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**Dr. Anwesh N Chaudhari**
Junior Resident, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Pune, Maharashtra, India

**Dr. Sameer Darawade**
Professor, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Pune, Maharashtra, India

**Dr. Aditi Kolhe**
Junior Resident, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Pune, Maharashtra, India

**Dr. Hemant Damle**
Professor, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Pune, Maharashtra, India

**Corresponding Author:**
**Dr. Anwesh N Chaudhari**
Junior Resident, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Pune, Maharashtra, India

# Role of cryotherapy in management of benign and pre malignant conditions of cervix

**Dr. Anwesh N Chaudhari, Dr. Sameer Darawade, Dr. Aditi Kolhe and Dr. Hemant Damle**

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**Abstract**
**Background:** Cervical carcinoma remains a significant health care problem worldwide. Invasive cancer of the cervix is considered a preventable cancer. Various modalities are available for management of cervical lesions. So we conducted this study to understand the role of cryotherapy in management of benign and premalignant lesions of cervix.
**Material and Method:** We performed a prospective study between January 2018-December 2019 on 100 subjects chosen from patients who sought consultation for various gynaecological complaints between age group of 18-60. A colposcopy for abnormal pap smear followed by cryotherapy was done and patients were followed up with pap smear and colposcopy.
**Results:** 77% were disease free in 1st setting. 16%required repeat cryotherapy.7% underwent hysterectomy eventually 94% ectopy cases were disease free. 93% was overall success rate
**Conclusion:** Cryotherapy is powerful therapeutic tool and can reduce the morbidity and cost of managing CIN and erosion when used skillfully and appropriately. The recurrence rate seems to be acceptably low, and the risks are highly acceptable if' follow-up is available.

**Keywords:** CIN, ectopy, cryotherapy, colposcopy, carcinoma cervix, cervical biopsy, pap smear

## Introduction
Cervical cancer remains a significant healthcare problem worldwide and mainly in the developing countries. India accounts of world's one sixth of population and bears one fifth burden of Ca cervix. There are 1, 30, 000 new cases of Ca cervix every year and the disease is responsible for 20% of all female death [1].
However it is largely a preventable cancer due to long progression duration between precancerous lesions and invasive carcinoma.

**Table 1:** It is largely a preventable cancer due to long progression duration between precancerous lesions and invasive carcinoma

| | Regression | Persistence | Progression | Years |
|---|---|---|---|---|
| CIN-1 | 80-90 | 10-20 | 1-4 | 2-10 |
| CIN-2 | 30-40 | 40 | 20 | 1-5 |
| CIN-3 | 20-30 | 50-60 | Almost all | 6m-2yrs |

Also treatment for preinvasive lesions are largely available.
Treatment modalities available are [2]
1. Cryotherapy
2. LEEP
3. LLETZ
4. Conization
5. Radical excision (Trachelectomy, Hysterectomy)

In developing countries people have limited access to healtcare and are associated with poor follow up.
Cryotherapy remains a suitable and appropriate technique for treatment of CIN in low-income countries owing to its simplicity, acceptability, affordability, low complication rates, and lack of adverse effects on fertility. As cryotherapy does not require anesthesia and/or hospitalization, it

can be performed as an outpatient procedure by mid-level providers (i.e. nurses, midwives, or general practitioners) in primary healthcare centers, mobile units, or field clinics [3].

**Cryotherapy**

Cryotherapy destroys the surface epithelium of the cervix by crystallizing the intracellular water, resulting in the eventual destruction of the cell. The temperature needed for effective destruction must be in the range of −20° to −30 °C. Nitrous oxide (−89 °C) and carbon dioxide (−65 °C) produce temperatures below this range and, therefore, are the most commonly used gases for this procedure.

The technique believed to be most effective is a freeze-thaw-freeze method in which an ice ball is achieved 5 mm beyond the edge of the probe.

Cryotherapy is an effective mode of management with acceptable failure rates [4].

**Pre-requisites for cryotherapy include**

- Located in the ectocervix
- Visible in its entire extent
- Covered by the largest available cryotherapy probe (2.5 cm)
- No evidence of pelvic inflammatory disease
- Not pregnant
- No evidence of invasive cancer

**Material and Methods**

This was a prospective study conducted at Smt. Kashibai Navale Medical College and General Hospital, Narhe, Pune, Maharashtra from January 2017-December 2018 on 100 subjects chosen from patients for various gynaecological complaints between age group of 18-60.

**Sample size:** 100

**Type of study:** Prospective study

For all women satisfying inclusion and exclusion criteria PAP smear for all patients colposcopy for abnormal pap smear. Cryotherapy was done using a cryoprobe with 5-minute freeze; 3-minute thaw and 5-minute freeze protocol.

Patients were followed up at 6 weeks, 3 months and 6 months and repeat pap was done at 6 months

Cure was defined as no clinical or colposcopic or cytological evidence of CIN lesions after treatment and resolution of any symptoms. If residual symptoms remained for ectopy, cryotherapy was used once more.

**Inclusion criteria**

- CIN-1
- CIN-2
- Symptomatic cervical erosion
- Age 21-60 years

**Exclusion criteria**

- Previously treated for cervical lesions
- CIN-3

**Results**

Age distribution of cases

**Table 2:** Age distribution of cases

| | 18-35 | 35-45 | 45-60 |
|---|---|---|---|
| **Erosion** | 44 | 32 | 11 |
| CIN-1 | 1 | 6 | 2 |
| CIN-2 | 0 | 2 | 2 |

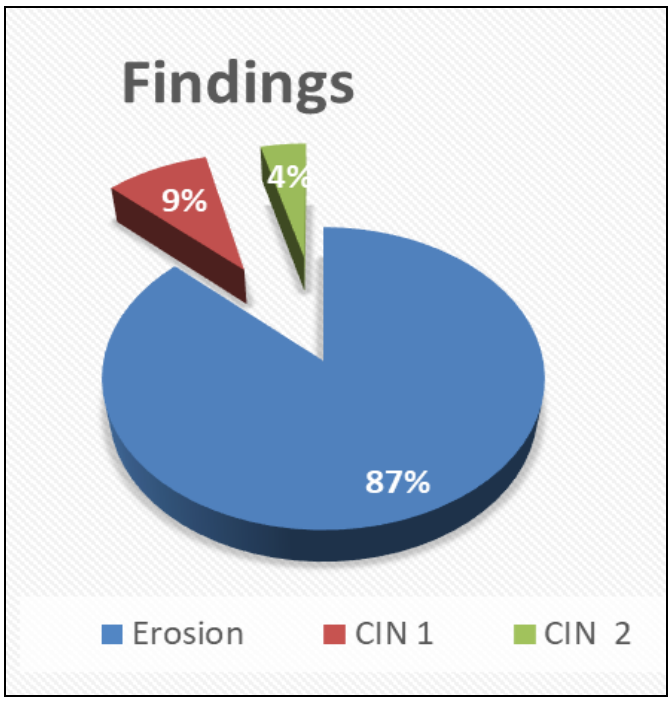


**Fig 1:** On colposcopy 87% showed cervical erosion, 9% were suggestive of CIN-1 and 4% were suggestive of CIN-2.

On colposcopy 87% showed cervical erosion, 9% were suggestive of CIN-1 and 4% were suggestive of CIN-2.

77% were Lesion free in first sitting and did not require further treatment. 16% required repeat cryotheryapy of which 7 percent eventually underwent hysterectomy. 94% of ectopy cases were symptom free.

Overall success rate was 93 percent.

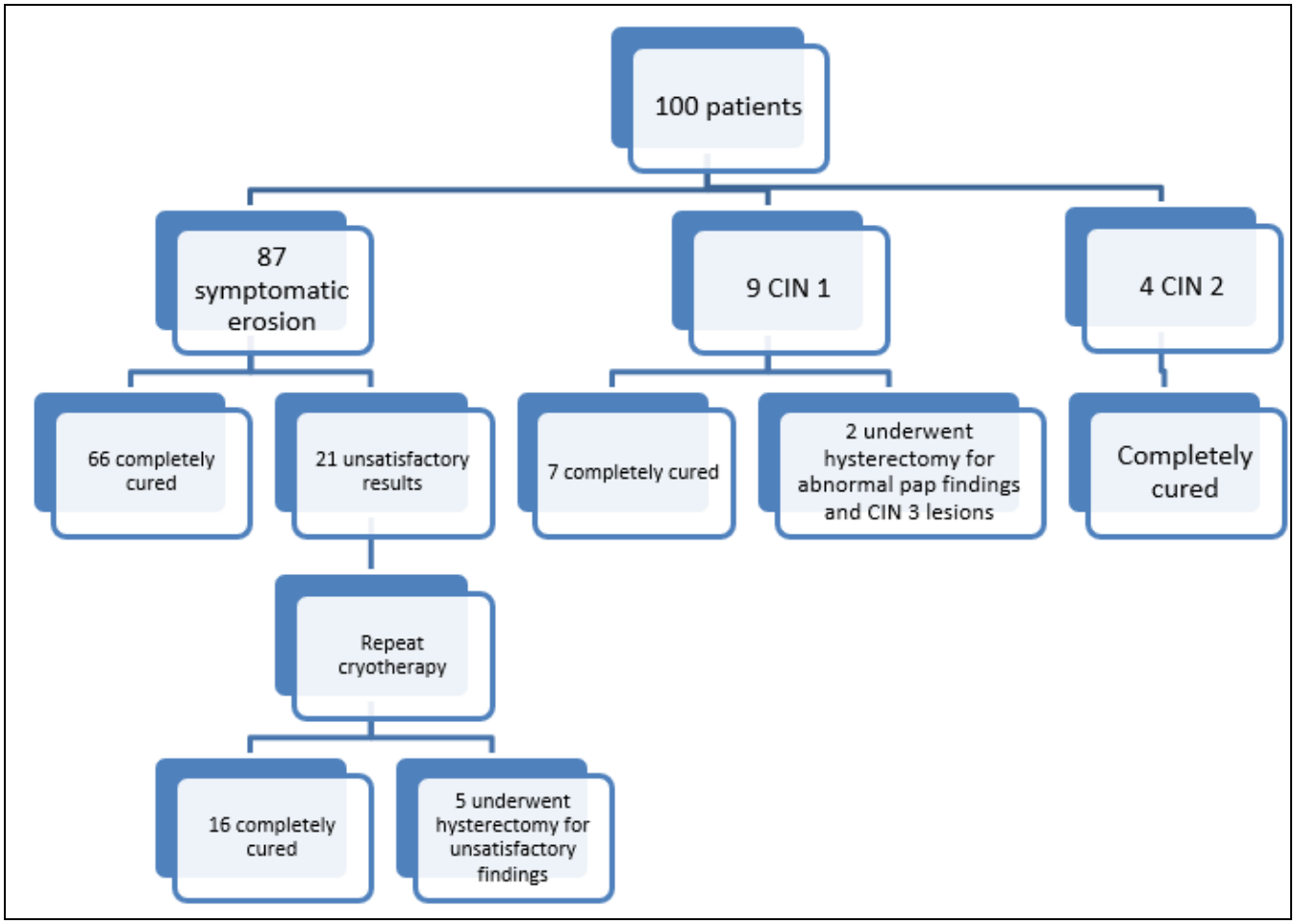


**Table 3:** Age distribution of outcomes

| | 18-35 | 35-45 | 45-60 |
|---|---|---|---|
| Completely cured | 45 | 36 | 12 |
| Requiring eventual hysterectomy | 1 | 4 | 3 |

## Discussion

A study by Nancy Santesso *et al* found recurrence rate was 5.3% 12 months after cryotherapy.

A study conducted by Silvana Luciana *et al* in 1398 women found that Cryotherapy effectively cured CIN in 418 (88%) women, including 49 (70%) women with a baseline diagnosis of CIN 3.

A Meta-analysis of the effectiveness of cryotherapy in the treatment of cervical intraepithelial neoplasia by Catherine Sauvaget *et al* showed Cryotherapy achieved cure rates of 94.0% (CIN1), 92.0% (CIN2), and 85.0% (CIN3). A total of 146 articles were retrieved; 77 papers-equivalent to 28 827 cases of treated CIN-were included in the meta-analysis.

## Conclusion

Cryotherapy is powerful therapeutic tool and can reduce the morbidity and cost of managing CIN and erosion when used skillfully and appropriately. The recurrence rate seems to be acceptably low, and the risks are highly acceptable if' follow-up is available.

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