosion

Author	Leucorrhoea	Low backache	Pain in abdomen	Dyspareunia	bleeding	Burning micturition
R.W. Beard(1964)	69%	40%	15%	15%	20%	12%
Una M. Kroll (1970)	Common	Common				
J. F. Miller (1973)	78.20%	3.50%	-	16.50%	40.80%	0.90%
Shirish Sheth (1977)	52%	16%	7%	2%	1%	6%
Brij Khurana (1980)	100%	65%	-	44%	-	-
Mrs. C. Mukherjee (1984)	84%	19%	12%	-	-	-
Mrs. Shashi Gupta (1985)	100%	35%	-	5%	-	-
Dr. B. Shilpa Shivanna and et Al (2014)	50%	25%	16.50%	10%	2%	8.30%
Present study	78.50%	75.50%	68.80%	2.04%	22.40%	4.50%

In . Low backache was the chronic symptom. Pain in abdomen was third common complaint.

Present study	5%	40%	80%	-	10%	-
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Table no 9- Cytological method used in the study and its result

Authors		Cytological Method	Inflammatory	Normal	Trichomonas vaginitis
Una M. Kroll	1970	Pap smear, surface biopsy	-		-
Miller J. F	1973	Pap smear	-		-
Brij Khurana	1980	Pap smear	67%		11%
Mrs. Mukherjee	1984	Pap smear	27%		-
Mrs. Shashi Gupta	1985	Pap smear	-		-
Dr. B. Shilpa Shivanna and et al	2014	Pap smear	75%	8.4%	
Present study	2012-2014	Pap smear	55.61%	44.39%	12.2%

In Present study 55.61% of cases had an inflammatory smear which simulates Brij Khurana's study result, vaginitis is present in 31.5% cases as showed positive pathology in pap smear.

During the follow up we noticed that the vaginal discharge started from second or third day of cryotherapy and lasted for 2 weeks in all the patients. Erosion healed in 95% of cases in one application within 6 weeks .5% cases required reapplication which healed in 10 weeks of reapplication.

Table no-11 Clinical cure rate

Author		Cryotherapy
D. E. Ostergard	1968	85.0%
D. E. Ostergard	1969	90.0%
Townsend et al	1971	90.0%
J. F. Miller	1973	70.7%
Shirish Sheth	1977	86.6%
Junnarkar	1978	95.0%
Brij Khurana	1980	97.0%
Mrs. Shashi Gupta	1985	97.5%
Kong GW and et al	2009	72%
Dr. B. Shilpa Shivanna and et al	2014	90%
Present study	2012-2014	95.6%

CONCLUSIONS:

1}It was very easy to diagnose cases with cervical erosion & was most commonly diagnosed in cases belonging to reproductive age group and having leucorrhoea.

2}Many of the patients were not aware of cryotherapy as a treatment modality.

3}Acceptability of this new procedure by patients was a difficult task but as it is quick and simple OPD procedure, enrollment of patients increased.

4}Cryotherapy is effective in all the aspects i.e. clinical, cytological and symptomatologic cure.

5}Only temporary side effects, no long term or life-threatening complications or morbidity.

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