Penile squamous cell carcinoma :a three-year study at BP Koirala Memorial Cancer Hospital

Shankar Bastakoti[1] , Ranjan Raj Bhatta [1], Nandita Jha [1], Sadina Shrestha[1], Amrita Paudel [2]

[1.]Department of Pathology , BP Koirala Memorial Cancer Hospital, Bharatpur, Nepal

[2]Department of Public Health, Chitwan Medical College, Bharatpur, Nepal

Correspondence:
Dr Shankar Bastakoti, MD
Department of Pathology, BP Koirala Memorial Cancer Hospital
Email: drshankarbastakoti@gmail.com

Article received : 1st June 2019
Article accepted : 20th June 2019

ABSTRACT

Background:
Penile cancer is an aggressive and mutilating disease which deeply affects self-esteem and daily life of the patient. Penile cancer mostly affects the elderly, seen in people in their sixties and seventies. Occurrence in younger age is a need of research of penile neoplasia in young non-circumcised patients. **Materials and Method:** This is a three-year retrospective study. Data was extracted from the Department of Pathology and Medical Record section of B.P. Koirala Memorial Cancer Hospital. All histologically proven cases were included. The objective of this study was to assess clinical histo-pathological profile of penile carcinoma. **Results.** A total of 114 malignant cases were included out of which most common age group involved was 50-60 years with mean age of presentation being 51.6 years. Glans was the commonest site of involvement in 59 cases (51.7%). Well-differentiated squamous cell carcinoma was the most common type (71%). Forty nine patients (43%) presented when the mass size was 4-6 cm and 44 (39%) came with 2-4cm and rest less than 2 cm. Lymphvascular invasion was seen in 15 (13%) out of 114 cases and perineural invasion was seen only in 5 (4.3%) cases. 20 cases (17.5%) had lymphnodes positive which are less than 5 lymphnode positive and five (4.3%) had more than 5 lymphnodes positive. **Conclusion.** Early diagnosis and intervention of the patient ensure high probability of getting cured because the stage at presentation appears to be the most vital prognostic indicator for survival.

Keywords: Penile, Squamous cell carcinoma, Malignant

INTRODUCTION

Penile cancer is an aggressive and mutilating disease that deeply affects self-esteem and daily life of the patient it affects. This cancer is reported as rare in the Western world accounting for less than 1% of adult male cancers. In contrast, some developing countries have higher incidence rate of penile cancer, accounting for 10 to 20 percent of malignancy in men[1] . The incidence and risk factors vary among individual with social, economic and cultural habits, personal hygiene, religious practice and geographical locations [1,2].

Many etiologies are proposed in the development of penile cancer. However, many aspects of the patho-

physiology of this disease are still poorly elucidated .The well established fact is that there is a strong association between the presence of the prepuce and the development of the penile carcinoma. The risk of development of the disease in uncircumcised men is approximately threefold higher than that of circumcised men, as in Jewish individual those are circumscribed at birth[3,4]. Furthermore, low socioeconomic status, cigarette smoking, human papilloma virus (HPV) infection(mostly 16 and 18; as high risk subtypes), poor personal hygiene resulting in collection of smegma,phimosis and penile inflammation(e.g., balanoposthitis and lichen sclerosus et atrophicus), are the other vital risk factors for the development of penile cancer[1,5].

Although penile cancer mostly affects the elderly, seen around those in their sixties and seventies, it is also not unusual among individuals below the age of 40 years[6,7]. The occurrence of this neoplasia in a younger age range serves as an alert that research of penile neoplasia in young non-circumcised patients with suspected lesions is important.

Due to social stigma, embarrassment, ignorance, and personal neglect, patients with cancer of the penis tend to delay seeking medical attention[1,8] . This delay badly affects the likelihood of survival and also hinders the ability to retain a functioning and cosmetically satisfactory result. Lack of community awareness on the importance of early reporting to hospital for early diagnosis and treatment has also resulted in poor outcome of treatment of penile cancer in most developing countries.

The paucity of epidemiological data regarding the natural history, pattern, treatment outcome, prognostic factors of disease in developing countries like Nepal has made the management of patients quite challenging.

MATERIALS AND METHOD

This is a three-year retrospective study which includes data of 2016 to 2018 A.D. Entire data was extracted from the record at Department of Pathology and medical record section of BP Koirala Memorial Cancer Hospital. The data were entered in MS Excel after which interpretation was done. All histologically proven malignant cases were included while the cases with incomplete information were excluded. The objective of this study was to assess clinical histopathological profile of penile carcinoma.

RESULT:

In the last three years 114 malignant cases were operated in B.P. Koirala Memorial Cancer Hospital. The most common age group involved was 50-60 years with mean age of presentation being 51.6 years. Glans was the most common site of involvement, seen in 59 cases(51.7%) and next patient had involvement of glans and foreskin and then 3(three) involving the shaft as well(fig 3).

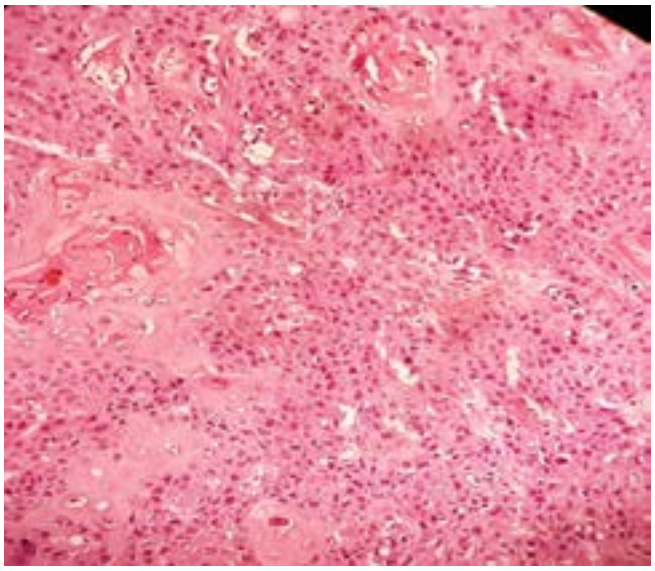

Fig 1: Squamous cell carcinoma cells with glassy cytoplasm and keratin pearls(H&E,20x)

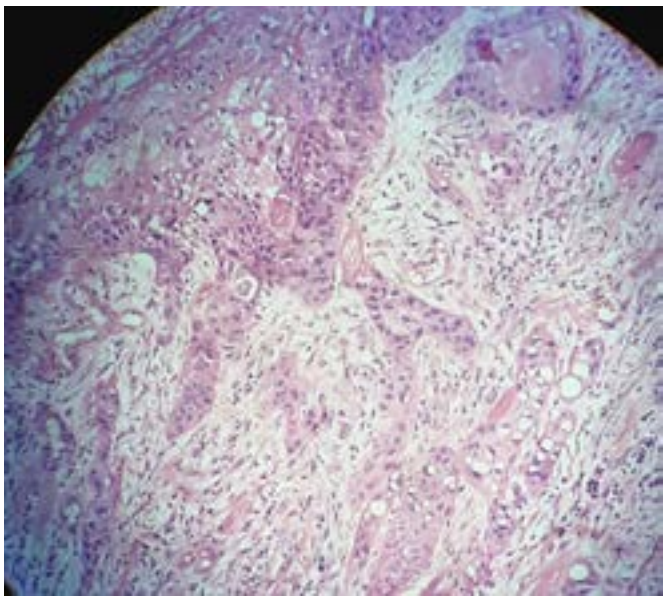

Fig 2: Tumor cells infiltrating the subepithelium(H&E,20x)

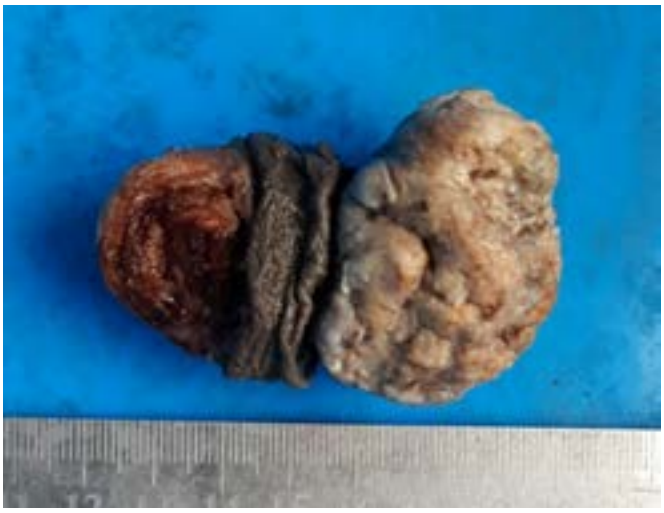

Fig 3: Partial Penectomy specimen of penile carcinoma

Table:1: Age wise Tumor Differentiation

AGE RANGE; CASES	DIFFERENTIATION
≤ 40 Years;19	Well Differentiated: 13(68.4%) Moderately Differentiated: 2(10.5%) Poorly Differentiated: 4(11.1%)
41 - ≤ 60 Years; 57	Well Differentiated: 34(59.6%) Moderately Differentiated: 17(29.8%) Poorly Differentiated: 5(8.8%) Sarcomatoid Variant :1(1.7%)
61 – 80 Years ;37	Well Differentiated: 33(89%) Moderately Differentiated: 4(11%)
81-100 Years ;1	Well Differentiated :1

Most of the cases (113) were Squamous Cell Carcinoma, NOS and rest one was sarcomatoid variant. Histological tumor differentiation included, eighty one (71%)cases of well differentiated squamous cell carcinoma (fig 1,2), twenty three (23) moderately differentiated , nine(9) poorly differentiated and one (1)sarcomatoid variant of SCC. Age wise tumor differentiation is illustrated in Table 1.

Forty nine patients (43%) presented when the tumor size was 4-6cm and 44 (39%) came with 2-4cm and rest less than 2cm. Lymphvascular invasion was seen in 15 (13%) out of 114 cases and perineural invasion was seen only in 5(4.3%) cases.

One case was found to have positive surgical resected margin and revision resection was done. Regarding extension of tumor, 64 cases(56.1%) were involving subepithelium, 22 cases(19.3%) corpora cavernosum and 26 cases (23%)corpora spongiosum. Two (2) cases(1.8%) involved the urethra.

Bilateral lymphonodes dissection was done on 88 cases of 114 cases. Out of 88 submitted lymphnodes cases, 63 were free of tumor and exhibited feature of reactive lymphadenitis, whereas 20 cases(17.5%) had lymphnodes positive which were less than 5 in number and five (4.3%) had more than 5 lymph nodes positive. Extracapsular extension were exhibited in 4 (3.5%) cases and all were of stage T3.

All cases were staged according to AJCC TNM staging 8th Edition.

Table 2:

TNM Stage	No. of cases
Stage I	61
Stage II	34
Stage III	15
Stage IV	04

Table2: TNM stage and frequency of case

Table: 3:

Depth of Invasion	No. of Cases/ Percentage	Tumor Stage / Cases	Node Stage/ Cases
0- ≤ 5mm	28(24.5%)	T1: 26, T2:2	N0: 27, N1:1
6-≤10mm	49(42.9%)	T1:38, T2:9, T3:2	N0:40, N1:9
11-≤ 20mm	33(28.9%)	T1:None, T2:24, T3:9	N0:16, N1:2, N2:13,N3:2
21-≤ 30mm	4(3.5%)	T1:None, T2:None, T3:4	N0:1, N2:1 N3:2

The depth of invasion an important prognostic factor and around 43% cases have 5 to ≤10mm as in Table 3.

DISCUSSION

Penile carcinoma is 0.98% of all malignant cases managed at BP Koirala Memorial Cancer Hospital. Penile Carcinoma accounts of only 16.4 % of all urological malignancy treated at BPKMCH.[9] In Nepal circumcision is not a practice except in Muslim community, so incidence of penile carcinoma is higher than that of places where people circumcise routinely. The disease is rare in Muslims and Jews as they practice circumcision in early childhood.[3]

Cancer of penis is an epidermoid tumor which originates from the glans penis or mucosal lining of prepuce. Well differentiated squamous cell carcinoma is the commonest histological subtype.[10]

The regional femoral and iliac lymph nodes are the sites of lymphatic metastasis for penile carcinoma. The lymphatic channels in prepuce join the lymphatics from the skin of the shaft and drain into the superficial inguinal nodes. The lymphatic channels in glans join the lymphatics draining the corpus cavernosum and spongiosum, forming a connecting channel at the base of the penis. This drains into the superficial inguinal nodes, which further drains into the deep inguinal nodes, which then drain into the pelvic nodes. Although regional lymph node metastasis is common, penile carcinoma can metastasize to the lung, bone and liver. However, distant metastases occur late in the course of the disease, usually in patients with significant inguinal and pelvic lymphadenopathy.[11]

In our study, 51-60 years is the most common age group, which is similar to the study done by Gupta DK et al[12], Lau D W et al[13] , M. Pahwa et al[14] from India, Koifman L et al[15] from Brazil, Chalya et al [1]from Tanzania. Incidence most common in 65 years and above was shown by A.Rando Sous et al[16] of Spain, OY Szeto et al[17] from Hongkong. Many studies in developed countries have shown that higher incidence of the disease is in sixth and seventh decade of life. The differences in world geographical incident is evident and may be due to disparity in hygiene, social and religious practices

Significant number of the patient(43%) presented when mass was more than 4cm in size, this delay in presentation may be due to low economic condition, social taboo, personal neglect, lack of education and delay from practitioners to refer timely on high index of suspicion.

In our study, 88 cases had clinical lymphadenopathy and were dissected out of which 25 cases (22.5%) showed tumor deposit. Prevalence of lymphadenopathy has been estimated to be 20-46% in penile cancer patients.[18]

Similar to our study, there is a strong association between the clinical stage of the primary penile lesion and the development of inguinal metastases. Involvement of the corpus cavernosum, the corpus spongiosum and/or urethra are considered important risk factors, predisposing the development of inguinal metastases in 61% to 75% of cases .[15 19 20 21]

In our study, depth of invasion of more than 10 mm was found in higher stage (T2 /T3). Most of the cases were well differentiated squamous cell carcinoma, which was similar to many other studies.[1 7 13]

The key points to emerge out of our study are that penile cancer can be observed in younger patients than those seen in developed countries and secondly, that patients present hospital at more advanced stage.

CONCLUSION

Penile cancer is a grievous disease; the patient often presents at late stage and the primary tumor is commonly treated by a disfiguring penile amputation. Accurate staging and timely diagnosis remain a challenge that has important prognostic implications.

REFERENCES

1) Phillipo L Chalya, Peter F Rambau, Nestory Masalu ,Samson Simbila. Ten-year surgical experiences with penile cancer at a tertiary care hospital in northwestern Tanzania:a retrospective study of 236 patients. World Journal of Surgical Oncology 2015,13:71. DOI 10.1186/s12957-015-0482-0

2) Silva RS, Silva AC,Nascimento SG,Oliveira CM, Bonfim CV. Demographic and epidemiological aspects of mortality from penile cancer. Acta Paul Enferm. 2014;27:44–7.

3) Maden C, Sherman KJ, Beckmann AM. History of circumcisions, medical conditions, sexual activity and risk of penile cancer. J Nat Cancer Inst.1993;16:1255–7.

4) Schoen EJ, Oehrli M, Colby C, Machin G. The highly protective effect ofnewborn

circumcision against invasive penile cancer. Pediatrics.2000;105:E36.

5) Tsen HF, Morgenstern H, Mack T, Peters RK. Risk factors for penile cancer: results of a population-based case–control study in Los Angeles County (United States). Cancer Causes Control. 2001;12:267–77.
6) Barnholtz-Sloan JS, Maldonado JL, Pow-sang J, Giuliano AR. Incidence trends in primary malignant penile cancer. Urol Oncol. 2007 Sep-Oct;25(5):361-7.
7) Pettaway CA, Lance RS, Davis JW. Tumors of the Penis. In: Kavoussi LR, Partin AW, Novick AC, Peters CA, editors. Campbell's Urology. Vol 1. 10 ed. Philadelphia, PA: Saunders Elsevier; 2012. p. 901-33.
8) Reis AA, Paula LB, Paula AA, Saddi VA, Cruz AD. Aspectos clinicoepidemiologicos associados ao cancer de penis. Cienc Saude Coletiva. 2010;15:1105–11.
9) Annual Report, BP Koirala Memorial Cancer Hospital 2016, 2017.
10) Protzel C, Alcaraz A, Horenblas S, Pizzocaro G. Lymphadenectomy in the surgical management of penile cancer. Eur Urol. 2009 May;55(5):1075-88. DOI: 10.1016/j.eururo.2009.02.021. Epub 2009 Feb 23
11) Lont AP, Besnard AP, Gallee MP, van Tinteren H, Horenblas S. A comparison of physical examination and imaging in determining the extent of primary penile carcinoma. BJU Int 2003; 91:493-5.
12) Gupta DK, Luitel BR , Chalise PR, Subedi PP,Chapagain S, Thakur DK,Sharma UK, Gyawali PR, Shrestha GK. Clinicopathological pattern of penile cancer in a tertiary care centre in Nepal. J Nepal Med Assoc 2015;53(199):162-5
13) Lau D W, Ong C H, Lim T P, Teo C .Penile cancer: a local case series and literature review. Singapore Med J 2015; 56(11): 637-640 doi: 10.11622/smedj.2015174
14) M. Pahwa, M. Girotra, A. Rautela, R. Abrahim. Penile Cancer In India: A Clinicoepidemiological Study. The gulf journal of oncology, July 2012;7-9
15) Koifman L, Vides A J, Koifman N, Carvalho J P, Ornell A A. International Braz J Urol; Vol. 37 (2): 231-243, March - April, 2011
16) A.RandoSous,M.P´erez-UtrillaP´erez,A. AguileraBaz´an,A.TaberneroGomez, J.CisnerosLedo,andJ.DelaPe˜naBarthel Advances in Urology Volume 2009, Article ID 415062, 3 pages doi:10.1155/2009/415062
17) OY Szeto, HC Cheng, WM Ng, KC Ngan. Hong Kong J Radiol. 2016;19:111-7 | DOI: 10.12809/hkjr1615362
18) Sufrin, G, Huben, R. Benign and malignant lesions of the penis. In: Adult and Pediatric Urology, 2nd ed, Gillenwater, JY (Ed), Year Book Medical Publisher, Chicago 1991.
19) Solsona E, Algaba F, Horenblas S, Pizzocaro G, Windahl T; EAU Guidelines on Penile Cancer: Eur Urol. 2004; 46: 18. doi:10.1016/j.eururo.2004.03.007
20) Slaton JW, Morgenstern N, Levy DA, Santos MW Jr, Tamboli P, Ro JY: Tumor stage, vascular invasion and the percentage of poorly differentiated cancer: independent prognosticators for inguinal lymph node metastasis in penile squamous cancer. J Urol. 2001; 165: 1138-42.
21) McDougal WS: Carcinoma of the penis: improved survival by early regional lymphadenectomy based on the histological grade and depth of invasion of the primary lesion. J Urol. 1995 Oct;154(4):1364-6.