



Contemporary management of inguinal lymph nodes in squamous cell carcinoma of the scrotum: A case report and literature review

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ABSTRACT

Due to the rarity of scrotal squamous cell carcinoma (SCC), management of inguinal lymph nodes in scrotal SCC is largely extrapolated from management guidelines for penile SCC. This case report aims to enhance clarity on the management of inguinal lymph nodes in scrotal SCC. We recommend that for clinically node-negative patients, invasive techniques for lymph node sampling should be strongly considered and followed up with a radical inguinal lymph node dissection (ILND) where positive for lymph node metastasis. In the setting of clinically palpable lymph nodes which appear suspicious for metastasis on imaging, upfront radical ILND should be considered.

1. Introduction

Squamous cell carcinoma (SCC) of the scrotum is a rare entity. Hence, there is a lack of formal guidelines for the management of scrotal SCC, in particular the management of inguinal lymph nodes. Management is extrapolated from the guidelines for management of penile SCC. This case report seeks to enhance clarity in the management of inguinal lymph nodes in scrotal SCC.

2. Case presentation

Our patient is a 57-year-old gentleman with a past medical history of retroviral infection, and myeloradiculopathy with neurogenic bladder from cytomegalovirus neuritis.

He presented with extensive wart-like changes over the entire scrotal wall (Fig. 1) with a palpable right-sided inguinal lymph node. A punch biopsy revealed moderately differentiated cutaneous SCC. Computed Tomography (CT) scan of his abdomen and pelvis showed a scrotal tumour (Fig. 2) with right inguinal lymphadenopathy. A subsequent fluorodeoxyglucose (FDG) -positron emission tomography (PET) scan showed an FDG-avid right inguinal node in keeping with nodal metastasis (Fig. 3).

Following discussion in the multidisciplinary urology tumour board, he was recommended for upfront surgery. The patient underwent wide excision of the scrotal skin SCC with radical right inguinal lymph node

dissection (ILND) and modified left ILND.

Intraoperatively, extensive tumour was noted to be involving the entire scrotal skin with no involvement of the testes, which were preserved. There was an enlarged 2.5cm right inguinal lymph node superficial and superomedial to the saphenofemoral junction with no other enlarged inguinal lymph nodes. In view of the large scrotal skin defect, he underwent an advancement flap closure of the scrotal defect by the plastic and reconstructive surgery team.

Histopathologic examination revealed pT3N1 moderately differentiated scrotal SCC. Three out of nineteen right inguinal lymph nodes, and six out of seven left inguinal lymph nodes, were positive for metastatic SCC. After discussion again at the urology tumour board, he was deemed a poor candidate for adjuvant chemotherapy due to his comorbidities and borderline functional status. It was recommended that he undergo adjuvant radiotherapy to bilateral inguinal fields to reduce the risk of recurrence. He completed adjuvant radiotherapy (50Gy/25 fractions and 16Gy/8 fractions) four months postoperatively. The latest CT abdomen/pelvis scan ten months after surgery revealed stable post-surgical soft tissue thickening over bilateral inguinal regions. We plan to continue 3-monthly clinical examination, with periodic imaging, as per routine penile SCC surveillance.

3. Discussion

Although uncommon, scrotal SCC is the most common malignancy of

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Fig. 1. Clinical picture of patient's scrotal SCC.



Fig. 2. Scrotal tumour noted on CT scan of abdomen and pelvis.

the scrotum.¹ Guidelines on management of scrotal SCC are sparse due to the rarity of this condition. Its incidence is approximately 1 per 1 million males per year.² Management is therefore extrapolated from guidelines for the treatment of penile SCC. These involve wide local excision of the primary tumour with oncologic margins, complemented by a risk-stratified approach for staging and treatment of the regional lymph nodes.^{2,3} Management of the inguinal lymph nodes in scrotal SCC is controversial and recommendations have evolved over time. The approaches differ in prophylactic versus therapeutic management of inguinal lymph nodes.

While physical examination and cross-sectional imaging are critical for holistic evaluation, they are indeterminate for ascertaining the presence of lymph node metastasis in cases of invasive scrotal SCC.⁴ Invasive lymph node sampling is therefore essential. Historically, some authors advocated for upfront prophylactic bilateral radical ILND in patients with clinically palpable inguinal lymphadenopathy to eradicate

any risk of micrometastasis. Subsequently, data suggested that only 50% of patients with inguinal lymphadenopathy were positive for inguinal metastasis, questioning the need for routine radical ILND and its associated morbidity, in such patients without biopsy-proven evidence of metastasis.⁴

As such, a contemporary algorithm in the management of the inguinal lymph nodes in scrotal SCC involves a risk-stratified approach, seeking to achieve oncologic clearance while minimizing the morbidity associated with radical ILND where possible. As guidelines for management of regional lymph nodes for penile SCC are organized according to clinical node status, this discussion shall do the same.

In patients with clinically normal inguinal lymph nodes (cN0), guidelines for penile SCC advocate using invasive lymph node staging in intermediate and high risk cases, as micro-metastatic disease occurs in up to 30–75% of such cases.³ For scrotal SCC, invasive staging methods such as inguinal sentinel lymph node biopsy (SLNB) have been described, followed by radical ILND if SLNB is positive for metastasis.⁵ Modified ILND is also listed as an alternative for patients with penile SCC and clinically normal lymph nodes. Ipsilateral radical ILND is then indicated if lymph node metastasis is detected. Both of these techniques can reduce the morbidity one suffers from radical ILND, while also being able to possibly identify patients with early occult disease with reasonably low false negative rates.

In patients with scrotal SCC who have clinically palpable inguinal lymph nodes, metastatic lymph node disease is highly likely. Guidelines for penile SCC recommend surgical removal of these lymph nodes with radical ILND. In clinically doubtful cases, ultrasound-guided fine needle aspiration cytology can be considered first. Additionally, staging with CT scan of the pelvis or PET-CT scans should be performed to assess for metastasis to inguinal and pelvic lymph nodes. In our patient, an upfront radical right ILND was performed in view of his clinically palpable right inguinal lymph node in conjunction with an FDG-avid right inguinal lymph node on PET-CT.

4. Conclusion

A risk-stratified approach has to be taken to achieve a balance between ensuring oncologic clearance for lymph node metastasis versus sparing patients the morbidity of a radical ILND where permissible. In clinically node-negative patients, invasive techniques for lymph node sampling should be strongly considered and followed up with a radical ILND where positive for lymph node metastasis. In the setting of clinically palpable lymph nodes which appear suspicious for metastasis on imaging, upfront radical ILND should be considered. Such patients should always be managed in a multidisciplinary manner to ensure best patient outcomes.

Author contributions

Jonathan Kit Ray Chet gathered the patient's clinical information and images, researched the literature and wrote the first draft of the manuscript. All authors were involved in reviewing and editing the manuscript.

Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series.

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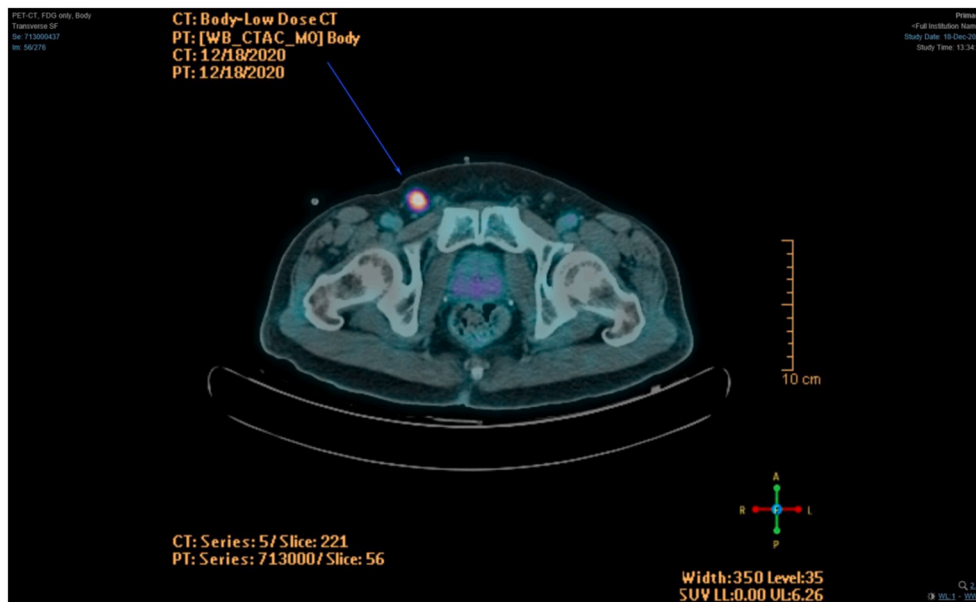


Fig. 3. FDG-avid inguinal lymph node on PET-CT.

Informed consent

Written informed consent was obtained from the patient for their anonymised information to be published in this article.

Declaration of competing interest

The authors declare that there is no conflict of interest.

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