RESEARCH PAPER

Vulvar Cancer at Dr. Soetomo Regional General Hospital in 2024

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ABSTRACT
Vulvar cancer is a rare gynecologic malignancy that primarily affects postmenopausal women, with squamous cell carcinoma being the most common histological subtype. This study aims to describe the clinical characteristics, histopathological findings, and treatment patterns of vulvar cancer patients treated at Dr. Soetomo Regional General Hospital, Surabaya, Indonesia, during the year 2024. A retrospective descriptive study was conducted on all patients diagnosed with vulvar cancer at the hospital's gynecologic oncology division. Data were collected from medical records including age at diagnosis, clinical presentation, histopathological type, tumor stage, and treatment modalities. The findings provide valuable insights into the burden and management of vulvar cancer in a major tertiary referral hospital in Eastern Indonesia, highlighting the need for early detection and improved access to specialized care.

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BACKGROUND

Vulvar cancer is a rare disease affecting the female genital tract, accounting for approximately 5% of all gynecological malignancies. The prevalence of invasive vulvar cancer increases sharply after the age of 50 and reaches its peak between the ages of 65 and 70. (2) Based on GLOBOCAN 2022 data, vulvar cancer ranks 33rd among all cancers worldwide, with 18,800 new cases and 8,238 deaths reported globally. (1)

Studies conducted at several academic centers, such as RSUP Prof. Dr. R.D. Kandou (2016), reported no significant number of vulvar cancer cases. Universitas Sumatra Utara (2017) reported that stage II was the most common stage among vulvar cancer patients, with the highest mortality observed in stage IIIA. Meanwhile, Cipto Mangunkusumo Hospital (2017–2019) reported a 1-year survival rate of 50.9% among cases. (3,4)

An epidemiological study covering 13 high-income countries conducted by Kang et al. reported a significant 14% increase in the incidence of vulvar cancer. This increase was not evenly distributed across age groups; among women aged <60 years, the incidence increased by 38%, whereas no increase was observed in women aged >60 years. This trend is attributed to the rising prevalence of human papillomavirus (HPV) infections associated with changes in sexual behavior since the late 1960s. These findings are supported by data indicating that approximately 69% of vulvar cancers in younger women are HPV-related, commonly presenting as warty/basaloid subtypes. In contrast, keratinizing vulvar cancers, with an HPV prevalence of 13%, are more commonly observed in older women. (7,8)

According to the WHO 2020 classification, squamous cell carcinoma (SCC) is divided into two categories: HPV-associated SCC and HPV-independent SCC. The precursor lesion of vulvar SCC is vulvar intraepithelial neoplasia (VIN). Two major pathways are thought to contribute to vulvar carcinogenesis: high-risk HPV infection and chronic inflammation and/or autoimmune processes.

Squamous cell carcinoma (SCC) of the vulva, the most common subtype, is traditionally considered a disease of postmenopausal women. However, the average age of onset has decreased in recent years due to the increasing prevalence of HPV infection worldwide. This trend may also be influenced by variations in local HPV prevalence and other risk factors such as ethnic distribution, smoking, atrophy, inflammation, and HPV prevalence. (9–12)
Staging based on FIGO classification aims to provide better prognostic differentiation between stages and to guide appropriate clinical treatment. Vulvar cancer metastasizes through direct extension to adjacent organs (vagina, urethra, and anus), lymphatic spread to regional lymph nodes (inguinal, femoral, and pelvic lymph nodes), and eventually through hematogenous dissemination to distant organs such as the liver, lungs, and bones.

In Indonesia, vulvar cancer is considered part of the minority spectrum of gynecological cancers, following cervical, ovarian, and endometrial cancers, with a globally reported average patient age of 69 years. (5) The most common clinical presentation includes a vulvar mass

or lesion, often with ulceration or wart-like appearance, leukoplakia, or exophytic growth. Other symptoms include persistent pruritus, vulvar bleeding, dysuria, and pain. (6)

METHODS

This study presents retrospective data on vulvar cancer cases that occurred throughout 2024, obtained from the ITKI database (Information and Communication Technology Installation) of Dr. Soetomo General Hospital, Surabaya, Indonesia. A total of 14 vulvar cancer cases were analyzed. The variables assessed included demographic characteristics such as age, level of education, occupation, parity, menopausal status, and body mass index (BMI), as well as clinical parameters including stage, histology, and type of treatment. BMI was calculated based on height and weight measurements. Disease staging was determined according to the FIGO classification for vulvar cancer. Histological classification was based on anatomical pathology findings, while treatment modalities included surgery, chemotherapy, and radiotherapy. Data obtained from the ITKI database were tabulated according to demographic variables, BMI, stage, histology, and treatment type, and were subsequently analyzed using a descriptive approach.

Table 1 Demographic and Clinical Profile of Patients with Vulvar Cancer

Variable	Number of cases	Percentage (%)
Age		
< 45	1	7,1
45 – 55	2	14,3
≧ 55	11	78,6
Education Level		
No formal	10	71,4
education	4	28,6
Primary school	0	0
Junior high	0	0
school	0	0
Senior high school		
Higher education		
Occupation		
Housewife	14	100
Private	0	0
employee	0	0
Government employee		
Parity		
Multiparous	14	100
Nulliparous	0	0
Menopausal Status		
Premenopausal	1	7,2
Postmenopausal	13	92,8
Body Mass Index (BMI)		
< 18,5	2	14,3
18,5 – 22,9	7	50,0
23,0 – 24,9	1	7,1
25,0 – 29,9	4	28,6
≧ 30	0	0

Table 2 Distribution of Disease Stage by Menopausal Status and Parity in Patients with Vulvar Cancer

FIGO Stage	Menopausal Status (n %)		Multi Parity (n %)
	Premenopausal	Postmenopausal	
I	0	1(7,1)	1(7,1)
II	0	2(14,20	2(14,2)
III	1(7,1)	7(50)	8(57,1)
IV	0	3(21,4)	3(21,4)

Table 3 Treatment Strategies in Patients with Vulvar Cancer

Primary Treatment/ FIGO Stage (n %)	I	II	III	IV
Chemotherapy (CT)	1(7,1)	2(14,2)	2(14,2)	0
Radiotherapy (RT)	0	0	2(14,2)	0
Chemoradiotherapy (CT + RT)	0	0	4(28,6)	3(21,4)
Surgery	0	0	0	1(7,1)

Table 4 Clinical Characteristics: Tumor Size and Lymph Node Involvement by Histopathology in Patients with Vulvar Cancer

Histopathology	Tumor Size n (%)		Lymph Node Involvement n (%)
	< 2 cm	> 2 cm	

Squamous Cell Carcinoma (SCC)	0	11(78,6)	8(57,1)
Bartholin Gland Carcinoma	0	1(7,1)	1(7,1)
Sarcoma	0	1(7,1)	1(7,1)
Melanoma	0	1(7,1)	1(7,1)

Table 5 Correlation Between Clinical Features and Disease Characteristics in Patients with Vulvar Cancer

No	Age	Tumor Size (cm)	Histology	Chemotherapy/Radiotherapy	Surgery	Stage	Lymph Nodes
1	70	8,3x 3,7x 6,2	Sarcoma	Chemotherapy	Inoperable	IIIB	Positive
2	85	5,9x 4,2x 3,4	SCC	Radiotherapy	Inoperable	IIIB	Positive
3	62	5,6 x 2,7 x 2,4	SCC	Chemotherapy + Radiotherapy	Inoperable	IIIB	Positive
4	62	5x3	SCC	Chemotherapy	Inoperable	IB	Negative
5	71	4x2	SCC	Chemotherapy	Inoperable	II	Negative
6	64	7x3	SCC	Chemotherapy	Inoperable	II	Negative
7	55	8,3 x 1,5 x 6,9	SCC	Chemotherapy + Radiotherapy	Inoperable	IIIB	Positive
8	63	13,1 x 7,2 x 6,4	SCC	Radiotherapy	Inoperable	IIIC	Positive
9	80	12,6 x2,7 x 10,7	SCC	Chemotherapy + Radiotherapy	Inoperable	IIIB	Positive
10	50	3x3	Bartholin gland carcinoma	Chemotherapy + Radiotherapy	Inoperable	IVB	Positive
11	57	4x5	Melanoma	Chemotherapy + Radiotherapy	Inoperable	IVB	Positive
12	53	2,88 x3,79 x2,84	SCC	Chemotherapy + Radiotherapy	Wide Local Excision	IVA	Positive
13	83	3,8x 4,9x 4,6	SCC	Chemotherapy + Radiotherapy	Inoperable	IIIB	Positive
14	41	14,7 x2,2 x 10,2	SCC	Chemotherapy	Inoperable	IIIA	Positive

RESULTS

The age range of patients with vulvar cancer was from under 45 years to over 55 years, with the majority being older than 55 years. The disease occurred more frequently in postmenopausal women (n = 13) compared to premenopausal women (n = 1), and in multiparous women (n = 14) compared to nulliparous women (n = 0). Most patients were housewives with a very low level of education, consisting of no formal education (n = 10) and primary school education (n = 4). Body mass index (BMI) varied among patients, with the majority having normal BMI (n = 7), followed by underweight (n = 2), overweight (n = 1), and class I obesity (n = 4). The demographic profile along with detailed clinical characteristics is presented in Table 1. Histopathological findings showed that squamous cell carcinoma (SCC) was the most common type (n = 11), followed by melanoma (n = 1), sarcoma (n = 1), and Bartholin gland carcinoma (n = 1). The most common FIGO stage observed was stage III (n = 8), followed by stage IV (n = 3), stage II (n = 2), and stage I (n = 1). One patient was diagnosed with stage IVB malignant vulvar melanoma.

Approximately 57.1% of vulvar cancer patients presented at stage III and had multiparity (n = 8), while 50% were postmenopausal (n = 7), as

shown in Table 2. Table 4 demonstrates the histopathological findings of squamous cell carcinoma most frequently involved lymph node metastasis (57.1%, n = 8), with tumor size greater than 2 cm observed in 78.6% of cases (n = 11), compared to Bartholin gland carcinoma, sarcoma, and melanoma. The correlation between clinical presentation and disease characteristics is illustrated in Table 5. One patient underwent wide local excision with bilateral inguinofemoral lymph node dissection followed by chemotherapy and radiotherapy, while the remaining 13 patients were considered inoperable. Seven patients received combined chemotherapy and radiotherapy, five patients received chemotherapy alone, and two patients received radiotherapy alone. One patient developed pulmonary metastasis, which was detected via chest radiography. Among patients receiving chemotherapy, two received cisplatin prior to radiotherapy, two received paclitaxel–carboplatin prior to radiotherapy, and one received paclitaxel–cisplatin prior to radiotherapy. Additionally, two patients underwent radiotherapy without prior chemotherapy. Tumor size varied among patients. As shown in Table 1, the largest tumor measured 14.7 cm, as determined by MRI examination. Tumor measurements were also obtained using a ruler during physical examination at the oncology outpatient clinic.

DISCUSSION

Data from INASGO reported 264 new cases of vulvar cancer between 2021 and 2025, most commonly occurring in adults aged 36 to 65 years and older, with histopathological findings consisting of squamous cell carcinoma and Bartholin gland adenocarcinoma. The prevalence and incidence of vulvar cancer in developing countries tend to be relatively higher compared to those in developed countries (13). Squamous cell carcinoma (SCC) remains the most common histological subtype of vulvar cancer. Less common histological subtypes include melanoma, Bartholin gland tumors, adenocarcinoma, basal cell carcinoma, and extramammary Paget's disease (14). In our study, approximately two-thirds (78.6%) of patients presented at an advanced stage (FIGO stage III–IV), which is consistent with previously published literature (14). Poor follow-up and delayed presentation may be attributed to several factors, including low patient compliance, as most patients came from low socioeconomic backgrounds with limited education. This often results in delayed presentation to primary healthcare facilities at the onset of symptoms. Additional contributing factors include delayed referrals from primary healthcare providers, long distances to tertiary care centers, and lack of family support. Lymph node involvement is associated with poor prognostic outcomes; therefore, strict adherence to FIGO staging is essential for determining disease prognosis and treatment outcomes (15–16).

Of the 14 patients eligible for adjuvant therapy, only 8 received treatment. Potential reasons for the remaining 6 patients not receiving therapy include refusal due to logistical constraints. Recent trends have shifted toward more conservative surgical approaches combined with preoperative radiotherapy or chemoradiotherapy (17–20). Due to the rarity of this disease, there are no large randomized controlled trials or meta-analyses available; thus, current treatment guidelines are primarily based on small, retrospective, single-center studies reported in the literature. In developing countries, most patients present at advanced stages due to social stigma, low socioeconomic status, limited literacy, logistical challenges, inadequate screening programs, and lack of public awareness regarding vulvar cancer. Increasing public awareness of early symptoms of vulvar cancer may facilitate earlier detection and improve treatment outcomes. Currently, there is no evidence supporting routine screening specifically for vulvar cancer due to its rarity. However, patients presenting with suspicious signs—such as pigmented lesions, irregular ulcers, or chronic vulvar pruritus—should undergo early evaluation, including skin biopsy (21). Further research is needed in the form of large, prospective, multicenter randomized controlled trials to establish definitive screening guidelines, standardized treatment protocols, and survival outcome data for vulvar cancer, particularly in low- and middle-income countries.

CONCLUSION

Vulvar cancer is a rare gynecological malignancy, most commonly occurring in postmenopausal women, particularly around the age of 55 years. The incidence is higher among multiparous women, housewives, and individuals with low educational attainment. Disease stage and lymph node involvement are the most significant factors in determining appropriate individualized treatment strategies for patients with vulvar cancer.

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