

Management of Penile Cancer in Grodno Region; A Case Series

K.A. Nethuki Akithma Kulasinghe¹, Bozhko Genadij Grigorievich¹,
Abarrane Lourain Fernando¹, Mohammed Iqbal Fathima Hasna¹,
Tobby Glory Inyang¹

¹Department of Oncology, Grodno State Medical University, Grodno, Belarus.

Corresponding Author: K.A. Nethuki Akithma Kulasinghe

DOI: <https://doi.org/10.52403/ijshr.20260107>

ABSTRACT

Penile carcinoma is a rare malignancy with a varied presentation and pathology, typically affecting men in their sixth and seventh decades of life. This paper presents a retrospective case series of 22 patients (aged 35–90 years) treated for malignant neoplasm of the penis (ICD 10, C60) at the Department of Oncology in the Grodno regional hospital, Belarus, between 2020 and 2024. The majority of tumors were located on the glans penis (14 patients), followed by overlapping lesions (5 patients), the shaft (2 patients), and the prepuce (1 patient). Comorbidities were highly prevalent, affecting 19 out of 22 patients. The most frequent histological diagnosis was large cell keratinizing squamous cell carcinoma (17 patients), with the remainder being non-keratinizing SCC. Clinical presentation was diverse, including penile swelling and pain, phimosis, ulcerated wounds, and inguinal lymphadenopathy. Lymph node metastasis was observed in 10 patients (45.45%), including bilateral inguinal and obturator involvement. Treatment primarily involved surgery, with total penectomy (9 patients) and partial penectomy (7 patients) being the most common procedures, in addition to lymph node dissection, chemotherapy, and radiotherapy. Three illustrative cases

highlight the diagnostic challenge, including one mimicking Peyronie's disease and another presenting with a paraneoplastic syndrome. The overall survival rate in this series was 50%, with 11 patients deceased by January 2025, underscoring that locoregional and metastatic disease remain fatal with late diagnosis and high mortality.

Keywords: Penile cancer, Squamous cell carcinoma, Penectomy, Lymphadenectomy, Metastasis.

INTRODUCTION

Penile carcinoma is a rare cancer with diverse pathology and complications, frequently occurring in sixth and seventh decades of life [1] The incidence of penile cancer varies greatly between countries, ranging from 0.3 per 100,000 in Western countries to 2.8-6.8 per 100,000 in underdeveloped countries. Risk factors for this condition include Human Papilloma virus (HPV) infection, persistent glans or prepuce inflammation, phimosis, smoking, and UV exposure [2]

In studies, the term penile cancer is frequently described as squamous cell carcinomas (SCCs) of the penis, although it has also been used to denote non-squamous penile malignant neoplasms [3] Inspection, biopsy and imaging tests are used to diagnose penile cancers while surgery

remains the most commonly used treatment option [2], [4]

CASE SERIES

In this case series, we discuss about 22 patients who were treated for malignant neoplasm of penis (ICD 10, C60) at the Department of Oncology in Grodno regional hospital from 2020 to 2024. At present time there are about 984 880 inhabitants residing in Grodno region of Belarus which is in eastern Europe. We received their medical records and reviewed the data retrospectively. The patients' demographics,

presentations, surgical treatment and unique features of few cases are being evaluated (Table 1 and 2). The ages of the patients included in this case series range from 35 years to 90 years old. 19 out of the 22 patients are suffering from various comorbidities.

According to the location of the tumor, there is one patient with the cancer on the prepuce, 14 on the glans penis, 2 on the shaft of penis and 5 with overlapping lesions of penis.

Table 1: Demographics and presenting symptoms of patients

ICD code	Roll no.	Age (years)	HPV status	Location of tumour	Comorbidity	LN metastases	Presenting symptoms
C60.8	1	60	-	Overlapping lesion	IHD, Chronic gastritis	B/L inguinal LN	History of penile trauma. Destructing polypoid tumour of the penis glans with extension to the foreskin, growth to the urethra and spongy body swelling and pain in the penis, foul odour
C60.1	2	72	-	Glans	Basal cell carcinoma of left cheek	nil	Induration of the penis glans and foreskin
C60.1	3	64	+	Glans	Hypertension, gastric erosions, gastric polyp	nil	Condyloma acuminata, acute purulent balanoposthitis
C60.2	4	54	-	Shaft	Chronic gastritis, orchitis, epididymis	nil	Purulent urethral discharge, dense formation on the shaft
C60.1	5	35	-	Glans	nil	B/L inguinal LN	Swelling and pain of glans of penis, inguinal lymphadenopathy
C60.1	6	87	-	Glans	Hypertension	nil	Ulceration on the shaft of penis, painful urination with burning sensation, palpitations
C60.0	7	70	-	Prepuce	IHD, BPH	nil	Severe phimosis, acute balanoposthitis, fistula in foreskin, shortness of breath, fever
C60.8	8	71	-	Overlapping lesion	IHD, Atherosclerosis, Hypertension	nil	Formation on the glans penis and shaft
C60.1	9	62	-	Glans	Gilbert's syndrome, Basal cell carcinoma of left auricle	nil	Formation in the glans penis
C60.2	10	76	-	Shaft	IHD	B/L inguinal LN	Ulcerated exophytic tumour of the penis shaft, inguinal lymphadenopathy

C60.1	11	64	+	Glans	Nil	Left inguinal LN	Destructing and suppurative lesion in the penis glans
C60.9	12	66	-	Overlapping lesion	hypertension	B/L inguinal LN	Severe phimosis and induration in the penis glans and shaft
C60.1	13	83	-	Glans	Varicose veins in the lower limbs	Left inguinal and obturator LN	Glans of the penis covered with horny scales and pus on pressing
C60.1	14	82	-	Glans	Atherosclerosis	nil	Bleeding and destructing tumour of the penis glans. Weakness and pain in the legs
C60.1	15	78	-	Glans	Multiple malignancies	nil	Balanoposthitis and paraphimosis
C60.1	16	90	-	Glans	IHD, Atherosclerosis	nil	Phimosis
C60.1	17	54	-	Glans	IHD, DM type II,	Right inguinal LN	Pain in the penis and erectile dysfunction
C60.8	18	41	-	Overlapping lesion (penis, scrotum, right and left lymph nodes)	Chronic anaemia	B/L inguinal LN	Pain in the inguinal area, fever and weakness
C60.1	19	58	-	Glans	Mixed hyperlipidaemia	nil	Nodule on the penis glans
C60.8	20	59	-	Overlapping lesion	IHD, Atherosclerosis	Left inguinal LN	Local recurrence after prior surgery in penis, ulcerating wound in the right groin area, pain and swelling in the legs
C60.1	21	59	+	Glans	nil	nil	Redness of the glans and condyloma on prepuce of the penis
C60.1	22	89	+	Glans	IHD, Atherosclerosis, Hypercholesterolemia	Right inguinal LN	Destruction of the tumour in the glans penis with periodic bleeding

(IHD- Ischemic Heart Disease, B/L- Bilateral, LN- Lymph node, BPH- Benign Prostatic Hyperplasia, DM- Diabetes Mellitus)

Table 2: Diagnosis and treatment given for each patient

Roll no.	Stage	Histology	Treatment	Survival status by 2025 January
1	T ₃ N ₁ M ₀ (stage IIIA)	Non-keratinizing SCC	Total penectomy and LN dissection, chemotherapy, radiotherapy	Alive
2	T ₁ N ₀ M ₀ (stage I)	Non-Keratinizing SCC	Circumcision, radiation therapy, local chemotherapy	Alive
3	T ₃ N ₁ M ₀ (stage IIIA)	Keratinizing SCC	Partial penectomy and LN dissection	Alive
4	T ₃ N ₀ M ₀ (stage IIB)	Keratinizing SCC	Total penectomy	Alive
5	T ₃ N ₃ M ₀ (stage IV)	Keratinizing SCC	Total penectomy and LN dissection, chemotherapy	Diseased
6	T ₃ N ₀ M ₀ (stage IIB)	Keratinizing SCC	Total penectomy	Alive
7	T _{1a} N ₀ M ₀ (stage I)	Keratinizing SCC	circumcisions, local chemotherapy	Diseased
8	T ₂ N ₀ M ₀ (stage IIA)	Keratinizing SCC	Partial penectomy	Alive
9	T _{1b} N ₀ M ₀ (stage IIA)	Keratinizing SCC	Circumcision, glansctomy, radiotherapy	Alive
10	T ₂ N ₃ M ₀ (stage IV)	Keratinizing SCC	Total penectomy and LN dissection, chemotherapy	Diseased
11	T ₃ N ₀ M ₀ (stage IIB)	Non-keratinizing SCC	Total penectomy	Alive
12	T ₃ N ₃ M ₀ (stage IV)	Non-Keratinizing SCC	Total penectomy and LN dissection, radiotherapy	Diseased
13	T ₃ N ₃ M ₀ (stage IV)	Keratinizing SCC	Total penectomy, LN dissection, chemotherapy, radiotherapy	Alive
14	T ₂ N ₀ M ₀ (stage IIA)	Keratinizing SCC	Glansctomy and post-operative radiotherapy	Diseased
15	T _{1B} N ₀ M ₀ (stage IIA)	Keratinizing SCC	Circumcision and biopsy	Diseased
16	T ₂ N ₀ M ₀ (stage IIA)	Non-Keratinizing SCC	Partial penectomy	Diseased
17	T ₂ N ₁ M ₀ (stage IIIA)	Keratinizing SCC	Partial penectomy and LN dissection	Alive
18	T ₄ N ₃ M ₀ (stage IV)	Keratinizing SCC	Abscess drainage and palliative chemotherapy	Diseased
19	T ₂ N ₀ M ₀ (stage IIA)	Keratinizing SCC	Partial penectomy	Diseased
20	T ₂ N ₁ M ₀ (stage IIIA)	Keratinizing SCC	Glansctomy and LN dissection	Diseased
21	T _{1a} N ₀ M ₀ (stage I)	Keratinizing SCC	Biopsy and Circumcision	Alive
22	T ₂ N ₂ M ₀ (stage IIIB)	Keratinizing SCC	Total penectomy and radiotherapy	Diseased

(SCC- Squamous Cell Carcinoma, LN- Lymph Node)

All the 22 patients presented with a wide range of symptoms including: swelling and pain of the affected region of penis, phimosis and paraphimosis, ulcerated wounds on the penis or in the groin area, discharge from the urethra, balanoposthitis, inguinal lymphadenopathy and other non-specific symptoms such as fever, weakness and pain in the legs.

All the patients who were managed with surgical interventions underwent pathohistological examinations following the surgery while the other patients underwent punch biopsy. According to the pathohistological examination, 17 patients were diagnosed with large cell keratinizing squamous cell carcinoma (SCC) and 5 patients with large cell non-keratinizing squamous cell carcinoma.

Out of the 22 patients, 10 patients were found to have inguinofemoral and obturator lymph node metastasis including 5 with

bilateral inguinal lymph node metastasis and 1 patient with left inguinal and obturator lymph node metastasis, 2 patients each for left and right inguinal LN metastasis respectively. As for the treatment, 9 patients were treated with total penectomy, 7 patients with partial penectomy, 5 patients were treated with circumcision and one patient with abscess drainage and palliative chemotherapy.

Case 4: Penile cancer mimicking Peyronie’s disease

A 54-year-old male patient presented to the onco-urology clinic complaining about an induration on the shaft of the penis which appeared about 6 months ago. When pressing on the induration, a purulent discharge appears from the urethra. Following the examination of the patient the preliminary diagnosis was made as Peyronie’s disease and proceeded with the instrumental and microscopic examinations.

Table 3: Examination findings

Examination	Result
Doppler sonography	hypoechoic nodule-like formations (11*7.8 mm) on the left surface of the cavernous bodies, which were deforming the urethra. The conclusion was Echo signs of cavernitis.
PSA test	0.362ng/ml (<3.1 ng/ml)
MRI	Irregular, amorphous tissue formation in the middle-upper third of the penis, with unclear contours, measuring up to 29*38 *40.5 mm, and peritumoral soft tissue edema. The bulbous and penile sections of the urethra were expanded up to 13 mm. No enlarged lymph nodes were noted.
Cytology (material from the induration)	Polymorphic cancer cells, presumably squamous cell carcinoma
Cytology (material from the urethral discharge)	The result again showed cancer cells, presumably squamous cell carcinoma



Figure 1: Ultrasound examination of the cavernous bodies

Based on the cytological and MRI findings, the final clinical diagnosis was established as C60.2 Malignant neoplasm of the shaft of the penis. Clinical staging was established as T₂ N₀ M_x, Stage II. The patient was managed with total penectomy. A pathohistological examination was done following the surgery confirming squamous cell carcinoma with keratinization G3.

Tumor extent was found to invade the glans and corpus cavernosum, and was propagated into the urethra. Elements of the cancer were found close to the edge of the operative incision. Post-operative pathological staging was made as C60 Malignant neoplasm of the penis pT₃ N₀ M₀, Stage IIB. Postoperative period was uneventful and the patient was scheduled to undergo distant-beam radiation therapy with a dose of 2Gy to 66Gy.

Case 13: Penile cancer mimicking leukoplakia of glans penis leading to paraneoplastic syndrome

An 83-year-old patient presented with a formation on the penis for 2 months. Five years ago, he had presented with phimosis and underwent circumcision of the foreskin. The physical examination revealed a formation of 1cm on the head of the penis covered with horny scales and pus was released when pressed. Cytological examination of the discharged revealed erythrocytes, polymorphic microflora, neutrophilic leukocytes, altered flat epithelial cells with horny scales. Following the cytological examination, the working

diagnosis was made as leukoplakia of the penis. Then a biopsy was carried out after taking a specimen from the lesion on the glans of the penis. The specimen revealed stratified squamous epithelium with hyperparakeratosis, hyperplasia, acanthosis and areas of penile intraepithelial neoplasia. Therefore, the diagnosis was made as squamous cell carcinoma with grade of differentiation G1, with invasion into the spongy membrane bodies. Resection of the glans penis was carried out as the treatment. 3 months following the surgery, patient noticed redness in the penis. A biopsy was carried out revealing keratinized squamous cell carcinoma of grade of differentiation G2. The tumor extends to the spongy and cavernous bodies. CT examination revealed enlarged left inguofemoral lymph nodes. In the left inguinal region, an infiltrate was determined 6.3*6.5 cm involving the skin, with a necrotic zone extending to the skin, 4.4*63.7 cm, the infiltrate was not separable from the adjacent muscles and vascular structures. The patient also complains about a bursting pain and swelling in the right lower limb. The above complaints had been bothering for about a week.

Physical examination depicts an edematous shin and palpation of the shin muscles are painful. Homans sign and Bancroft's were found to be positive. The diagnosis was made as iliofemoral phlebothrombosis of the right lower limb as a consequence paraneoplastic syndrome. Therefore, total penectomy was performed with lymph node dissection. Adjuvant chemotherapy was

performed with cisplatin 150mg IV and 5-fluorouracil 6000mg IV drip.

Case 18: Locally Advanced Squamous Cell Carcinoma of the Penis with Metastatic Inguinal Lymphadenopathy

We report a case of Stage IV (T₄ N₃ M₀) Squamous Cell Carcinoma of the penis in a 38-year-old male. The patient presented with a five-month history of a penile and scrotal infiltrate, ultimately diagnosed as a Grade 3 keratinizing squamous cell carcinoma with extensive local and regional involvement. He presented with severe local complications, including abscess formation and tumor disintegration. Initial management included cystostomy and drainage of abscesses.

Upon transfer to a specialized oncology center, the patient complained of pain in the inguinal region, general weakness, weight loss, and subfebrile temperature. Physical examination revealed extensive areas of tumor with suppuration and destruction in the region of the scrotum, penis, and bilateral inguinal areas. Lymph nodes were enlarged, painful in the inguinal region, and involved with disintegration.

CT imaging revealed picture of a malignant formation of the penis and metastases in inguinal LNs with signs of disintegration. According to the laboratory examinations, Complete Blood Count (CBC) revealed significant Anemia (Hemoglobin-96 g/L) and Leukocytosis (17.87 *10⁹/L). Biochemical analysis revealed mildly elevated C-reactive protein (CRP). The final clinical diagnosis confirmed the severity of the disease: Primary diagnosis was made as C60.8 Cancer of the penis. Clinical staging was established pT₄ N₃ M₀, Stage IV. The patient was stabilized and commenced on systemic therapy with oral Capecitabine 5000 mg for palliative control of the locally advanced disease.

DISCUSSION

In order to achieve the best results, penile cancer, a rare disease, requires timely medical and surgical intervention as well as patient cooperation. The social stigma and

psychological effects of penile cancer typically cause a delay in the disease's manifestation. [1]

The major risk factors for the development of penile cancer in the above studied patients were smoking and HPV infection. According to the data collected, there were about 5 patients with lesions larger than 5cm and there were 4 patients who were associated with HPV infection. Penile cancer is thought to be associated with additional risk factors, such as phimosis and excess prepuce. According to research, prior circumcision can dramatically reduce the risk of developing penile cancer.[4]

Patients typically arrive with a palpable, visible erythematous lesion or ulcer, most frequently on the glans (about 50% of cases). These lesions frequently exist for a while before the patient seeks medical care. The prepuce (about 20%), prepuce and glans (about 10%), coronal sulcus (5%), and shaft (2%) are other regions. [5]

An induration, a painless lump, a growth resembling a wart, an ulceration, or an exophytic lesion are some possible presentations of the lesion. As the prepuce erodes, a foul odour and drainage from the lesion may develop. [3]

The clinical presentation in our patients varies, with induration to an exophytic lesion, causing itching, burning in the foreskin and presence of an ulceration of the glans or the foreskin while some patients had decaying and suppurative lesions. Pain was found much less frequent.

Penile cancer lymphatic metastases occur at the regional femoral and iliac lymph nodes. The lymphatics from the prepuce connect with those from the shaft's surface and drain into the superficial inguinal nodes. Lymphatics from the glans connect to those from the corpus cavernosum and spongiosum, creating a collar of channels at the base of the penis. These channels also drain into the superficial inguinal nodes. The superficial nodes drain into the deep inguinal nodes, which eventually drain into the pelvic nodes.[3] Out of the 22 patients we discussed in the case series, 10 patients

had inguinal lymph node metastasis (45.45%). Direct histologic evaluation of inguinal lymph nodes is the most reliable way to assess metastasis.[6]

The most frequent reason for medical consultation was the presence of a penile lesion (11 patients) while the other patients presented with multiple complaints. Two patients presented with groin pain, another two patients presented pain in the groin and the penis, and three patients with only penis pain.

In this group of patients, overall (2020-2024) survival rate was 50% where 11 patients were dead by January 2025.

CONCLUSION

Penile cancer is a rare disease despite excellent outcomes in localized tumour, locoregional and metastatic disease remain fatal disease with late diagnosis and high mortality. At present time, there no effective biomarkers that can be incorporated in diagnostic and therapeutic algorithm, despite large research efforts.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. J. Pineda-Murillo, G. Martínez-Carrillo, J. Torres-Aguilar, C. Viveros-Contreras, M. V. Schettino-Peredo, and T. C. Cuesta-Mejías, “Cancer du pénis papillaire exophytique,” *Progres en Urologie*, vol. 27, no. 10, pp. 564–566, Sep. 2017, doi: 10.1016/j.purol.2017.06.002.

2. P. Yuan, P. Xu, X. Li, L. Shi, and D. Song, “Advanced penile cancer with multiple metastases and self-amputation of penis: A rare case report,” *Urol Case Rep*, vol. 50, Sep. 2023, doi: 10.1016/j.eucr.2023.102528.
3. W. Da Lau, C. H. Ong, T. P. Lim, and C. Teo, “Penile cancer: A local case series and literature review,” *Singapore Med J*, vol. 56, no. 11, pp. 637–640, Nov. 2015, doi: 10.11622/smedj.2015174.
4. Zheng FF, Liang YY, Guo YS, Dai YP, Zheng KL. [Diagnosis and therapy for penile cancer: a report of 46 cases with literature review]. *Ai Zheng*. 2008 Sep;27(9):962-5. Chinese. PMID: 18799036.
5. Lubner MG, Marko J, Hu R, Kawashima A, Potretzke TA, Frazier AA, Whiting R, Udager AM. Malignant Neoplasms of the Penis with Radiologic and Pathologic Correlation. *Radiographics*. 2023 Aug;43(8): e230025. doi: 10.1148/rg.230025.
6. C. Protzel, A. Alcaraz, S. Horenblas, G. Pizzocaro, A. Zlotta, and O. W. Hakenberg, “Lymphadenectomy in the Surgical Management of Penile Cancer,” May 2009. doi: 10.1016/j.eururo.2009.02.021.

How to cite this article: K.A. Nethuki Akithma Kulasinghe, Bozhko Genadij Grigorievich, Abarrane Lourain Fernando, Mohammed Iqbal Fathima Hasna, Toby Glory Inyang. Management of Penile Cancer in Grodno Region; A Case Series. *Int. J. Sci. Healthc. Res.* 2026; 11(1): 65-72.
DOI: <https://doi.org/10.52403/ijshr.20260107>
