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ULTRASOUND CORRELATION OF GROIN NODES WITH CLINICAL AND PATHOLOGICAL FINDINGS IN SQUAMOUS CELL CARCINOMA OF VULVA.

Baruah Upasana*	M.D,Fellowship gynaeoncology, Department of Obstetrics and Gynaecology, Gynaeoncology division, Assistant professor, Cancer research Institute, Swami Rama Himalayan University, Dehradun, Uttarakhand , India*Corresponding Author
Barmon Debabrata	MD, Asso. Prof., Dept. of Gynaecologic Oncology, Dr. B. Borooah Cancer Institute, Guwahati ,Assam, India
Deka Pankaj	MD, Assistant Professor , Dept. of Gynaecologic Oncology ,Dr. B. Borooah Cancer Institute, Guwahati ,Assam, India
Kataki Ch. Amal	MD (Hons), Director, (Department of Gynaecologic Oncology), Dr. B. Borooah Cancer Institute, Guwahati ,Assam, India
Pattanayak Manisa	Department of Surgery, Surgical Oncology division, Assistant professor, Cancer research Institute, Swami Rama Himalayan University, Dehradun, Uttarakhand , India

ABSTRACT

INTRODUCTION:

Carcinoma of the vulva is a rare genital malignancy which accounts for 5 % of all genital malignancies . Patients with vulvar carcinoma are traditionally managed by surgical staging by radical/modified radical vulvectomy and inguinofemoral lymphadenectomy. As regional lymph node metastatic spread is the most important prognostic factor that correlates with depth of tumor invasion, preoperative information about regional nodal metastasis and depth of tumor invasion is essential in tailoring the treatment. Clinical examination by palpation of the inguinofemoral lymph nodes is a simple approach for determining the inguinofemoral lymph node status but is impaired by several conditions like obesity of the patients, small sized metasatic nodes, metastases located deep in the subcutaneous fatty tissue, and scar tissue due to former surgery and / or radiation.

There is limited data on the role of imaging in the diagnosis and staging of vulvar carcinoma.The resolution of computed tomography is too poor to detect disease in lymph nodesmeasuring lessthan 1 cm in diameter and magnetic resonance imaging has not so far been able to characterise nodal tissue accutely. Ultrasound examination of the groin nodes on the otherhand is safe, noninvasive, cheap and highly acceptable to patients. This study was undertaken to evaluate the significance of routine ultrasonography of inguinal lymphnodes in operable squamous cell carcinoma of vulva with the primary objective of Determining whether the value of ultrasound reporting of groin node positivity is complete for confirmed cases of vulval cancer and to correlate Ultrasound and clinical findings with the final histological finding.

MATERIALS AND METHODS.

This was a prospective study which was conducted in The Department of Gynaecologic oncology of Dr B Borooah Cancer Institute (Regional cancer Centre), Guwahati. Patients were recruited the from the period of June 2013 to June 2014. Patients were followed up for a period of 2 years. All operable patients with proven histology of squamous cell carcinoma vulva were included. The sensitivity, specificity and predictive values of ultrasound and clinical examinations were calculated using the standard 2 x2 method. Comparisons between the groups were done by using Man Whitany – U test. Results were statistically analysed IBM SPSS Statistics 19.

RESULTS & OBSERVATIONS

Total of 15 patients were enrolled in the study over a period of 1 year. Clinically 10(66.67%) patients were suspected to have enlarged metastatic lymphnodes whereas 8 (53.33%) patients were suspected to have enlarged metastatic lymphnodes. Final histopahological examination revealed metastatic lymphnodes in 6 patients(40%) On statistical analysis it was found that sensitivity of USG examination of groin nodes was 85.71% (95% CI: 42.23 % to 97.63 %) whereas specificity was 71.43% (95% CI: 29.27 % to 95.48 %). On the other hand sensitivity for clinical examination was 71.43% (95% CI: 29.27 % to 95.48 %) whereas specificity was 44.44% (95% CI: 13.97 % to 78.60 %).

CONCLUSION

From our study we found that USG examination of the groin nodes was more sensitive as well as specific than clinical examination for detection of lymph node involvement in vulvar cancer[p value=0.04]. Our study demonstrates that ultrasound is a sensitive investigative tool in assessing the preoperative inguinal node status. However a negative inguinal nodal status cannot be used to omit inguinal node dissection as it lacks the high sensitivity and specificity that are necessary to avoid surgery.

KEYWORDS :

INTRODUCTION:

Carcinoma of the vulva is a rare genital malignancy which accounts for 5 % of all genital malignancies [1]. Squamous cell carcinomas account for approximately 90% of the cases, whereas melanomas, adenocarcinomas, basal cell carcinomas, and sarcomas are much less common [2]. Patients with vulvar carcinoma are traditionally managed by surgical staging by radical/modified radical vulvectomy and inguinofemoral lymphadenectomy. As regional lymph node metastatic spread is the most important prognostic factor that correlates with depth of tumor invasion, preoperative information about regional nodal metastasis and depth of tumor invasion is essential in tailoring the treatment. Clinical examination by palpation of the inguinofemoral lymph nodes is a cheap and simple approach for determining the inguinofemoral lymph node status but is impaired by several conditions like obesity of the patients, small sized metasatic nodes, metastases located deep in the subcutaneous fatty tissue, and scar tissue due to former surgery and / or radiation. In addition microscopic metastases may be present in nodes that are not clinically suspicious, and suspicious nodes may be enlarged because of inflammation only. Clinical evaluation of the groin lymph nodes is found to be inaccurate in approximately 25% to 30% of the cases [3,4] . In addition there is limited data on the role of imaging in the diagnosis and staging of vulvar carcinoma. Various imaging methods, such as ultrasound, ultrasound guided fine needle aspiration cytology, CT, MRI and PET/CT are used for evaluation of inguinofemoral lymphnode status.

The resolution of computed tomography is too poor to detect disease in lymph nodes measuring < 1 cm in diameter and magnetic resonance imaging has not so far been able to characterise lymph node tissue accurately. There is limited information of inguinal node evaluation by CT scan with few studies measuring the distance in centimeters

between the skin and the underlying inguinofemoral lymph nodes for planning of groin radiation[5]. No other literature is available on the diagnostic value of CT for detection of inguinofemoral lymph node metastases in patients with vulvar carcinoma. MRI offers an opportunity to stage both the primary tumor and the regional lymph nodes. However its sensitivity is limited as far as imaging of groin nodes is concerned[6,7]. Ultrasound examination of the groin nodes on the other hand is safe, noninvasive, cheap and highly acceptable to patients [8]. In our institute the inguinal node status of patients carcinoma of the vulva including squamous cell carcinoma are done with ultrasonography of the groin nodes in the operable cases. CT scan is done to rule out pelvic/ distant metastasis in selected cases.

This study was undertaken to evaluate the significance of routine ultrasonography of inguinal lymphnodes in operable squamous cell carcinoma of vulva with the primary objective of

1. Determining whether the value of ultrasound reporting of groin node positivity is complete for confirmed cases of vulval cancer .

2. To correlate Ultrasound and clinical findings with the final histological finding.

MATERIALS AND METHODS. This was a prospective study which was conducted in The Department of Gynaecologic oncology of Dr B Borooah Cancer Institute (Regional cancer Centre), Guwahati. Patients were recruited the from the period of June 2013 to June 2014 .All operable patients with proven histology of squamous cell carcinoma vulva were included in the study. Patients with advanced inoperable disease, Non squamous histology, Recurrent disease were excluded from the study.

The diagnosis of vulvar cancer was confirmed by wedge or punch biopsy. In the week prior to groin node dissection all women underwent ultrasound examination of their groins. All scans were undertaken using a 7-10 MHz transducer. Coupling gel was applied to the skin of both inguinal regions and the transducer was swept over the entire groin area documenting the presence, size, shape and number of nodes in all areas. Nodes appearing oval with substantial hilar fat and minimal lymphoid tissue were considered benign or reactive. Nodes with a more circular or irregular configuration with loss of central hilar fat were considered suspicious or malignant. All patients underwent wide local excision of the vulva with unilateral or bilateral groin node dissection. The histological status of the lymph nodes was correlated to the ultrasound and clinical findings.The sensitivity, specificity and predictive values of ultrasound and clinical examinations were calculated using the standard 2 x2 method. Comparisons between the groups were done by using Man Whitany – U test.

RESULTS & OBSERVATIONS

Total of 15 patients were included in the study. Majority of the patients (73.3%) were between the age group of 41-60 years. Median age of the patients was 50 years. 5 patients were [33.33%] postmenopausal at the time of presentation. All patients were parous with majority having 4 or more than 4 children[60%]. Majority of tumour was located in the labia majora (8 patients,53.3%). Clitoral involvement was secondary to involvement of labia majora and minora. Leukoplakia was associated with vulval growth in 3 patients[20%]. Maximum tumour diameter was 7cm and minimum was 1cm. Mean tumour diameter was 3.7cm and median was 3cm. Maximum patients had hisopathology of well differentiated squamous cell carcinoma of vulva[80%] whereas none of the patients had poorly differentiated carcinoma in our study group. Clinically 10 patients[66.67%] were suspected to have enlarged metastatic lymphnodes whereas 8 patients [53.33%] were suspected to have enlarged metastatic lymphnodes on ultrasound. Radical vulvectomy with bilateral inguinal lymphadenectomy was the surgical procedure done in 7 patients[46.67%], hemivulvectomy with bilateral inguinal lymphadenectomy in 4 patients[26.66%], hemivulvectomy with unilateral inguinal lymphadenectomy in 3 patients[20%],and radical vulvectomy with bilateral inguinal lymphadenectomy with resection of terminal 1/3rd of urethra in 1 patient[6.66%]. On surgical staging 4 patients [26.67%]belonged to stage IA and 5 patients [33.33%] in stage IB. 6 patients (40%)were in stage III[IIIA(i): 4 patients; IIIB(i)1 patient; IIIc 1patient] None of the patients were in stage II in our study. [table1,2]

Clinically 10patients [66.67%] were suspected to have enlarged metastatic lymphnodes whereas 8 patients [53.33%] were suspected to have enlarged metastatic lymphnodes. Final histopahological examination revealed metastatic lymphnodes in 6 patients[40%]. On statistical analysis it was found that sensitivity of USG examination of groin nodes was 85.71% [95% CI: 42.23 % to 97.63 %] whereas specificity was 71.43% [95% CI: 29.27 % to 95.48 %]. On the other hand sensitivity for clinical examination was 71.43% [95% CI: 29.27 % to 95.48 %] whereas specificity was 44.44% [95% CI: 13.97 % to 78.60 %][table3,4]

DISCUSSION

Vulvar cancer is uncommon, representing approximately 5% of malignancies of the female genital tract [1]. In our study clinically 10 out of 15 patients [66.67%] were detected to have enlarged lymphnodes whereas 8 out of 15 paients [53.33%] were detected to have enlarged and suspicious nodes on ultrasound. On histological examination of the primary tumour and the inguinal lymph nodes adequate surgical clearance was found in the primary tumours. On the final histopathological examination only 6 patients[40%] had metastatic deposits in the lymph nodes . There was extracapsular involvement of lymph node in 1 patient. Size of the metastatic foci varied from 3.5-4.2mm. [table1,2]

Based on the histopathological results 6 patients[40%] were given postoperative radiotherapy. One patient received radiotherapy after recurrence in the groin. None of the patients receiving postoperative radiotherapy had recurrence during the two year followup.

There was no intraoperative complications. Immediate postoperative period was uneventful. Lymphocyst in the inguinal region developed in 7patients[46.66%] and all were managed with prolonged percutaneous drainage of the inguinal region. All our patients were advised physiotherapy exercise to prevent lymphedema of the legs. Inspite of that chronic lymphoedema developed in 4 patients [26.66%]. However they were satisfactorily managed and only minimal residual oedema was left in these patients. Deep vein thrombosis of the femoral vein occurred in two patient [13.33%] and one patient expired due to it as the patient was lost to followup. In the second patient DVT occurred 3 months after excision of recurrent groin node. This was the only case of recurrence in the two year followup of our study. The surgicopathological staging of this patient was IB and histology was well differentiated squamous cell carcinoma. Patients was advised close followup but she reported only when she developed 4 cm enlarged right groin node with involvement of overlying skin after 6 months. She was managed with excision of the groin node followed by radiotherapy. However she expired after 10 months due to bleeding from groin site and severe sepsis. .Overall survival was 86.67% at the end of two year followup of the study.

On statistical analysis it was found that sensitivity of USG examination of groin nodes was 85.71% (95% CI: 42.23 % to 97.63 %) whereas specificity was 71.43% (95% CI: 29.27 % to 95.48 %). On the other hand sensitivity for clinical examination was 71.43% (95% CI: 29.27 % to 95.48 %) whereas specificity was 44.44% (95% CI: 13.97 % to 78.60 %). From our study we found that USG examination of the groin nodes was more sensitive as well as specific than clinical examination for detection of lymph node involvement in vulvar cancer[p value=0.04].[table3,4]

The sensitivity of our study was found to be similar a study by Gregorio et al 2013. It was a retrospective study of 60 patients who had vulvar malignancies of whom 92% were squamous cell carcinomas. Sensitivity was 76.3%, specificity was 91.3% for ultrasound examination of groin nodes [8].

Several other imaging techniques of the groin like CT, MRI, PET have been published during the last several years. In comparison to ultrasound, slightly lower rates of positive node detection have been reported with contrast enhanced magnetic resonance imaging and preoperative CT-scans [9]. Likewise PET scan also has shown disappointing results[10].

Our study demonstrates that ultrasound is a sensitive investigative tool in assessing the preoperative inguinal node status. However a negative inguinal nodal status cannot be used to omit inguinal node dissection as it lacks the high sensitivity and specificity that are necessary to avoid surgery. It should be remembered that recurrence in the groin node can be a fatal complication. Based on our results and observations from the available literature regarding the low sensitivity and specificity of

other modalities like CT and MRI routine preoperative ultrasound evaluation of the groin nodes will be continued in our institute.

TABLE 1: Clinical profile of patients (N=15)

Age (yrs)	No. of patients
< 40 yrs	02
41-60 yrs	11
≥ 60 yrs	2
Chief complaint	No. of patients
Itching with growth and ulceration	9
Growth and ulceration without itching	4
Itching only	1
White patch	1

TABLE 2: DISEASE CHARACTERISTICS.

SIZE OF DISEASE	RANGE:1CM-7 CM
GRADE (SQUAMOUS)	NO OF PATIENTS
WELL DIFFERENTIATED	12
MODERATELY DIFFERENTIATED	3
POORLY DIFFERENTIATED	0
SURGERY	LYMPH NODE NO
No of lymph node harvested	8-12
Lymph node positive cases	6
No of positive lymph nodes	1-3
Extracapsular spread of lymphnodes	1
Size of metastatic foci	3.5-4.2mm
CLINICALLY SUSPICIOUS NODES	10
ULTRASOUND SUSPICIOUS NODES	8
LYMPHOCYST	7
LYMPHOEDEMA	4
DVT	2
RECURRENCE (groin)	1
DEATH	1
ADJUVANT THERAPY	NO OF PATIENTS
RADIATION THERAPY	6
OBSERVATION	9
CHEMOTHERAPY	NIL

TABLE 3: DIAGNOSTIC VALUE OF ULTRASOUND GROIN NODES

DIAGNOSTIC VALUE	PERCENTAGE
SENSITIVITY	85.71 % (95% CI: 42.23 % to 97.63 %)
SPECIFICITY	71.43 % (95% CI: 29.27 % to 95.48 %)
POSITIVE PREDICTIVE VALUE(PPV)	75.00 % (95% CI: 35.05 % to 96.07 %)
NEGATIVE PREDICTIVE VALUE(NPV)	83.33 % (95% CI: 36.10 % to 97.24 %)

TABLE 4: DIAGNOSTIC VALUE OF CLINICAL EXAMINATION OF GROIN NODES

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