

## Single visit approach for Cervical Cancer Prevention in a mobile screening clinic

Singh M<sup>1</sup>, Shrestha S B<sup>2</sup>, Manandhar A<sup>2</sup>, Ranjit R<sup>2</sup>, Pradhan R<sup>2</sup>, Shah A<sup>2</sup>, Verma S<sup>2</sup>, Malla K<sup>2</sup>.

<sup>1</sup>Department of Gynecology and Obstetrics, Maharajgunj Medical Campus, Teaching Hospital, Tribhuvan University. <sup>2</sup>Nepal Australian Cervical Cancer Foundation, Banepa, Kavre

**Corresponding to:** Prof. Dr. Meeta Singh

**E-mail:** singhmita@hotmail.com

### Abstract

**Introduction:** Cervical cancer is the third most common cancer in women worldwide, but the most preventable cancer. The objectives was to determine the feasibility and acceptability of immediately treating VIA positive women with thermocoagulation in a single-visit approach (SVA) in preventing cervical cancer.

**Method:** This was a community-based programme organized in collaboration with Nepal Australian Cervical Cancer Foundation and Thermocoagulation unit donated by Tropical Health and Education Trust in a mobile screening camp set up in five different underserved areas in Gorkha, Nepal. Total women were 1071 aged 30-60 years in 5 days in December, 2016, had come for cervical cancer screening. Women who were VIA positive had thermocoagulation for treatment.

**Results:** Total screened women were 1071, the rate of VIA positive was 115(10.7%). 100% percent of positive result accepted treatment. All VIA positive patients except for one woman who was suspected of having invasive cervical cancer had treatment with thermocoagulation. Of all treated women only 5(4.38%) had minor side effect.

**Conclusion:** For cervical cancer screening, the single-visit program was feasible and the degree of acceptability was 100% in this underserved population. Single visit programs provide an opportunity to increase the rate of immediate treatment of lesions with minimal side effect compared with delayed treatment after obtaining colposcopy guided biopsy report in later visit.

**Key words:** cervical cancer, mobile screening, VIA, SVA, thermocoagulation

### Introduction

Cervical cancer is the third most common cancer in women, with an estimated 529,000 new cases in 2008. Of which more than 85% of the global burden occurs in developing countries. Overall, the mortality: incidence ratio is 52%, and cervical cancer was responsible for 275,000 deaths in 2008, about 88% of which occur in developing countries.<sup>1</sup> The lifetime risk of a woman developing cervical cancer in a low-resource setting is approximately 2% to 4%.<sup>2,3</sup> Cervical cancer can be successfully prevented if we timely identify the precancerous lesions, cervical intraepithelial neoplasia (CIN) and do effective treatment and thereby decrease cervical cancer incidence. Only identifying precancerous lesion is not adequate but treatment of CIN is vital for the success of cervical screening in preventing cervical cancer. Existing cervical screening programs in low resource countries have been less successful in reducing cervical cancer burden partly owing to inadequate coverage of treatment of women detected with CIN. Cytology-based screening programs

have markedly reduced the incidence of cervical cancer in developed countries that have the infrastructure to support these programs.<sup>4</sup> However, screening programs have proven difficult to implement in low-resource settings. There are 2 predominant reasons why cytology-based programs have proven difficult to implement in low-resource settings. One is the nature of the screening test, high-quality cytology laboratories are difficult to maintain.<sup>5</sup> and the other reason is that there are often substantial delays before the results become available.<sup>6</sup> In developed countries, women with abnormal cytological results are usually referred for colposcopy with biopsy before initiating treatment.<sup>7</sup> In many developing countries, like our country due to lack of organized screening and no timely identification the precancerous lesions (CIN), when women come they at an advanced stage. Alternative approach to cervical cancer prevention has been proposed that avoids high quality cytology-based programs and complex health infrastructure where abnormal cytological results are usually referred for colposcopy with biopsy before initiating treatment.<sup>7</sup> The

alternative is single visit approach (SVA). This approach incorporates non-cytology-based screening methods such as visual inspection with acetic acid (VIA) followed by treatment using local therapy such as cryotherapy or thermocoagulation of all eligible women with positive test results.<sup>8,9</sup> This approach is comparable to cytology-based programs and initiating treatment after obtaining biopsy report. This low-technology treatment method is not only efficacious but has minimal morbidity.<sup>10,11,12</sup>

## Participants

The target group was women aged 30–60 years according to National Guidelines for cervical cancer screening of Nepal of whom we tried to do wide coverage in each region. Women were excluded if they were virgin, pregnant, did not have an intact cervix or had a history of cervical cancer. To reach women for enrolment, collaboration was set up with the local organization like Community service academy Nepal (COSAN) and existing health care organizations that has access to these areas. In the selected areas, the local organization and existing health care organizations encouraged women to participate in the project by visiting them in their homes, informing them about risk factors, prevention, early detection and treatment of cervical cancer.

On scheduled days, the mobile clinic team arrived and set up a screening site in existing public facilities, mostly in small community halls and small health facilities. Women were interviewed about cervical cancer risk factors, reproductive health and sociodemographic issues. Nurses gave counseling sessions to small group of women about cervical cancer and breast cancer. Printed information about cervical cancer information was given to women. After describing and explaining the procedure of screening and possible treatment, informed consent was obtained.

Training of nurses in VIA, colposcopy and cryotherapy/ thermocoagulation:

One doctor and eight registered nurses learned VIA, colposcopy and cryotherapy/ thermocoagulation in a 1-week intensive training course according to national health training protocol, using manuals prepared by the Family Health Division of Nepal. Training included lectures, discussions, review of photographs of normal and abnormal cervix and clinical sessions to observe and practice VIA, colposcopy, directing biopsy and cryotherapy/ thermocoagulation, initially under the supervision of the teaching faculty and then independent assessment with the findings checked by the faculty.

## Methods

With an adequate light source, the cervix was inspected visually. With a cotton swab, a 5% diluted acetic acid solution was applied to the cervix for 1 min. After application of acetic acid, inspection for gross

abnormalities or areas of acetowhitening was done. Those cases were considered positive when there were acetowhite lesions in the transformation zone, close to the squamocolumnar junction and eligible for treatment.<sup>13</sup> Cervicitis, nabothian cysts and polyps were considered negative..

When the screening test was positive, women were counselled for immediate thermocoagulation. When the VIA result was negative, subsequent screening was advised at 5 year, according to the Nepal Cervical Cancer Guideline<sup>14</sup>

Thermocoagulation was considered if the lesion was not suspected for cervical cancer, did not extend over more than 75% of the cervix, into the cervical canal or vaginal wall, and could be covered fully by the thermocoagulation tip. Thermocoagulation was provided for one min with a Cervix Coagulator, (WISAP Console 6001) using a probe. After thermocoagulation oral dose of antibiotics was given. They were informed about side effects and instructed not to have sexual intercourse for 6 weeks and to return to the health centre in case of severe abdominal pain, fever ( $>38^{\circ}\text{C}$ ) and purulent or bloody discharge to the nearest health center.

In case of cervicitis, antibiotics were administered according to national protocol. Among positive VIA, one woman with a suspected diagnosis of cervical cancer based on clinical evaluation, biopsy was taken and biopsy sent to National health lab and referred to the collaborating Hospital for further diagnosis, staging and treatment.

Follow-up 3 months after thermocoagulation to the nearest site health clinic and after 1 year was scheduled for women who were VIA positive. Women were informed about the date for their return appointment and received a follow-up card with the information. All women to be contacted by phone after 1 year for the confirmation of VIA testing.

## Results

**Table 1 Total cases**

VIA :	Frequency	Percent
1- Negative	956	89.3%
2- Positive	115	10.7%
<b>Total</b>	<b>1071</b>	<b>100.0%</b>

Total 1071 women were checked, of which 115 (10.7%) was VIA positive. One woman was suspected of invasive cervical cancer.

## Characteristic of participants:

**Table 2 Distribution of age**

Age	Frequency	Percent
25-30	228	21.29%
31-35	175	16.37%
36-40	204	19.05%

41-45	167	15.60%
46-50	132	12.33%
51-55	68	6.35%
56-60	97	9.06%
<b>Total</b>	<b>1071</b>	<b>100%</b>

Though, we planned to do screening from age 30 -60, according to National guideline of Nepal, we did not send back women who were less than 30 as they would have missed the opportunity for screening, we had 21.29% who was between 25-30 which was maximum and least was in age 51-55 which was 6.35%.

**Table 3 Distribution of age of marriage:**

Age of Marriage	Frequency	Percent
< 15	223	20.83%
16-25	823	76.85%
26 >	25	2.34%
<b>Total</b>	<b>1071</b>	<b>100%</b>

Age of marriage was maximum in age 16-25, 76.85% and least in more than 26 which was 2.34%

**Table 4 Distribution of age in VIA positive**

Age	Frequency	Percent
25-30	36	31.31%
31-35	22	19.13%
36-40	26	22.61%
41-45	13	11.31%
46-50	7	6.09%
51-55	8	6.96%
56-60	3	2.61%
<b>TOTAL</b>	<b>115</b>	<b>100%</b>

Among our women, maximum cases of positive was found in 25-30 age group, which was 31.31% followed by 31-35 which was 19.13% and least in 56-60 which was 2.61%

**Table 5 Distribution of parity in VIA positive**

Parity	Frequency	Percent
Nulliparity	2	1.74%
Primipara	9	7.83%
Multipara	96	83.48%
5 -10	8	6.96%
<b>Total</b>	<b>115</b>	<b>100%</b>

Positive case was maximum in multipara which was 83.48% who had 2-5 children and least was in nullipara which was 1.74%

## Treatment

Based on positive VIA which were 115, 114 women received thermocoagulation as one case was suspected of invasive cancer. All of these women received treatment after women gave consent for treatment.

During and after thermocoagulation, few women had some abdominal cramps, cold feeling in the vagina and one woman felt mild dizzy. No major side effects occurred such as severe pelvic cramps, anaphylactic reaction and shock.

## Side effect:

Side effect was recorded after 3-7 days of procedure on phone

In 114 women who got thermocoagulation treatment 5 women (4.38%) had minor side effects, of which 4 women complained of excessive discharge from vagina and 1 woman complained of headache and fever.

## Discussion

In five different areas the underserved areas in Gorakha, we studied the feasibility of the concept of single-visit approach cervical cancer screening using VIA and thermocoagulation.

Collaboration with existing health-care services and local organizations proved to be efficient in setting up an infrastructure to reach women in the villages and to mobilise them for participating in the screening programme. Fact that not a single woman refused for treatment amply demonstrates the high acceptability and usefulness of this approach in maximising treatment coverage. It has also been our policy to treat women with VIA positive, as our intervention is a once in a life-time and due to difficulties in ensuring follow-up. Moreover SVA was performed as our National guideline policy is to treat VIA positive with cryotherapy/thermocoagulation.<sup>14</sup> The targeted population was reached, 100% of participants had never been screened before. Maximum positive was in 25-35(31.31%) and least positive in 56-60(2.6%) age group. Maximum of positive was found in multipara who had 2-5 children (83.84%) and least in nullipara which was 1.7%. All women attending the programme were informed about cervical cancer and prevention and underwent the screening procedures. Of all the women with positive VIA results except for one who was suspected to have invasive malignancy received thermocoagulation as treatment.

Our study gives insight in the use of VIA in the field conditions and its routine performance in health services in Nepal. In this unscreened population, the overall prevalence of cervical cancer found was rather low, as only one was suspected with cervical cancer in 1071 women. The overall VIA positivity rate was 10.7%. During this study, we concentrated on reaching the target group and on the quality of the VIA screening.

Regarding the characteristics of the studied population and the findings on the site visits, we do think these are representative. Our positivity rate 10.7% is higher compared to other population-based VIA screening programs. Other studies have recorded VIA-positive rates of 4.8% in Bangladesh,<sup>15</sup> 7.0% in Laos,<sup>16</sup>. The high rate of VIA positivity in our screening could be explained by epidemiological differences and our sample size being very small. Comparable to our study, those reported in Tamil Nadu, India 13.3%<sup>17</sup> and in rural Thailand 9.9%. While the study done by Ana 13%<sup>18</sup> and shipa 19%<sup>19</sup> the positive result was higher than in our screening. As our positive rate was 10.7% and all patients received treatment, even if there was overtreatment, we think these overtreatment rates are acceptable as the morbidity associated with local therapy is low and the overall benefit of treatment in reducing the risk of cervical cancer in high incidence areas is significant.<sup>20</sup>

### Conflict of interest: None declared

### References

1. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008 Int J Cancer 2010 Dec 15; 127(12)
2. Mandelblatt JS, Lawrence WF, Gaffikin L. et al. Costs and benefits of different strategies to screen for cervical cancer in less-developed countries. J Natl Cancer Inst. 2002; 94:1469-1483
3. Ferlay J, Parkin D, Pisani D. GLOBOCAN: Cancer Incidence and Mortality Worldwide. Lyon, France: International Agency for Research on Cancer; 1998
4. Miller AB. Cervical Cancer Screening Programmes: Managerial Guidelines. Geneva, Switzerland: World Health Organization; 1992
5. Ferenczy A. Screening techniques for cervical cancer: the next century. Int J Gynecol Cancer. 1996; 2:14-21
6. Richart RM. Screening: the next century. Cancer. 1995; 76:1919-1927
7. Wright TC Jr, Cox JT, Massad LS, Twiggs LB, Wilkinson EJ. 2001 consensus guidelines for the management of women with cervical cytological abnormalities. JAMA. 2002; 287:2120-2129
8. Gaffikin L, Blumenthal PD, Emerson M, Limpaphayom K. Safety, acceptability, and feasibility of a single-visit approach to cervical-cancer prevention in rural Thailand: a demonstration project. Lancet. 2003; 361:814-820
9. Goldie SJ, Kuhn L, Denny L, Pollack A, Wright TC. Policy analysis of cervical cancer screening strategies in low-resource settings: clinical benefits and cost-effectiveness. JAMA. 2001; 285:3107-3115
10. Cox JT. Management of cervical intraepithelial neoplasia. Lancet. 1999;353:857-859
11. Wright TC Jr, Schiffman M, Solomon D. et al. Interim guidance for the use of human papillomavirus DNA testing as an adjunct to cervical cytology for screening. Obstet Gynecol. 2004;103:304-309
12. Wright TC Jr. Chapter 10: cervical cancer screening using visualization techniques. J Natl Cancer Inst Monogr. 2003; 31:66-71
13. Sellors JW, Jeronimo J, Sankaranarayanan R. et al. Assessment of the cervix after acetic acid wash: inter-rater agreement using photographs. Obstet Gynecol. 2002; 99:635-640
14. National Guideline for Cervical Cancer Screening and Prevention in Nepal. Family Health Division, Teku, Kathmandu Nepal. Government of Nepal-2010
15. Nessa A, Hussain MA, Rahman JN, Rashid MH, Muwonge R, Sankaranarayanan R. Screening for cervical neoplasia in Bangladesh using visual inspection with acetic acid. Int J Gynaecol Obstet 2010; 111: 115–118.
16. Phongsavan K, Phengsavan A, Wahlström R, Marions L. Safety, feasibility, and acceptability of visual inspection with acetic acid and immediate treatment with cryotherapy in rural Laos. Int J Gynaecol Obstet 2011; 114: 268–2728
17. Sankaranarayanan R, Esmy PO, Rajkumar R et al. Effect of visual screening on cervical cancer incidence and mortality in Tamil Nadu, India: A cluster-randomised trial. Lancet 2007; 370: 398–40612
18. Ana I. Tergas, Megan Wysong, Maureen Reinsel, Deborah Estep and John Varallo .Evaluation of a single-visit approach to cervical cancer screening and treatment in Guyana: Feasibility, effectiveness and lessons learned. Journal of Obstetrics and Gynaecology Research 2014; 1707–1716
19. Shilpa Singla, Sandeep Mathur, Alka Kriplani, Nutan Agarwal, Pradeep Garg, and Neerja Bhatla. Single visit approach for management of cervical intraepithelial neoplasia by visual inspection & loop electrosurgical excision procedure Indian J Med Res. 2012 May; 135(5): 614-616
20. Sankaranarayanan, R Rajkumar, P O Esmy, J M Fayette, S Shanthakumary, L Frappart, S Thara and J Cherian Effectiveness, safety and acceptability of 'see and treat' with cryotherapy by nurses in a cervical screening study in India. British Journal of Cancer 2007; 96, 738–743.