Original Article

Is simultaneous surgery for nodes and primary in carcinoma penis safe?

ABSTRACT

Introduction: Historically, the combination of primary and nodal surgeries for carcinoma penis is thought to increase the morbidity and hospital stay. Despite the modifications in surgery including modified inguinal lymphadenectomies, morbidity of the procedure is high.

Methods: A prospective, nonrandomized study to analyze a total of 56 consecutive patients from 2006 to 2009, who were evaluated and underwent surgery for primary and nodes for carcinoma penis at our center, was done. The median follow-up was 34 months (range from 12 to 48 months). The procedures included both prophylactic and therapeutic groin dissections. Various parameters were tested using SPSS version 17 statistics software.

Results: Duration of drains, hospital stay, wound morbidity, and long-term complications were found to be similar in the simultaneous and staged surgery groups. The mean duration of drains for the simultaneous group of 18 patients was 12.56 days and the corresponding duration of drains for the staged surgery group of 36 patients was 12.83 days. The minor morbidity and major morbidity for the simultaneous group were 27.8% and 38.9% and the corresponding figures for the staged group were 22.2% and 44.4%, respectively. The mean and median hospital stay for the simultaneous surgery group were 21.5 and 27.5 days, respectively. The mean and median hospital stay for the staged surgery group were 17.5 and 21.36 days, respectively. The study revealed no statistically significant difference between the two groups with regard to all the above parameters.

Conclusions: Simultaneous surgery for the primary and nodes in carcinoma penis is very much feasible. Simultaneous and early-staged lymphadenectomy have no difference in results with respect to drain duration, hospital stay, wound morbidity, and long-term complications. Simultaneous lymphadenectomy can be combined with penectomy both in the prophylactic and therapeutic settings.

Keywords: Carcinoma, flap loss and marginal necrosis, lymphadenectomy, morbidity, nonrandomized, prophylactic, prospective, therapeutic, wound infection

INTRODUCTION

Status of inguinal nodes is regarded as the most important prognostic factor in carcinoma penis.[1] Traditionally, inguinal nodal dissections for carcinoma penis, both the prophylactic superficial inguinal block dissection and the therapeutic ilio-inguinal block dissections, carry a lot of morbidities.[2] Hence, the surgery for the inguinal nodes was usually done as staged second procedures. This leads to delay in completion of treatment, second anesthesia and surgery resulting in economic burden on the patient and society, and loss of patients from completing treatment protocols. These could be prevented if simultaneous surgeries for the primary and nodes are possible without increasing the short-term wound morbidity and long-term complications.

Access this article online	
Website: www.asjo.in	Quick Response Code
DOI: 10.4103/2454-6798.209329	

METHODS

A prospective, nonrandomized study to analyze a total of 56 consecutive patients from 2006 to 2009, who were evaluated and underwent surgery for primary and nodes

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How to cite this article: Chandrasekhar SK, Narayanswamy K. Is simultaneous surgery for nodes and primary in carcinoma penis safe?. Asian J Oncol 2017;3:50-3.

for carcinoma penis at our center, was done. Every third patient was allotted to the simultaneous surgery group while the others underwent staged lymphadenectomy. Age of patients ranged from 21 to 75 years with a mean average of 54 years. The median follow-up was 34 months. One patient in the staged group died on postoperative day 1 of myocardial infarction and was excluded from the analysis. Distribution of cases between staged and early groups was similar with regard to size of largest nodes >4 cm, ulcerated nodes, and primary tumor status. The detailed demographic features of the patients are mentioned in Table 1. The procedures included both prophylactic and therapeutic groin dissections. The parameters assessed were duration of drains, wound morbidity including minor wound infections, flap marginal necrosis, flap loss, wound breakdowns, long-term complications including limb edema, scrotal edema, neurological sequelae, and hospital stay. Minor wound complications included skin flap margin necrosis, minor wound infections, and seromas which were managed conservatively. Major wound complications included wound breakdown, culture-positive surgical-site infections, seroma requiring secondary drain placements, and flap loss. SPSS version 17 statistics software was used to analyze the data. The following tests were used to compare the two groups for statistically significant difference in any between them: *t*-test and Levene's test for equality of variances for the mean duration of drains, Pearson's Chi-square test for the difference in wound morbidity, stem and leaf plot for the mean hospital stay, and Pearson's Chi-square test for the late complications.

RESULTS

The mean duration of drains for the simultaneous group of 18 patients was 12.56 days and the corresponding duration of drains for the staged surgery group of 36 patients was 12.83 days [Table 2]. No statistically significant difference in the duration between the two groups was found. The minor morbidity and major morbidity for the simultaneous group were 27.8% and 38.9% and the corresponding figures for the staged group were 22.2% and 44.4%, respectively [Table 3]. The study revealed no statistically significant difference between the two groups. The mean and median hospital stay for the simultaneous surgery group were 21.5 and 27.5 days, respectively. The mean and median hospital stay for the staged surgery group were 17.5 and 21.36 days, respectively [Table 4]. There was no statistically significant difference between the median hospital stay of the two groups. It is to be remembered here in this context that there would be an additional burden on the patients and the hospital due to the separate admission for the surgery for the primary in the staged lymphadenectomy group. The study revealed no statistically significant difference between the two groups with regard to late complications, namely, limb edema, scrotal edema, and neurological sequelae [Table 5]. The overall morbidity and mortality of the patients (54 patients accounting for 108 groin dissections in all) was comparable to the various series of groin dissection standards worldwide [Table 6].

DISCUSSION

The status of the inguinal and pelvic nodes is the single most important prognostic factor with regard to survival in carcinoma penis.[3] The adverse prognostic factors were involvement of more than three inguinal nodes, perinodal spread, and pelvic nodal involvement. The predicted 5-year survival of carcinoma penis with various inguinal nodal status

Table 1: Demography of patients

	Simultaneous group	Staged group
Total number of patients (%)	18 (33.3)	36 (66.7)
Mean age (years)	52.7	54
Nodal mass >4 cm (%)	11.1	8.3
Ulcerated nodal mass (%)	5.6	2.8
Prophylactic dissection (%)	27.8	13.9
Therapeutic dissection (%)	72.2	86.1
pT1 status (%)	5.6	5.6
pT2 status (%)	61.1	66.7
pT3 status (%)	33.3	8.3

Table 2: Drain duration

Simultaneous/staged	Number of patients	Mean (days)
Simultaneous	18	12.56
Staged	36	12.83

Table 3: Morbidity data

Simultaneous/staged	Minor morbidity (%)	Major morbidity (%)
Simultaneous	27.8	38.9
Staged	22.2	44.4

Table 4: Hospital stay

Group	Median (days)	Mean (days)
Simultaneous	21.5	27.5
Staged	17.5	21.36

Table 5: Late complications

Late complications	Simultaneous (%)	Staged (%)
Limb edema	27.8	38.9
Scrotal edema	5.5	5.5
Both limb and scrotal edema	5.5	8.3
Neurological sequelae	0	2.8

Table 6: Complications of inguinal lymphadenectomy comparison

	Johnson and Lo	Ravi *et al*.	Ornellas *et al*.	Bevan Thomas *et al*.	Our study
Nodal dissections	101	405	200	106	108
Period	1948-1983	1962-1990	1972-1987	1972-1987	2006-2009
Percentage of skin-edge necrosis (%)	50	62	45	8	12
Percentage of wound infection (%)	14	17	15	10	9
Perioperative death (%)	0	1.3	Not stated	1.8	1.8

is as follows. 70%–100% in node-negative histology, 60% with nodal involvement resected, 77% with minimal nodal involvement, 25% with multiple nodal involvement, and 0% among unresectable nodes.[4] Various tools and nomograms to predict and analyze risk factors for lymph node metastasis in patients with clinically node-negative penile cancer are now available.[5] Early lymphadenectomy has been supported by multiple studies. Fraley *et al*. noted 75% of 5-year disease-free survival in patients with node-positive disease undergoing immediate lymphadenectomy versus 8% in those who received delayed surveillance.[6] Reluctance to proceed with prophylactic lymphadenectomy had been the case because of the morbidity associated with the procedure has historically been severe.[7,8] However, multiple contemporary series have demonstrated the acceptable morbidity with these procedures.

At our institution, we advocate complete ilio-inguinal nodal dissection for all node-positive penile cancers on fine-needle aspiration cytology. All patients with clinically node-negative tumors–if high/intermediate grade carcinoma and/or all with clinically T2 lesions and above–undergo prophylactic bilateral lymphadenectomy. Frozen section is routinely done, and in case, if nodes are found to be positive for metastasis, a complete ilio-inguinal block dissection on the affected side alone and superficial block dissection on the contralateral side are done. Since 2012, we are practicing sentinel node biopsy for all patients with clinically node-negative groins.

Early reports of penectomy and simultaneous bilateral ilio-inguinal lymph nodal dissection for carcinoma of the penis enumerated many complications, resulting in modification of the procedure such that the primary tumor was removed first and lymphadenectomy was performed some weeks later.[9,10] The reasons quoted for delaying ilio-inguinal lymph nodal dissection are to provide time for metastatic cells to embolize from the primary tumor to the lymph nodes, to avoid the potential of lymph nodal metastasis in the tract between the primary and the nodes, and to provide antibiotic treatment for 6–12 weeks so that enlarged inflammatory nodes can regress, possibly avoiding unnecessary ilio-inguinal dissection and decreasing the risk of wound infection.[10]

Available literatures on the topic of simultaneous ilio-inguinal nodal dissections have usually been small numbered (<20 patients) or retrospective observations. To our knowledge, our study is the first if not the only one which is a prospective one with more than fifty patients studied on this topic. However, the study is not a systematic randomized study. The hospital stay, duration of drains, wound morbidity in terms of wound infections, flap necrosis, flap loss, wound breakdowns, and long-term complications such as limb edema, scrotal edema, and neurological sequelae were analyzed between the simultaneous and staged lymph nodal dissection groups. We believe that smaller operative fields and thick vascular flaps in prophylactic nodal dissections and generous use of well-vascularized flaps in therapeutic nodal dissection decrease skin-edge necrosis leading to early and better wound healing. Doing simultaneous surgery for the primary and the nodal basin is very much feasible and safe as well.

CONCLUSIONS

Simultaneous surgery for the primary and nodes in carcinoma penis is very much feasible and safe with acceptable morbidity as compared with staged surgeries. Simultaneous and early-staged lymphadenectomy have no difference in results with respect to drain duration, hospital stay, wound morbidity, and long-term complications. Simultaneous lymphadenectomy can be combined with penectomy both in prophylactic and therapeutic settings.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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