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Therapeutic strategies for vaginal and sexual health promotion in cervical cancer survivors: An overview of practice at the Tertiary Cancer Hospital in Mumbai

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ABSTRACT

Cervical cancer survivors treated with radiotherapy alone or as a part of combined therapy have reported a higher occurrence of vaginal morbidity. Vaginal stenosis and dryness are the common vaginal symptoms which tend to persist following radiotherapy treatment. Vaginal dilation with a dilator and sexual counselling is routine practice to preserve vaginal patency and to facilitate sexual functioning and gynaecological surveillance. A retrospective review of case files of cervical cancer patients referred for vaginal dilation to Occupational therapy during 2002-2010 was carried out with the aim to understand the therapeutic strategies practiced for improving vaginal and sexual health following pelvic radiotherapy at the tertiary cancer hospital in Mumbai. Data of 183 cervical cancer patients which met the study criteria, were collected with reference to the stage of the disease, treatment received, details about vaginal dilation following radiotherapy, and sexual status and side effects related to dilation. The review found that vaginal dilation with dilator was routinely recommended to cervical cancer patients following completion of radiotherapy. Resumption of sexual intercourse and sexual counselling was provided to married patients for prevention of vaginal stenosis and preserving sexual functions. Documentation on the content of sexual counselling and the time spent on counselling was found absent. This review of case files found vaginal dilation with dilator post pelvic radiotherapy is effective in preventing vaginal stenosis and sexual intercourse cannot be used as a sole medium of dilation. Dilation with dilator improved vaginal length from 8.02 cm+ 2.9 to 9.96+ 2.89cm with the p-value <0.001. ords.

treatment induced the vaginal change that has a serious impact on a woman's sexual function (Brand et al. 2006, Lancaster 2004) and interferes in the follow-up clinical surveillance for the detection of treatable recurrence of cancer.

Though there is very limited research regarding the efficacy of vaginal dilation in gynecological cancer survivors (Miles and Johnson 2014) vaginal dilators are used as one of the physical modalities to restore vaginal anatomy and address the physical aspect of sexual dysfunction following pelvic radiotherapy (Denton and Maher 2015). Also as per literature, other than dilators, sexual activity is a standard mode of vaginal dilation prescribed to married women with dual intention, one to preserve vaginal patency and second is for resuming pre-treatment sexual functions. According to Lancaster (2004), White (2006) the prevention of vaginal stenosis and shortening through regular use of vaginal dilators and provision of associated sexual health information is must in clinical oncology practice. Sexual counseling and advice on the use of vaginal lubricants and moisturizers during vaginal dilation are suggested by various authors (Schover et al. 1989, Audette and Waterman 2010, Carter et al 2011, Falk and Dizon 2013).

Considering the increasing number of long-term cervical cancer survivors, it is extremely important to address vaginal stenosis for facilitating gynecological surveillance and restoring sexual functioning. A retrospective review of case files of cervical cancer patients referred for vaginal dilation to Occupational therapy during 2002-2010 was carried out with the aim to understand the therapeutic strategies practised for improving vaginal health and associated sexual health following pelvic radiotherapy at the tertiary cancer hospital in Mumbai.

Keywords— Cervical cancer, Vaginal stenosis, Vaginal dilation, sexual counselling

1. INTRODUCTION

Cervical cancer survivors treated with pelvic radiation therapy alone or as a part of combined treatment, report the higher occurrence of late specific symptoms of normal tissues, especially related to the vagina. Vaginal stenosis is a major

2. DATA COLLECTION

Medical records from 2002-2010 of carcinoma cervix patients referred for vaginal dilation were reviewed. A total of 1100 case files of patients treated for cervical cancer were fetched for screening from medical records of at the tertiary cancer hospital in Mumbai. Data were recorded in the case record form about the age of the patient, date of registration, marital status,

diagnosis and the stage of the disease, histopathology report and the treatment received Vaginal dimensions (as per the insertion of a particular size dilator {(small (2cm diameter), medium (2.5cm diameter), large (3cm diameter)}) was noted in relation to the dilation practice started soon after and long after radiotherapy along with the sexual activity. Similarly, a note about sexual counselling given or not given any details about the content on sexual counselling was looked for in case files. The above details of the patients were recorded on a case record form: before or up to six months' post radiation therapy, between six months to 11months post radiation therapy, between 12 months to 23months post radiation therapy, between 24 months to 35 months post radiation therapy and 36 months and above.

3. RESULTS

Case files contained information about patients' age, marital status, pathology report, diagnosis, stage of the disease and treatment details. Pre-treatment vaginal dimensions were not available for most of the patients. The start date of vaginal dilation was calculated from the completion date of radiotherapy treatment. Sexual status was not mentioned for all the patients. Review through case files found that sexual counseling was provided to 140 patients at least once and resumption of sexual activity to all married women. Case files found no mention about the content on sexual counseling. We came across notes of patients discontinuing sexual activity for health issues of their spouses. Note of patients' irregularity with dilation was found on 9.3% files. All patients were provided with a vaginal dilator kit for dilation. Dilation procedure was taught to all patients. These patients were advised to follow dilation regularly for 10 minutes daily. The same was found noted in case files. During this retrospective review of records, there was no mention of any side effect associated with a dilator.

Medical records of all 183 patients had readings of vaginal dimensions noted with medium dilator for most of the follow-up visits and hence vaginal patency as measured and noted with medium dilator insertion on different follow-up visits was considered for analyzing the results. The mean vaginal length as on the first reading with a medium dilator (not all patients were prescribed medium dilator for initiating dilation therapy) was considered as baseline reading and was compared with the reading on the last follow-up (at a third year or more). There was some missing data of the last follow-up for few patients as their vaginal patency was found to be assessed using either large dilator and or small dilator instead of the medium dilator and hence the number of patients taken for baseline assessment did not always match the numbers on the last assessment.

Table 1: Clinical characteristics

Parameter		Frequency (n = 183)	Percent age
Marital status	Married	140	76.5
	Widow	40	21.9
	Separated	3	1.6
Diagnosis stage	I	12	6.6
	II	92	50.3
	III	79	43.1
Histopathology	Squamous carcinoma	179	97.8
	Adinocarcinoma	4	2.2
On the set of treatment	0 to 8 weeks	76	41.5
	9 to 24 weeks	60	32.8
	25 weeks and above	47	25.7

Sexual status	Active	67	36.6
	Inactive	76	41.6
	Unknown	40	21.8
Sexual counseling		140	76.5

The clinical characteristics of the studied patients are given in table 1, 6.6% of patients were staged I cancer cervix, 50.3% was stage II and 43.1% was diagnosed as stage III cervical cancer. 97.8% were squamous cell carcinoma and 2.2% were adinocarcinoma. 76.5% were married (had spouse), 21.9% were a widow and 1.6% were separated from their spouses. The mean age of the study population was 50.39 + 7.92.

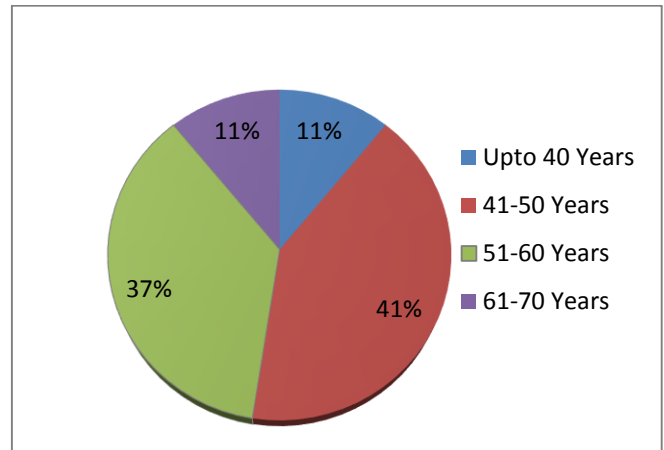


Fig. 1: Percentage of 183 patients distributed in the different age group

Majority of patients (78%) were between 41 to 60 years of age. 11% were below 40 years of age and another 11% belonged to above 60 years of age (figure 1).

All 183 cervical cancer patients post radiation therapy underwent counseling and demonstration for vaginal dilation. 24 patients' final data set was missing for comparison with the baseline readings. As seen in table 2, 159 patients' data suggests vaginal dilation exercise with dilator maintained and improved vaginal patency. Mean vaginal length increased significantly from 8.02 + 2.69 cm to 9.96 + 2.89 cm with p-value less than 0.0001.

Table 2: Results with dilator on vaginal patency

Mode of Assessment	Base Line Mean Insertion Length cm (n = 183)	Mean Insertion Length on Last Follow up cm (n = 159)	P Value
Dilator [Medium 2.5cm wide]	8.02 ± 2.69	9.96 ± 2.89	0.0001

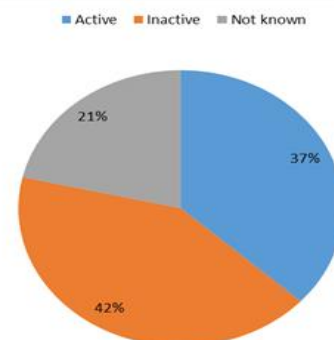


Fig. 2: Sexual status of 183 patients in percentage

As seen in figure 2, 40 files had no mention of sexual status. Medical records showed 36.8% of patients were sexually active, 41.8% were inactive and the data of 21.4% was not understood.

To understand the reason behind sexual inactivity, the marital status of sexually inactive patients (i.e. 42%) was checked and it was learnt and as table 3 and fig 3 shows that 43.42% were married but were sexually inactive.

Table-3: Clinical characteristics of sexually inactive patients:

Parameter	Frequency (n = 76)	Percentage	Age
Married	33	43.42	54.21 ± 8.41
Widow	40	52.63	52.13 ± 6.62
Separated	3	3.95	55.33 ± 5.68

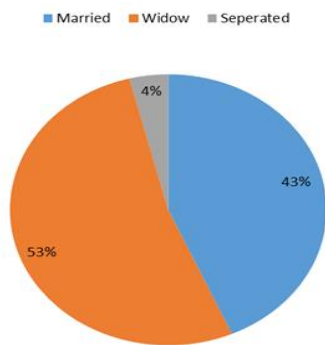


Fig. 3: Marital status of sexually inactive patients in percentage

Table 4: Sexually active and regularity with dilator

Distribution of Patients	N	Pretreatment depth in cm	Post-treatment depth in cm	P Value	Significant
Regular	40 (10 missing)	7.78 ±2.26	7.8 ±5.18	0.001	Highly Significant
Irregular	5 (1 missing)	9.9 ±4.27	6.18 ±3.92	0.18	Not Significant

Table 4 shows that patients who were sexually active and regular with dilator showed significant improvement in vaginal patency and those who were sexually active but irregular with dilator did not show significant improvement in vaginal patency.

Table 5 shows that patients who were sexually inactive and regular with dilator showed significant improvement in vaginal patency and those who were inactive and irregular with dilator use did not show significant improvement in vaginal patency.

Table 5: Sexually inactive and regular with dilator

Distribution of Patients	N	Pretreatment depth in cm	Post-treatment depth in cm	P Value	Significant
Regular	35 (5 missing)	7.66 ±2.28	9.88 ±3.64	0.0001	Highly Significant
Irregular	8	7.62 ±4.28	10.56 ±2.23	0.063	Not Significant

4. DISCUSSION

4.1 Vaginal dilation practice

This retrospective study demonstrates the vaginal dilation practice at the tertiary cancer hospital in Mumbai. From patients' case reports it is evident that occupational therapists received referrals for vaginal dilation for cervical cancer patients post radiotherapy majorly from gynecology radiation Oncology Outpatient Department (OPD), therapists' educated patients on vaginal hygiene, demonstrated vaginal dilation with dilator on all patients (married, widow and separated), prescribed resumption of vaginal intercourse and provided sexual counseling to married patients for prevention of vaginal stenosis and preserving sexual functions. Patients have prescribed two sizes of dilator at a given time namely small and medium or medium and large. Duration of dilation with dilator was prescribed for 10 minutes daily.

Emphasis on patients visiting occupational therapy department for dilation/ assessment on their subsequent follow-up visit to the hospital was evident from therapists' notes. Most of the case papers found mention of the sexual status of the patient by the therapist and many times by the radiation oncologist. Similarly, few case records found mention of patient discontinuing sexual activity due to various reasons like ill health or death of the spouse.

4.2 Effectiveness of vaginal dilators

Our retrospective study assessed vaginal patency by means of the length of insertion of the dilator in the vaginal passage in cm. While different authors used different means to assess vaginal patency to determine the effectiveness of vaginal dilation or they have not mentioned the tool. Poma (1980) has not mentioned how the assessments were made but mention vaginal patency in length and width like our study. Decruze et al. (1999) mentions about improvement in stenosis but doesn't mention about the tool to measure the vaginal dimensions while Velaskar et al. (2007) stated the use of tape measure. Studies by Bahng et al. (2012), Gondi et al. (2012), Law et al. (2013) and Stahl et al. (2017) used common terminology criteria for adverse event (version 3 or 4) (CTCAE) for assessing effectiveness of vaginal dilation on vaginal toxicity/stenosis. Bruner et al. (1993) measured the vaginal length with modified dilator at 2 years in their study population.

In our study, we examined the effectiveness of dilator use on vaginal patency. We reviewed case files of those patients who followed for dilation with Occupational Therapy on regular follow-ups for 3 years or more. Regular follow-up with dilation found improvement in mean vaginal length. This finding is in accordance to the findings by previous studies like retrospective case series by Poma (1980), retrospective review of stenosis by Decruze et al. (1999) and case series with longitudinal follow-up by Velaskar et al. (2007) on vaginal dilation. These studies showed improvement in vaginal dimensions with dilation. Recently presented four good surveys have shown an association between less stenosis and greater dilation frequency if dilation is commenced after the completion of the radiotherapy course (Bahng 2012, Gondi 2012, Law 2013, Stahl (2017).

This study finding suggests dilator helped to prevent and treat vaginal stenosis as the mean length of 9.96 cm was found on the last follow-up. We support this by the definition of vaginal stenosis by Flay and Matthews (1995), they define vaginal stenosis as a shortening of vaginal length to less than 8cm. A mention of normal vaginal length of 8 to 9 cm is documented

by Bruner et al. (1993). In the amid of limited evidence to the effectiveness of vaginal dilation this study provides some evidence to support vaginal dilation in preserving vaginal patency post radiation therapy.

4.3 Sexual activity on vaginal patency

International guidelines on vaginal dilation after brachytherapy and authors like Gondi (2012) and Chadha et al. (1999), recommend normal coitus as a mode of dilation. Similarly, few centres in Australia as per Lancaster (2004) recommend coitus for vaginal dilation. Frumovitz et al. (2005) strongly recommend either the use of vaginal dilator or the engagement in sexual intercourse frequently after completion of radiotherapy for cervical cancer in an effort to maintain the length, width and elasticity of the vaginal canal to prevent irradiated women experience long term adverse sexual functioning. Similar to these authors, this retrospective study found the prescription of sexual activity for dual purpose that is for vaginal dilation and also for the resumption of pre-treatment sexual functioning.

Our study found, patients regular with vaginal dilators irrespective of being sexually active or inactive showed significant improvement in vaginal patency highlighting the importance of regularity with vaginal dilator use over sexual activity. Our study suggests, sexual activity may improve or preserve vaginal dimensions but it should not be substituted with a vaginal dilator. It is important to note that since it was a retrospective study, in-depth assessment of sexual activity was not possible. Possibility of better results with regular and frequent vaginal intercourse on maintaining vaginal patency cannot be ignored. Decruze (1999) however has reported poorer vaginal patency in women who were prescribed only sexual activity against those who were treated with a vaginal stent for preventing stenosis. Author Wolf (2006) suggest intercourse should not be associated with vaginal dilation even in sexually active women.

4.4 Sexual function

Studies highlight the importance of discussing sexual concerns following pelvic radiotherapy with the patients and their spouses. According to Ekwil (2003), patients seek information about their sexuality and need openness and communication about their sexual health. According to Shell (1994), age should not be considered as the barrier as sexual relations are important to all age women. Similarly, more than the physical part of sexual activity intimacy is important to support during cancer diagnosis and treatment for patients (Hordern 2007). However, this retrospective study has found that many married women were sexually inactive highlighting the need for emphasis on sexual education and counseling for these women following cervical cancer treatment.

Reviews of research evidence consistently identify the advantages of patient education in improving coping and reducing anxiety. In spite of this evidence, survey findings by Cox (2006) report certain areas of patient's education is poorly addressed by health care professionals. Similar to Cox (2006) survey, emphasis on sexual education and counseling probably was not given much emphasis by the health professionals in our study. As reported by Ekwil (2003) probability of heavy OPD working, or little or no training in discussing and addressing sexual issues, assessing the problems or providing suggestions and treatment plans on the part of attending oncologists or occupational therapists, cannot be ruled out in our study.

As per literature, apart from the presence of physical concerns in these women following treatment with pelvic radiotherapy

they also have the psychosexual, and social concerns in resuming sexual functions which need evaluation on routine follow-up visits. Poor compliance with resumption of sexual intercourse in married women found in this retrospective study was probably because of various psychosexual, and social concerns like fear and anxiety about sexual activity, insecurities and low confidence in resuming sexual functions, fear of spread of disease and fear of pain as reported in various studies (Cardy 2006, Cull A 1993, Juraskova 2003).

Greimel et al. (2009) found 43.3% of the study patients had not been sexually active over a month. Authors reported that the main reason for sexual inactivity was, women did not have a partner or were not in an intimate relationship, or were not interested in sexual activity. 20–30% of women from their study reported co-morbidity, which may have an effect on sexuality. Also, 12% of patients reported that due to the physical problems of their partners' sexual intercourse was not possible. Bergmark et al. (2002) showed that sexual interest was similarly reduced in women who had cervical cancer compared with a randomly selected sample of healthy women. Greimel et al. (2009) suggested that since sexual problems across healthy populations and cancer survivors appear to be related to similar factors, caution is warranted when interpreting sexual inactivity after cancer treatments. Our case files found mention of documentation on discontinuation of sexual activity due to the health issues in a spouse. As suggested by Greimel et al. (2009) and Bergmark et al. (2002), poor compliance with the resumption of sexual intercourse in our study patients could be because of many reasons and not merely because of cancer or cancer treatment.

Audette and Waterman (2010) suggested screening of patients for vaginal dryness and discomfort with checklists or brief questionnaires and provision of vaginal health by means of vaginal lubricants, vaginal moisturizers, pelvic floor exercises, dilator therapy and sexuality. This retrospective study, however, has found the prescription of vaginal dilator kit containing lignocaine gel for addressing pain problems during dilation and intercourse.

A study by Lubotzky et al. (2015) explained the need for providing information to women undergoing pelvic radiotherapy through psychoeducational resource. The patients in their study had a mean age of 55.20 years and they expressed the need for information about sexual difficulties, to discuss their concerns, play a role and have a choice in their long-term recovery and health, but found it difficult to raise sexual changes with their doctors, out of not knowing if it was their role. Our retrospective study had a patient mean age of 50.39 + 7.92 and found that those women who were married were advised sexual intercourse and were provided sexual counseling for vaginal dilation and resumption of sexual functions. However, because of the retrospective study design, there were limitations, only documented reports by the occupational therapists and oncologists were the source of information. The time spent on sexual counseling and the content of counseling was not reported. There was no mention about the supply of any written handouts or pamphlets or broacher to patients guiding resumption of sexual functions.

Authors Audette and Waterman (2010) prescribed intercourse 3-4 times in a week for improving sexual function. In our study, the sexual activity might have improved sexual functioning in women who were sexually active however any documentation on this aspect of prescribing sexual intercourse was not found in any of the case files.

4.5 Side effects with a dilator and sexual activity

There are reports of uncommon but severe physical damage and psychological side effects associated with dilation practice (Hoffman 2003). Anecdotal reports confirm some women having been affected by the psychological stress because of vaginal dilation (International guidelines on vaginal dilation). None of the reviewed case reports in this study found a mention of any of physical or psychological side effects associated with dilation. According to Falk and Dizon (2013), there is no alternative to dilator therapy, in preventing vaginal stenosis and fistula is a rare complication that can be associated with pelvic RT alone, even in the absence of dilator use.

5. LIMITATIONS

The limitations of this study include its retrospective nature and the heterogeneous characteristics of the disease stage and treatment procedures. The single institution nature of this study may narrow the scope of our results.

This study is the retrospective study of review of patient case files, the major limitation was that we had to rely on what was documented on case files and could not assess beyond documented records.

6. CONCLUSION

This study has highlighted the vaginal dilation practice in cervical cancer patients following pelvic radiotherapy at the single institution. Review of medical records has found that vaginal dilator was a useful medium for maintaining or improving vaginal patency following pelvic radiation for 3 years and that vaginal intercourse cannot replace vaginal dilator. Taken together with previous studies, this evidence does support vaginal dilation with the dilator in preventing and improving vaginal stenosis.

This study, however, has observed certain inconsistencies in the assessment of dilation techniques. Similarly, it highlights the shortfalls in the documentation on sexual functioning of cervical cancer survivors, provision of their sexual health and stresses on the need for their sexual education and counselling.

The present findings come from a review of patients' case files and had limitations in gathering complete information on vaginal dilation and sexual concerns and functions in cervical cancer patients and suggest the need for a prospective study on homogenous diagnosis stage of cervical cancer patients.

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