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## Original Research Article

## Dhoti cancer – A name forgotten!!!

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## ABSTRACT

Skin cancers are uncommon in India with less than 1% incidence and among all sites of occurrence, waist line as a site of occurrence is again uncommon. This could be mostly attributed to the attire among men and women in India. Saree and dhoti are still the traditional costumes among Indian women and men respectively. Wearing them tight around the waist leads to pigmentation, scarring and ulceration. Repeated trauma leads to subsequent malignant transformation. The usage of terms 'saree cancer' and 'dhoti cancer' is less commonly seen nowadays even though it was proposed long back in 1945 and has been unknown to many in the recent times with very few papers published in mainstream medical journals. Herein, we report a case series of 12 patients with waistline cancer who presented at our centre between January 2001 till December 2020.

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## 1. Introduction

Skin cancer is not so common in India, the incidence being less than 1% of all cancers. Skin cancer is broadly subdivided into two groups – non melanotic skin cancer and melanotic skin cancer. Among the NMSC, squamous cell cancer is the second most common malignancy was reported by an ICMR study done by Labani et al.<sup>1</sup> A total of 18.1 million new cases and 9.6 million deaths from skin cancer were estimated globally in 2018. The review revealed that NMSC is a growing problem and stressed the need for studies on the prevention of the disease. A recent study on the epidemiology of skin cancer stated that in Europe, the incidence would increase to 40–50/100,000 inhabitants per year in the next decade. Studies from India report clinicopathological evaluation and they focus on the current scenarios of NMSCs, but a systematic pan-India data analysis has not been published.<sup>1</sup> case series of 12 patients of cancer who reported at our centre during the time period

from January 2001 till December 2020.

## 2. Materials and Methods

All patients who were diagnosed with waist cancer and visited our hospital from January 2001 till December 2020 were noted from the medical record database retrospectively. A total of 12 patients were included. The demographic profile, comorbidities and addiction history and disease profile were noted. Patients were staged according to AJCC TNM staging. The patients were treated using chemotherapy using the regimen injection paclitaxel and injection carboplatin according to the patient's BSA, surgery [mostly wide local excision] and radiation therapy using external beam radiotherapy [EBRT] or electron beam therapy. Each modality was used either in combination or alone depending on the stage of presentation. Follow – up was done for a period of 5 years. Overall survival (OS) and disease free survival (DFS) was noted.

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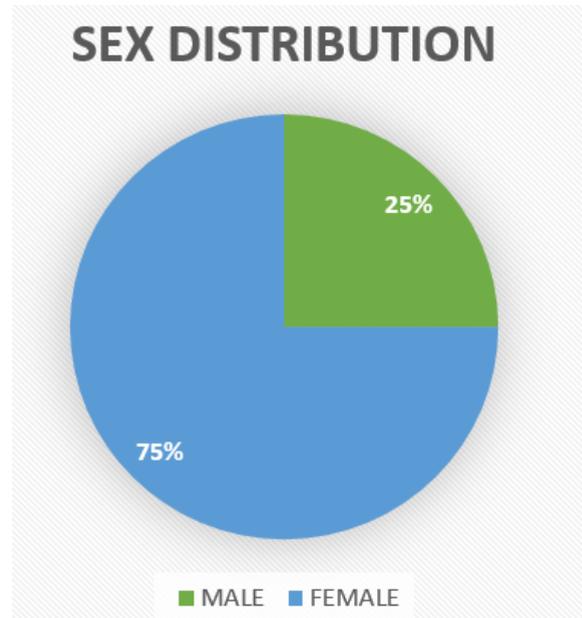
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**3. Results**

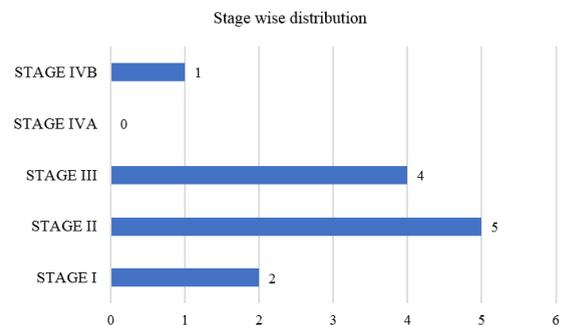
In our study, majority of the patients belonged to the age group 61 – 70 years (66.6%)(Figure 1) with a female preponderance(75%).(Figure 2). All the patients were from rural background with low socioeconomic status and all had history of tobacco intake in one or the other form.(Table 1) With our data, among the waistline cancers a right side predominance was observed. Staging was done using AJCC TNM staging system with majority of our patients presenting with stage II disease (Figure 3) with a grade II lesion in histopathology.(Figure 4)(Table 2)

The treatment options available include surgery, chemotherapy and radiation treatment either alone or in combination depending on the stage of disease at presentation. The different treatment protocols used in this study were, neoadjuvant chemotherapy (NACT) followed by (f/b) surgery f/b RT, chemo alone, surgery f/b Radiation Therapy, surgery alone and radiation alone depending on the stage of presentation. Stage I and II were treated using single modality either surgery or radiation alone and stage III and above were treated using multimodality approach. One patient who presented with metastasis was treated using palliative chemotherapy alone.

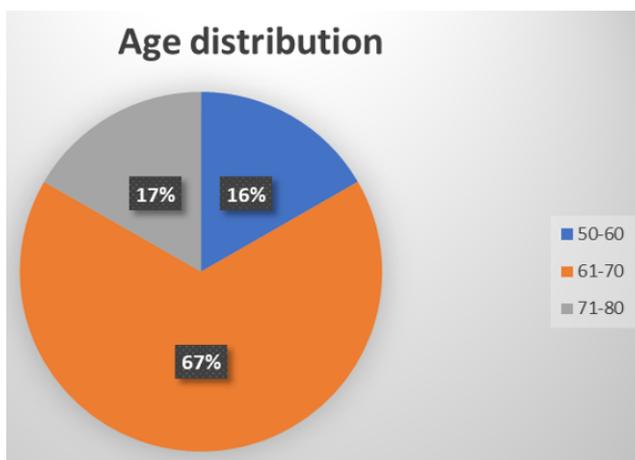
Majority of the patients had a complete response to the treatment protocol used. Only one patient who presented with metastasis had a partial response.(Table 3) A follow – up of 5 years was done. The overall survival (OS) and disease free survival (DFS) was assessed. All the patients who showed a complete response had an OS and DFS of 36 months to 46 months. There was one loss to follow up case after 15 months of follow- up.



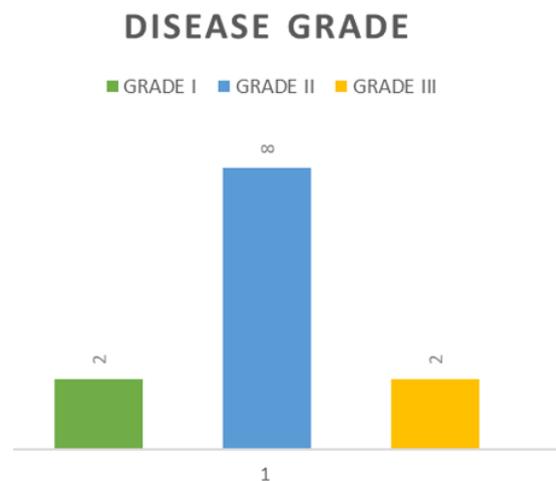
**Fig. 2:** Sex distribution



**Fig. 3:** Stage wise distribution



**Fig. 1:** Age distribution



**Fig. 4:** Disease grade distribution

**Table 1:** The demographic profile of the patients included

Total number of patients	n = 12
<b>Age ( in years )</b>	
50 -60 years	2
61- 70 years	8
71- 80 years	2
<b>Sex</b>	
Male	3
Female	9
<b>Residence</b>	
Urban	0
Rural	12
<b>Socio-economic status</b>	
Upper	0
Middle	0
Low	12
<b>Addiction</b>	
Tobacco chewing	9
Smoking	3
<b>Co- Morbidity</b>	
Present	2
Absent	10

**Table 2:** Disease characteristics

Histopathology	f(%)
Squamous cell carcinoma	12
Others	0
<b>Grade</b>	
I	2
II	8
III	2
<b>Stage</b>	
I	2
II	5
III	4
IVA	0
IVB	1
<b>Laterality of disease</b>	
Right iliac crest	11
Left iliac crest	1

**Table 3:** Response assessment according to stage

Stage of disease	Treatment modality	No: of patients	Treatment response
Stage I & II	Surgery alone	3	CR
Stage I & II	RT alone	2	CR
Stage II	Surgery F/B RT	2	CR
Stage III	NACT F/B Surgery F/B RT	4	CR
Stage IVB	Chemo alone	1	PR

#### 4. Discussion

The incidence of nonmelanoma skin cancer for males was highest in Eastern region (6.2) and for females the incidence was highest in Northeast region.<sup>2</sup> Risk factors for NMSC are environmental, chemical exposures, chronic cutaneous inflammation, immunosuppression, fair phenotype, and any previous history of skin cancer. In India, the regional variations can be explained, by certain established facts. The link of melanoma and UV light is known and this has a connection with the skin type. The Type I and II skin in the North East in conjunction with the high UV flux in that area can explain the higher incidence of NMSC and melanoma. The marked difference in the incidence with the Western data is a heartening feature and the higher incidence in the West is explained by the skin type of the Western Skin (type I) and the high ambient UV flux.<sup>1</sup> SCC is noticed in various parts of the body including waistline but waistline skin is not a common site for its occurrence. But in the Indian subcontinent waistline is also a predominant site.

What makes Indians susceptible to this cancer is their clothing style. Clothing performs a range of social and cultural function such as individual, occupational and sexual differentiation and social status.<sup>3</sup> In India, the traditional ethnic wear in most parts is a dhoti and saree. The dhoti is worn by men tightly around the waist with one of the shorter ends carried under the groin and tucked at the back. Saree is a traditional and popular attire of Indian women. It is a strip of unstitched cloth with four to nine yards of various fabric materials, which can be worn in different styles. It is draped around waist over inner skirt (petticoat) which is tightened by a thick cord.<sup>3,4</sup> The tight knot at a constant position for long hours around the waist causes skin friction. The persistent irritation of the tight petticoat cord and saree is compounded by the hot and humid tropical climate of the subcontinent and reluctant self hygiene, especially in Indian rural hinterland. This results in the accumulation of irritants (sweat, dust) within the cord tying area leading to itching and scratching.<sup>5</sup> This leads to pigmentation and scaly changes (dermatoses) in the skin. These dermatoses may be considered the premalignant lesion that later on turns into frank malignancy.<sup>6</sup> All the above reasons along with disinclination toward once health, usually results in these individuals from the rural area presenting late to the specialists available. In the urban area, the health conscious individual is prompt in consulting a specialist and receives timely healthcare thus halting the progression of the disease early.<sup>5</sup>

Indian subcontinent has given different names to this waistline cancer. When in the northern part its called dhoti cancer, a term put forth by Khanolkar and Suryabhai in 1945.<sup>7</sup> A similar type of skin cancer in women was called saree cancer by Patil et al.<sup>8</sup> How important is the culture of wearing a dhoti for Indian men even in the 21st century was evident when the internet was flooded with the picture

of a nobel laureate wearing a dhoti and bandhgala while receiving the noble prize in 2019.

It has been suggested that cellular mutations are responsible for the neoplastic changes that occur in the body cells.<sup>3</sup> Castillo and Goldsmith<sup>9</sup> proposed that a depressed immunologic state which is produced by the surrounding scar tissue can predispose to malignant degeneration. The absence of lymphatic drainage from the scar allows a significant delay in the host immunologic recognition, and the antitumor immunologic response is poor.<sup>10</sup> The more recent theories have included genetic postulations which involve the Human Leukocyte Antigen (HLA) DR4 and mutations in the p53 and/or the FAS genes.<sup>11,12</sup>

The exact etiology of dhoti cancer is still unknown. Many hypotheses such as dermatoses, chronic irritation, and scarring have been put forth to explain the causation. However, it is commonly believed to be a variant of scar cancer.<sup>6</sup>

This cancer is locally infiltrating and extensive metastasis at the time of diagnosis is uncommon. The radiologic investigation like CT scan, PET scan has limited role only to evaluate metastasis.

Wide local excision (with a surgical margin of at least 2 cm) together with skin grafting is considered as the appropriate treatment.<sup>3</sup> SCCs which develop on chronic skin lesions have a higher incidence of metastasis (9% to 36%) as compared to the carcinomas which arise in previously normal skin (1% to 10%).<sup>13</sup>

Other non-surgical options include topical application of 5 fluorouracil and imatinib in low risk group. The third option is local radiotherapy but acceptable for early lesions only. Radiation may be an option in high risk group when surgery causes compromised cosmesis.<sup>3</sup> Administration of chemotherapy before surgical management decreases tumor load. Addition of chemotherapy for radio sensitization of the tumor improves outcome in patients with advanced disease.<sup>3</sup>

Prognosis of cutaneous squamous cell carcinoma depends on site and size of lesion, depth of invasion, histological characteristics and immune status of the patient.<sup>14</sup> Long follow-up of the treated side and regular surveillance of the other waist is necessary for earlier detection of any malignant transformation.<sup>6</sup>

## 5. Conclusion

Waistline cancers is one among the rare malignancy reported in the Indian subcontinent. The terms ‘Dhoti cancer’ and ‘Saree cancer’ is quite an unfamiliar term for waistline cancers seen in India among upcoming oncologists. This article would thus help in knowing these terms and the context of its usage among oncologists.

## 6. Conflict of Interest

The authors declare no relevant conflicts of interest.

## 7. Source of Funding

None.

## References

1. Labani S, Asthana S, Rathore K, Sardana K. Incidence of melanoma and nonmelanoma skin cancers in Indian and the global regions. *J Can Res Ther.* 2021;17(4):906–11. doi:10.4103/jcrt.JCRT\_785\_19.
2. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A, et al. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2018;68(6):394–424. doi:10.3322/caac.21492.
3. Tiwari SJ, Yadgire AY, Umale NP A precancerous saree lesion: a rare occurrence. *Int J Sci Rep.* 2015;1(4):206–9.
4. Saxena V, Jelly P, Sharma R. An exploratory study on traditional practices of families during the perinatal period among traditional birth attendants in Uttarakhand. *J Family Med Prim Care.* 2020;9(1):156–61. doi:10.4103/jfmpc.jfmpc\_697\_19.
5. Naveen N, Kumar MK, Babu RK, Dhanraj P. A rare case of synchronous saree cancer. *J Cutan Aesthet Surg.* 2014;7(3):170–2.
6. Midya M, Sukheja D, Rao J, Prakash G. Dhoti cancer revisited. *J Family Med Prim Care.* 2019;8(3):1235–8. doi:10.4103/jfmpc.jfmpc\_113\_19.
7. Khanolkar VR, Suryabai B. Cancer in relation to usages: three new types in India. *Arch Pathol.* 1945;40(5):351–61.
8. Patil AS, Bakhshi GD, Puri YS, Gedham MC, Naik AV, Joshi RK, et al. Saree cancer. *Bombay Hosp J.* 2005;47(3):302–5.
9. Castillo J, Goldsmith HS. Burn scar carcinoma. *Cancer J Clin.* 1968;18(3):140–2. doi:10.3322/canjclin.18.3.140.
10. Fishman JRA, Parker MG. Malignancy and chronic wounds: Marjolin’s ulcer. *J Burn Care Rehabil.* 1991;12(3):218–23. doi:10.1097/00004630-199105000-00004.
11. Harland DL, Robinson WA, Franklin WA. Deletion of the p53 gene in a patient with aggressive burn scar carcinoma. *J Trauma.* 1997;42(1):104–7. doi:10.1097/00005373-199701000-00018.
12. Lee SH, Shin MS, Kim HS. Somatic mutations of the Fas (Apo-1/CD95) gene in cutaneous cell carcinomas which arose from burn scars. *J Invest Dermatol.* 2000;114(1):122–6.
13. Cruickshank AH, Mcconnell EM, Miller DG. Malignancy in scars, chronic ulcers and sinuses. *J Clin Pathol.* 1963;16(6):573–80. doi:10.1136/jcp.16.6.573.
14. Motley RJ, Preston PW, Lawrence CM. Multiprofessional guidelines for the management of the patient with primary cutaneous squamous cell carcinoma. *Br J Dermatol.* 2002;146(1):18–25. doi:10.1046/j.0007-0963.2001.04615.x.

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