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Clinical Study of Carcinoma Penis and Different Pathological Types and Management Options

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Abstract:

Introduction: *Carcinoma of the penis is an uncommon tumor that is often devastating for the patient. Though it is of very low incidence in some western countries; it is not uncommon in India. Wide variation in frequency of carcinoma of penis was observed.The disease appears more common in south Indian subcontinent. Smegma that collects in prepucial sac is deemed the important causative factor and penile cancer is rare among neonatally circumcised individuals. Human papilloma virus infections,multiple sexual partners, venereal diseases, smoking, premalignant cutaneous lesions, penile trauma, and ultraviolet radiation are considered as etiological factors.*

Materials and methods: *Patients with penile cancer admitted in Tertiary Care Teaching Hospital between august 2014 and August 20116 are included, after due patient consent, in this clinical and pathological study of carcinoma of penis.In addition the data of the cases of carcinoma of penis treated in The Hospital from August 2014 analyzed and included in this study.*

Data comprising age, religion, occupation, socio economic status, whether circumcised or not, presence and duration of phimosis, smoker/alcoholic, penile hygiene, presenting symptoms and their duration, previous treatments taken, the clinical features, histopathological findings and treatment given are compiled and analyzed

Results:

25 cases of carcinoma penis with proven biopsy.

Pathological subtypes-

Squamous cell carcinoma- 22 cases(84%),Verrucous carcinoma- 3cases(12%)

Carcinoma in situ- 1 case(4%)

Mean age of presentation- 60years(34-78), youngest was 34years.

22 cases(88%) were greater than 50 years

RISK FACTORS

History of phimosis – 11 cases (44%)

History of smoking – 16 cases (64%)

All patients belong to low socio-economic status.

All patients are having poor penile hygiene

Almost majority of patients uneducated, two patients discontinued primary education

Conclusion: *Most of the cases of carcinoma penis in our study were of squamous cell carcinoma.*

Lack of circumcision, illiteracy, low socio-economic status, associated with poor penile hygiene and smoking were uniform findings in all the cases and appear to be main predisposing factors for carcinoma of penis. Phimosis may be a factor increasing the risk.

Lack of awareness and lack of proper closed bathing facilities seem to be the cause for poor penile hygiene in these patients.

Fear, ignorance, feeling of shame, embarrassment and lack of basic health care may be the reasons for the patients of cancer of penis attending the hospital very late after the onset of the disease sometimes at a stage of inoperability.

Key Word: *Carcinoma, Inguinal Node, Penis, Smegma*

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I. Introduction

Carcinoma of the penis is an uncommon tumor that is often devastating for the patient. Though it is of very low incidence in some western countries; it is not uncommon in India. Wide variation in frequency of carcinoma of penis was observed.The disease appears more common in south Indian subcontinent.

Smegma that collects in prepucial sac is deemed the important causative factor and penile cancer is rare among neonatally circumcised individuals. Human papilloma virus infections,multiple sexual partners, venereal diseases, smoking, premalignant cutaneous lesions, penile trauma, and ultraviolet radiation are considered as etiological factors.

Early recognition has got a very good prognosis and patient can be given a cure. In 1884 Puzay for the first time introduced the real radical procedure of total amputation of penis and excision of inguinal lymph nodes. Better understanding of natural course of penile cancer has allowed evolution of various techniques of nodal assessment and sampling commencing with Cabana's sentinel node sampling in 1977.

Several procedures such as Mohs micrographic surgery, with an aim to control disease with preservation of penis, which has better acceptance with patients and preserve sexual function to varying extent, have gained interest since then.

The present study is undertaken in Tertiary Care teaching Hospital to study the age incidence of carcinoma of penis in our region, to identify the risk factors for carcinoma of penis, to study the various clinical presentations of carcinoma of penis, to study the pathological features of carcinoma of penis and to study the various modalities of treatment for carcinoma of penis.

Aims And Objectives

- To study the cases of carcinoma penis treated in our hospital
- To study and analyze age incidence of carcinoma penis
- To study and analyze risk factors, pathology and clinical presentation of carcinoma penis
- To study management of carcinoma penis with treatment and follow up of cases of carcinoma penis treated in Tertiary Care Teaching Hospital, from August 2014 to August 2016

II. Materials And Methods

Patients with penile cancer admitted in Tertiary Care Teaching Hospital between august 2014 and August 20116 are included, after due patient consent, in this clinical and pathological study of carcinoma of penis.
In addition the data of the cases of carcinoma of penis treated in The Hospital from August 2014 analyzed and included in this study.

Data comprising age, religion, occupation, socio economic status, whether circumcised or not, presence and duration of phimosis, smoker/alcoholic, penile hygiene, presenting symptoms and their duration, previous treatments taken, the clinical features, histopathological findings and treatment given are compiled and analyzed

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- Carcinoma in situ- 1 case(4%)
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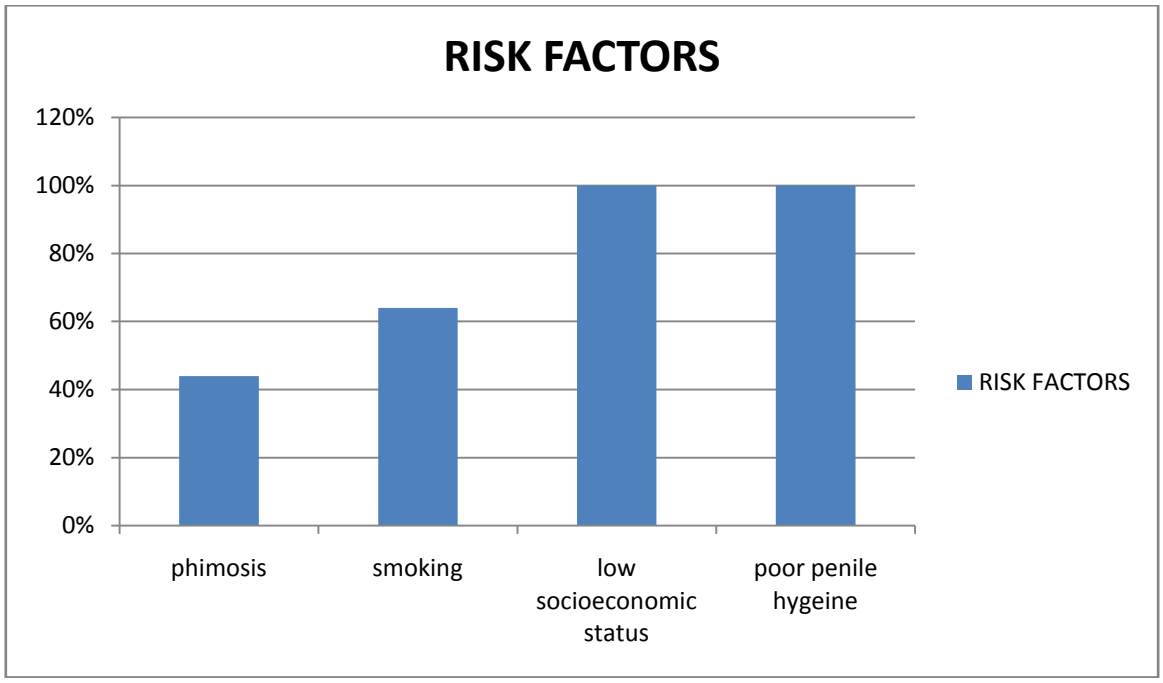
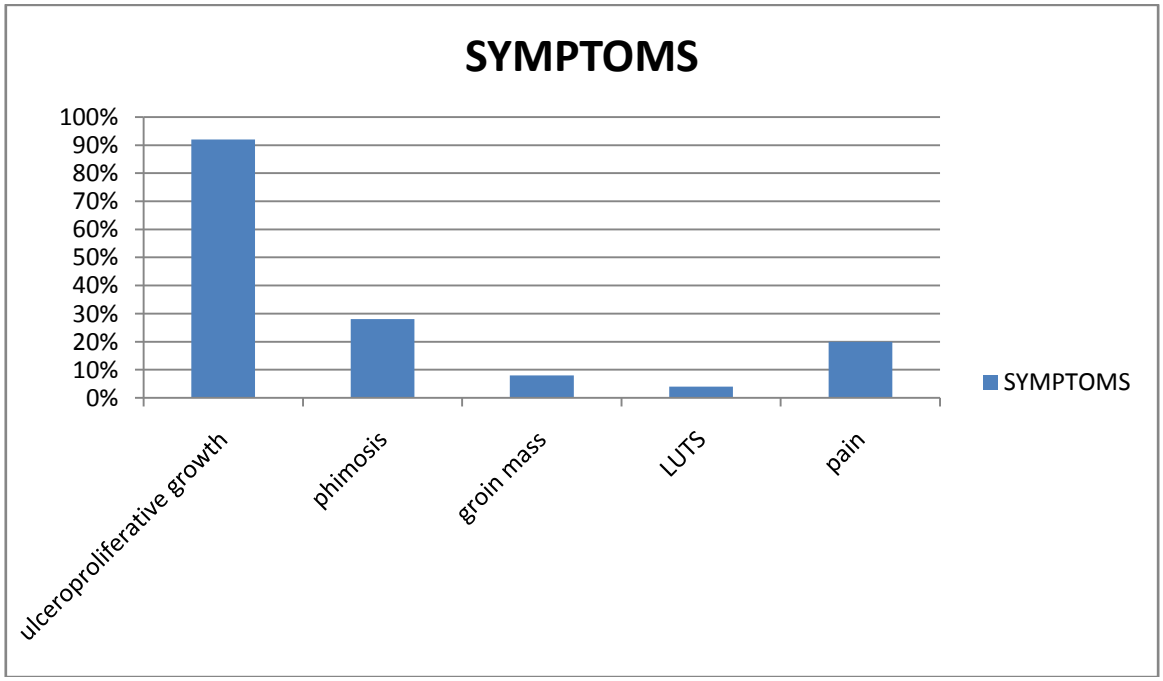
- All patients belong to low socio-economic status.
- All patients are having poor penile hygiene
- Almost majority of patients uneducated, two patients discontinued primary education



- Mean duration of symptoms 5months(1-24).
- Delay in presentation >6 months - 15 cases (60%)
- Delay in presentation >12months – 6 cases (24%)

Most common presentation was ulcero-proliferative growth 23 cases(92%),

Symptoms	No of cases	persentage
Ulceroproliferative growth	23	92%
Phimosis	7	28%
Groin mass	2	8%
Lower urinary tract symptoms	1	4%
Pain	5	20%



Diagnosis and Staging

- Most common site of lesion - glans and prepuce in 16 cases(64%), extending into shaft in 9 cases(36%),
- Clinically palpable inguinal nodes-13 cases (52%).
- FNAC positive for metastasis in palpable nodes- 4cases(16%)
- Penile biopsy from primary tumor-
- Malignancy confirmed in all cases, and histological grading of cases
- Depth of invasion cannot be madeout in any of biopsies from primary tumor

Grade	No of cases	percentage
Well differentiated	13	52%
Moderately diferentiated	8	32%
Poorly differentiated	Nil	nil

Treatment

T stage	No of cases	Percentage
Tcis	1	4%
Ta	3	12%
T1a	6	24%
T1b	3	12%
T2	7	28%
T3	5	20%

- Total penectomy done in -14cases(56%)
- Partial penectomy done in -10 cases(44%)
- Ilio Inguinal block dissection done in – 4cases(16%),b/l in 1 case
- Wound infection in 2 cases, flap necrosis in 1 case, post lymphedema 3 cases.

IV. Discussion

Carcinoma penis is common in india , but rare in western countries. Variation in frequency of carcinoma penis within india was reported by Reddy C R et al [(1)] .In present study 25 cases of carcinoma penis were treated during 2014-2016 .

Incidence increasing in areas where high prevalence of human papilloma virus but in present study association of carcinoma penis with HPV not studied .

Incidence of penile carcinoma increases with increasing age. In present study, age of patient with carcinoma penis range from 34-78 years, with mean of 60 years, with peak age of incidence between 51- 60 years. 84% patients were above 50 years comparable to various studies.

Phimosis before onset of disease was present in 44% of cases in our study,

Study	Mean age	Patients >50	Age range	Youngest age at presentation
Sarada B et al[2]	53	79%	38-65	38
Althaf etal[3]	46	Majority	18-82	18
JC Soria et al[4]	58	Majority	25-89	25
Present study	60	88%	34-78	34

which is comparable to other studies. Phimosis leads to accumulation of smegma beneath prepuce resulting in inflammation and fibrosis. Smegma as carcinogen has been clearly excluded. According to Dillner et al phimosis is strongly associated with carcinoma penis with odds ratio of > 10 versus no phimosis.

Study	No of cases with history of phimosis	Percentage
Present study	11/25 cases	44%
Sarada B et al[2]	16/52	31%
JC Soria et al[4]		24.5%

Smoking is associated with 4.5 fold increased risk of carcinoma penis in study by Dailing et al. in present study 64% patients were smokers , similar association reported by sarada B et al[2] (2015).

Study	Noof cases with history of smoking	Percentage
Present study	16/25	64%
Sarada B et al(2015)[2]	42/52	81%

It is acknowledged that neonatal circumcision prevents the carcinoma penis. Though the actual carcinogen is not yet identified , smegma is widely implicated as inducing agent for carcinoma penis, with in the uncircumcised population perpucial hygiene may have much importance. Reddy CR et al[(90)] also opined that

lack of personal hygiene, poor sexual hygiene and lack of cleanliness with associated phimosis may account for variability in frequency and high incidence of carcinoma penis in some areas. In present study 20% patients were circumcised during adulthood, implies that along history of exposure to smegma may account for development of penile carcinoma in patients circumcised in adulthood, confirming negligible effect of circumcision in adulthood, similar observation observed in JC. Soria et al[4] study.

Association with venereal diseases not observed in this study .Some authors considered venereal disease as predisposing factor though there is no evidence., in sarada et al study 17% cases had history of venereal disease and in another study by J C Sairo et al[4] 6.8% cases had history venereal disease

Most of the patients in present study had no formal education and belonged to low socio economic status, these are the epidemiological factors associated with penile carcinoma, where patient lack of concern and awareness about penile hygiene, this poor penile hygiene was the probable cause . similar observations were stated by Sarada B et al[2] , Althaf syed et al[3], Koiffman et al [(5)] in their studies.

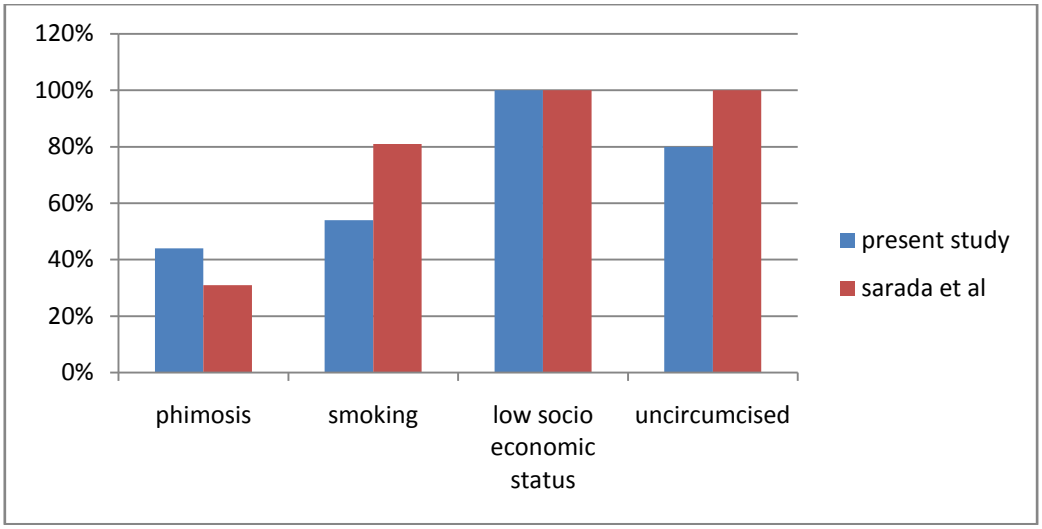
According to Weiner and Walter et al , HPV infection is probably an important factor in development of penile carcinoma.

Chronic inflammatory conditions like balanoposthitis, lichen sclerosus (balanitis xerotica obliterans) has increased risk of carcinoma penis with odds ratio >10 . Depasqual et al , Micali et al[(6)] in their studies shown that incidence of subsequent carcinoma with long term follow up to be between 2.3% and 9% of men with lichen sclerosus

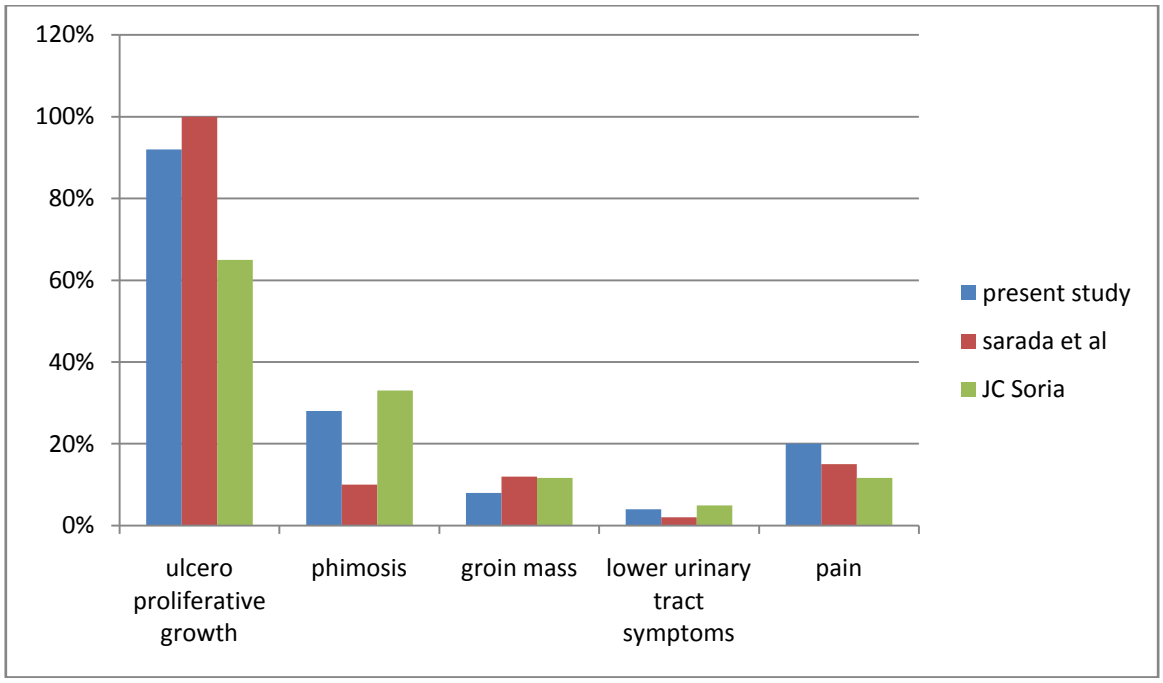
UV A photochemotherapy and 8-methoxypsoralene therapy for various dermatological conditions is associated with increased risk of carcinoma penis compared to that of general population

Penile trauma is another risk factor in development penile carcinoma. In a study by Hung fu et al revealed an odds ratio 18 for development of carcinoma penis for those men reporting penile injury 2 years before onset of disease

Lichensclerosus, HPV , penile trauma association with penile carcinoma not studied in present study.



The most common presenting symptom was ulceroproliferative growth with discharge in 92%(23case) of the patients, similar observations were made by Sarada B et al [2]and other studies



	present study	sarada et al[2]	JC Soria[4]
ulcero proliferative growth	92%	100%	65%
phimosis	28%	10%	33%
groin mass	8%	12%	11.70%
lower urinary tract symptoms	4%	2%	4.90%
pain	20%	15%	11.70%

56% of patients had the symptoms existing for more than 6months, 24% patients did not attend the hospital for more than 1 year after they noticed the problem. mean duration of presentation is 5 months.

Study	Delay in presentation >6months	Delay in presentation >12months
Present	60%	24%
Sarada et al[2]	81%	19%
JC Soria et al[4]	22.5%	13.7%

This type of late presentation is reported by several authors especially from developing countries. This is due to ignorance, feeling of shame, embarrassment . most of the patients considered the growth or ulcer on penis as some STD and were referred to surgery from dermatovenerology. Lack of primary health care was also another factor.

In present study majority of lesion starts in glan and prepuce,64% of cases lesion confined to glans and prepuce, later extending shaft later, similar observations seen in various studies.

Site of primary lesion , depth of invasion , type of tumor and grade of primary lesion affects incidence of inguinal lymphnode metastasis and prognosis of disease. So , physical examination,radiological studies and histological examination of primary lesion are available modalities .

Physical examination is by palpation of primary lesion over penis in view to examine extent of lesion, ultrasound of primary lesion will give information about invasion of carpora, MRI in combination with an artificial erection with prostaglandin E1 can also used for carporal invasion of tuomor.

Lont and associates [(7)] compared physical examination , ultrasound and MRI to assess their ability to determine corporal invasion, finding correlated with histological evaluation of the specimen obtained at surgery..

In our institute we do only clinical examination to know extent of lesion by palpation for induration, and plan for level of resection.

With biopsy of primary lesion the diagnosis of penile cancer is without clinical doubt but in rare cases non scc penile carcinoma or inflammatory lesions may be misleading. Therefore, histological verification by biopsy should be mandatory before any local treatment undertaken.

In the management of penile cancer there is need for histological confirmation if:

• there is doubt about the exact nature of the lesion (e.g. CIS, metastasis or melanoma) and/or;
• treatment with topical agents, radiotherapy or laser surgery is planned;
• treatment of the lymph nodes is based on preoperative histological information (risk-adapted strategy).

When performing a biopsy, the size of the biopsy is important. In a study by Velazquez and colleagues[8], biopsies found that there was difficulty in evaluating the extent of depth of invasion in 91% of biopsies, there was discordance between the grade at biopsy and in the final specimen in 30% of cases and there was failure to detect cancer in 3.5% of cases [9]. Also, vascular and lymphatic tumour emboli were detected in only 9-11% of cases. Thus, although a punch biopsy may be sufficient for superficial lesions, an excisional biopsy is preferable which should be deep enough to assess the degree of invasion and stage adequately. In present study , discordance between grade at biopsy and in final specimen observed in 24% of cases, difficulty in evaluating depth of tumor , vascular and lymphatic emboli in almost all biopsy specimens.

	Difficulty in evaluating depth of tumor in biopsy	Discordance in grade at biopsy and specimen	Demonstration of Vascular and lymphatic emboli
Velazquez and colleagues[8]	91%	30%	3.5%
Present study	100%	24%	0%

pathological subtypes observed in present study–
squamous cll carcinoma in 84%(22)cases,
verrucous carcinoma in 12%(3) cases,
carcinoma in situ in 4% (1)cases.

	Squamous cll carcinoma	Verrucous carcinoma	Carcinoma in situ
Present study	84%	12%	4%
Sarada B et al[2]	100%	-	-
JC Soria et al[4]	91%	9%	-
Althaf syed et al[3]	92.6%	7.4%	-

	Well differentiated(G1)	Moderately differentiated(G2)	Poorly differentiated(G3,4)
Present study	52%	32%	-
Sarada B et al [2]	44%	42%	14%
JC Soria et al[4]	69.6%	9.8%	6%
Althaf syed et al[3]	15.2%	33%	44.4%

Squamous cell carcinoma with well differentiated histology is most common histological subtype to occur in present study and other studies.

The incidence of palpable inguinal lymphnodes at the time of intial presen- tation is reported as 50%. In present study it was also 52% similar to as stated in various other studies. The FNAC of all palpable nodes should be performed to rule out metastases. In our series, 16 % of cases were positive for cytology.

	Clinically positive inguinal nodes at presentation	FNAC positive nodes
Present study	52%	16%
Sarada B et al[2]	89%	58%
Althaf syed et al[3]	48.6%	32%

The personal habits as barefoot walking , poor hygiene and systemic co-morbidities results the co-existance of infection in the primary lesion that leads to relatively high number of palpable inguinal lymph – nodes as said by Rangabashyam[10]. N et al in his study.

The treatment adopted in our hospital for the primary tumor of cancer of penis is either partial or total penectomy, as most of the patients came at advanced stage of the disease. In the present study 44%of patients had partial penectomy and 56%of patients had total penectomy. These procedures give excellent cancer control with low recurrence rates. But these procedures are deemed rather radical.

A minimum of 2 cm margin of clearance is needed to achieve adequate tumor free resection margin has been challenged. Minhas S et al[11] states that clearance of 1cm or few milli meter is sufficient to achieve tumour free resection margins[11].

With this view, partial or total penectomy seem to be an over treatment in most cases of localized diseases. Various penile preserving or sparing techniques including Moh's micrographic surgery, wide local excision, subtotal and total glansectomy with glanuloplasty are being recently adopted aiming for adequate cancer control, at the same time achieving cosmetically acceptable results with preservation of as much penile length as possible and preservation of sexual function.

Gowardhan B et al[11]., 2006 stated that penile preserving option is suitable for most patients with a primary tumor < 4 cm in size and a stage < T3 as first line treatment, with more radical procedures such as partial or total penectomy reserved for as a second line treatment. But patients who underwent penile preserving

procedure to be followed for long periods for recurrence, but in developing countries compliance with followup is poor so radical procedures like partial or total penectomy is treatment for primary tumor.

Inguinal lymph node metastasis is relatively common in carcinoma of penis as said by Ananthakrishnan N[(12)] .Pandey D et al say that lymph node metastasis is the most important prognostic factor in patients with carcinoma penis,so manage ment of inguinal nodes forms crux in treatment and outcome of these patients[(13)].

In our hospital inguinal lymphadenectomy is done based on fine needle aspiration cytology of the palpable nodes. If it is positive for malignancy inguinal lymphadenectomy is done along with the surgery for primary tumor. If it is negative, after surgery for primary tumor patient is kept on antibiotcs for four weeks and if the nodes still persist, lymphadenectomy is taken up.

Among the palpable inguinal lymphnodes, only half of them are true metastatic therefore this cannot be a reliable parameter for guiding treatment.

FNA cytology of palpable inguinal lymph nodes in association with diagnostic biopsy of primary tumor in squamous cell carcinoma of penis has a high sensitivity (93%) and specificity for metastatic disease. FNAC is an innocuous minimally invasive excellent alternative to surgical staging for identifying nodal disease. It is accurate in detecting metastasis in palpable nodes. But, it is associated with problems of sampling when many nodes are palpable.

In patients with clinically negative nodes metastatic involvement can be present in 10% to 20%[(14)] .

In cases with clinically negative nodes several tests ranging from ultra sound guided FNAC, gallium citrate scanning, sentinel node biopsy, medial inguinal lymph node biopsy, DSLN, LNMRI, SCCAg, PCNA and DNA flow cytometry are being tried for reliable pre-operative lymphatic staging[(12)].

Newer imaging techniques like lymphotropic nanoparticle-enhanced MRI has shown high sensitivity(100%)and specificity (97%) to detect micro metastasis . Similarly, a positron Emission Tomography (PET) scan was shown to have a positive predictive value of 94% and a negative predictive value of 96%, imaging is supplementary to diagnose the metastatic nodes, but not definitive as either cytology or histology.

Ultrasound guided FNAC in clinically negative nodes has sensitivity and specificity of 39% and 100%

The only test which currently holds promise is dynamic sentinel node mapping using radio isotope with or without intra operative colour dye to identify the draining nodes for sampling(Ananthakrishnan N).

It has drawbacks like –

- false negative rate is 20%-30%,
- not reliable in palpable nodes,
- not available at all centres.

Senthil kumar et al [15]study states medial inguinal dissection and DSNB has high sensitivity and specificity in detecting node metastasis in impalpable nodes.

DSNB, when performed at high-volume centers using a standardized protocol, has an acceptable sensitivity, but deaths from penile cancer among initiallynode-negative patients still occurred (Leijteet al, 2009b[16].

The rationale for superficial inguinal lymph node dissection is that two series have shown no positive nodes deep to the fascia lata unless superficial nodes were also positive (Pompeo et al, 1995[17]; Puras-Baez et al, 1995[18])

Spiess and colleagues (2007) [(16)]showed that among the lymphnode–negative cohort of patients undergoing DSNB followed by completion superficial inguinal lymphnode dissection, no patient with a negative superficial dissection experienced recurrence, with more than 3 years of follow-up.

superficial or complete modified inguinal dissection should adequately identify microscopic metastases in patients with clinically normal inguinal examination findings, without the need for a pelvic dissection if the inguinal nodes are negative. The disadvantage of the modified dissections is the higher overall complication rate (12% to 35%) when compared with DSNB (5% to 7%)

(Kroon et al, 2005c[(19)]; Spiess et al, 2009).

Limited dissections have the following advantages:

-More information is provided than by biopsy of a single node or group of nodes;

-the possibility of not identifying the sentinel node is limited by removal of all potential first-echelon nodes; and

-the dissection is readily performed by any surgeon experienced in inguinal surgery without the need for specialized equipment.

The false-negative rate for modified inguinal lymphnode dissection in terms of detecting inguinal metastatic disease, ranges from 0% to 5.5% in the majority of published reports (Parra, 1996; Colberg et al, 1997[20]; Coblentz[21] and Theodorescu, 2002[22]; Bouchot et al, 2004[23]; d'Ancona et al, 2004[24]

Patients with non palpable inguinal lymphnodes and FNAC negative ,risk stratification on based on primary tumor characteristics has to be done into low risk group and high risk group for inguinal lymph node metastasis.

Low risk group- grade ≤2, primary ≤T1or absence of lymphovascular invasion
High risk group- grade 3 or high, primary ≥T2 or presence of lymphovascular invasion
In present study

	Low risk patients	High risk group
Noof patients	40%	60%
Clinically positive nodes	16%	36%
FNAC positive	Nil	16%
Clinically negative nodes	24%	24%

In high risk group, rate of micro metastasis can be seen as high as up to 80% ([25]). In present study, we found similar trends. all metastatic nodes were associated with high risk group, similar trend also observed in althaf syed et al study[3].

The risk of inguinal lymph node metastasis increases with higher T stage and high grade of tumor. In present study , 48% patients are with T2/>T2 stage similar trends observed in althaf syed et al study[3].

	Present study	Althaf syed et al study
Ta	12%	7.8%
T1a	24%	13.9%
T1b	12%	29.6%
T2or more	48%	48.7%

In our hospital , clinical node negative and FNAC negative patients are followed up, but in study present 80% of patients were lost at followup between 3-6months.

In view of inaccuracy of clinical examination, fnac, other imaging studies in reliably detecting nadal metastasis and non compliance to followup expectant policy is dangerous and results of delayed lympadenectomy are poor, prophylactic modified inguinal lymphnode dissection is recommended in all high risk group patients.

Mosconi et al. recommended prophylactic node dissection for patients with T2 or greater and for those with vascular invasion or those with high grade tumor. Ravi et al[(25)], Lubke etal & Ricos et al, also found better survival rates with prophylactic Iymphadenectomy than observational and therapeutic Iymphadenectomy.
In the absence of reliable indicator of nodal metastasis, patients of carcinoma penis require an intensive and continued follow up. In developing countries where patients can't be relied upon for follow up and often present with fungating inguinal secondaries, a policy of early bilateral regional nodal clearance despite a level of morbidity is preferable(Ayyappan K et al[26])

The prophylactic modified inguinal lymphadenectomy has shown improved survival in patients with microscopic metastasis in comparison to those who had negative nodes initially and developed nodal recurrence at follow up

The five-year recurrence free survival is reported 75 to 95%. However, the practice has shifted from wait and watch policy to prophylactic block dissection against its morbidity

Recent evidence demonstrates improved survival outcomes without increased morbidity with early modified inguinal lymph node dissection when compared to delayed dissection

5 years survival rates of early prophylactic modified inguinal lymphadenectomy and delayed lymphadenectomy in various studies.

	Prophylactic inguinal lymph adenectomy	Delayed inguinal lymphadenectomy
Mc dougal et al	88%	38%
Jhonsonand LO et al	57%	13%

Bhagat SK et al.,(2006),[127] also opined that as patients' compliance for regular follow up cannot be guaranteed, any tumor invasion beyond 3 mm should be considered for prophylactic groin dissection.
In present study,92% cases lost for follow up ,in these circumstances prophylactic modified inguinal lymphnode dissection is preferable option over surveillance in cases with clinical negative and FNAC negative nodes.

G. Gopalakrishnan(2006)[(28)]opined that waiting for clinical palpability and then offering lymphadenectomy is like 'shutting the barn door after the horse has fled'. Offering elective lymphadenectomy runs the risk of negative surgical exercises and an unacceptable complication. He has advised prophylactic inguinal dissection if the primary tumor is poorly defined or depth of the tumour >4 mm or if the patient is not motivated for surveillance

Morbidity after modified complete inguinal lymphadenectomy consists primarily of minor complications including seroma or lymphocele(0% to 26%), lymphorrhea (9% to 10%), and wound infection or skin necrosis (0% to 15%). These have been self-limited in the majority of patients (Parra, 1996[29]; Coblentz[21] and Theodorescu, 2002[22]; Jacobellis, 2003[30]; Bouchot et al, 2004[23]; d'Ancona et al, 2004107; Spiess et al, 2009).

Lower extremity edema has been reported in 0% to 36% of patients, and persistent clinically significant edema is uncommon.

complications related to radical ilioinguinal lymphadenectomy have been significant. In contemporary series, early minor complications have been reported in 40% to 56% of dissections (Bevan-Thomas et al(31), 2002; Bouchot et al(23), 2004; Nelson et al(32), 2004; Spiess et al, 2009). These consist primarily of lymphocele, wound infection or necrosis, and lymphedema. Major complications, such as debilitating lymphedema, flap necrosis, and lymphocele
requiring intervention, occur in 5% to 21% of patients (Bevan-Thomas et al, 2002[31]; Nelson et al, 2004[32]). Deep venousthrombosis (DVT) or pulmonary embolism (PE) has been reported in 4% to 7% of patients (Johnson and Lo, 1984; Ravi, 1993[26]; Spiess et al, 2009). In present study ilio- inguinal dissection done in 4 case, bilateral in 1 case . Wound infection in 2 cases, flap necrosis in 1 case and post op lymphedema in 3 cases.

In view of high complication rate associated with radical inguinal lymphadenectomy compared to modified inguinal lymphnode dissection, later is preferred as accurate staging and therapeutic tool ,when done as prophylactic in high risk node negative or high risk FNAC negative cases and therapeutic in cases with proven node metastasis.

In the view of,non compliance to followup and decreased survival in cases of delayed lymphnode dissection , prophylactic inguinal lymphnode dissection preferable in clinically node negative high risk groups .

V. Summary And Conclusion

Most of the cases of carcinoma penis in our study were of squamous cell carcinoma.

Lack of circumcision, illiteracy, low socio-economic status, associated with poor penile hygiene and smoking were uniform findings in all the cases and appear to be main predisposing factors for carcinoma of penis. Phimosis may be a factor increasing the risk.

Lack of awareness and lack of proper closed bathing facilities seem to be the cause for poor penile hygiene in these patients.

Fear, ignorance, feeling of shame, embarrassment and lack of basic health care may be the reasons for the patients of cancer of penis attending the hospital very late after the onset of the disease sometimes at a stage of inoperability.

The same factors hold good for the patients being lost for follow up. In such a situation of lack of motivation for follow up in patients, prophylactic inguinal lymph node dissection based on primary tumor pathology may be better than surveillance for inguinal metastasis.

Considerable numbers of patients of carcinoma of penis were in sexually active age. Hence, wherever possible penile preserving option and phalloplasty have to be considered.

A simple public health campaign highlighting the significance of penile hygiene, about retracting the prepuce and cleaning the glans, may go a long way in prevention of carcinoma of penis. An awareness campaign about carcinoma of penis and its complete curability by simple surgery without affecting sexual function, with an advice on self-examination of penis for any abnormality, may make the people attend the hospital very early in disease course.

Accurate staging of primary tumor not possible pre operatively , but some information regarding depth and type of primary tumor can be obtained with available diagnostic modalities like ultrasound , MRI, edge biopsy. Depending upon which level of resection of primary tumor planned. Though penile preserving surgeries are gaining importance but recurrence rates are high and to be followed for longer periods for recurrence, which is not possible in developing countries.

Contemporary imaging modalities are unable to detect clinically occult metastasis from cancer of the penis; only invasive procedures can identify reliably the presence of lymph node metastasis. A promising first-line investigation is ultrasound-guided fine needle aspiration biopsy. If this is negative, dynamic sentinel node biopsy is a reliable second-line investigation,but it is not available at all centres and has false negative rate of 15-20%.Clinically node positive patients should undergo immediate fine-needle aspiration biopsy. If above investigations are negative patient should be followed for longer periods. In developing countries and patients not motivated for surveillance , compliance for longer periods of followup not possible.

As the inguinal disease decreases survival of patient and most of patients in present study presented with higher T stage, prophylactic superficial inguinal or modified inguinal lymphnode dissection is the better staging and therapeutic tool in management of nodal disease in high risk patients.

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