

Ultrasound-Guided Dorsal Penile Neurolysis for Malignant Priapism Pain Management



To the Editor:

Malignant priapism is a rare, painful condition typically associated with advanced disease and a poor prognosis.¹ Palliative pain treatment includes opioids and adjuvant analgesics, and in selected cases, systemic chemotherapy, radiotherapy, local excision, or surgical management. There are few published cases of this condition, and best pain management practices are yet to be defined. We present a complex case of melanoma-related malignant priapism in which a minimally invasive technique—ultrasound-guided dorsal penile nerves neurolysis—yielded good results. This is, to our knowledge, the first report of such a method.

Case Report

A 63-year-old man was diagnosed four months earlier with a plantar melanoma, nodal disease (inguinal, retroperitoneal lymph nodes), and pulmonary metastases. The patient had declined chemotherapy and was receiving best supportive care by a palliative care team. He presented to the emergency department with painful malignant priapism and required surgical management by the hospital urology team. A surgical shunt was performed, and macroscopic cavernous tumoral invasion was confirmed. Despite partial detumescence, severe localized pain, described as 9/10 on a numeric rating scale (NRS), persisted and continuous IV morphine was titrated up to 90 mg daily, without sufficient relief (NRS 7/10). Rotation to methadone was tried but led to unacceptable sedation.

The patient had an ECOG 4 performance status, and he and his family asked for better pain relief. Several strategies were discussed with his caretakers. Owing to his frailty and anticipated short life expectancy, an ultrasound-guided dorsal penile nerves neurolysis was offered, and informed consent was signed.

The procedure was performed by a palliative medicine physician using standard noninvasive monitoring. A high-frequency linear ultrasound transducer (SonoSite Edge, SonoSite, Bothell, WA) was placed transversally on the penis root, and the dorsal penile artery Doppler signal was detected (Fig. 1). Using aseptic technique, a 22G × 2.54 cm needle was placed with an out-of-plane view precisely in each dorsal penile nerve, avoiding vascular structures. After negative

aspiration, 1 mL of 8% phenol was injected perineurally. This produced an immediate “warm sensation” and was followed by progressive shaft anesthesia. The day after, the patient described minimal residual pain (NRS 1/10) and no local reaction was noted. The systemic morphine dose was reduced 50%. Pain relief continued until the patient expired from disease progression two months later.

Comment

Malignant priapism is a term first used by Peacock in 1938 to describe persistent, nonsexual erections caused by invasion of malignant cells into the cavernosal sinuses and their associated venous systems. This condition is a rare type of ischemic (low flow) priapism that requires prompt attention due to severe symptoms.^{2,3} Clinical evidence of penile involvement in a patient with a known malignancy is an ominous sign and should alert the clinicians to a dismal prognosis.^{1,4} Only a few cases of malignant priapism have been reported in patients with melanoma.^{4–6}

The pathophysiology of malignant priapism includes the blockade of the mechanism of detumescence of the corpora cavernosa by tumoral emboli. This neoplastic invasion into the cavernous sinuses and venous system cause a complete blockage and a consequent unrelenting erection. Other low-flow mechanisms include venous stasis and thrombosis, with possible nervous system disturbances.²

The pain from malignant priapism requires systemic analgesic therapy, as recommended by cancer pain management guidelines. The development of adverse drug effects during dose titration may prevent adequate pain relief. In these cases, other strategies, such as neurolytic blocks, may be considered.^{7–9} Neurolytic techniques are reserved for end-of-life care, as these are associated with a risk of neuritis and pain recurrence; these adverse effects were not observed during the two months before our patient expired.

Regional minimally invasive techniques may help when the nerves innervating the painful region are technically accessible. Ultrasound guidance allows more precise procedures and reduction of injected volumes. Real-time ultrasound allows identification of penile urethra superficially, both cavernous bodies, the dorsal veins, and the dorsal arteries laterally alongside dorsal penile nerves (Fig. 1). A successful block requires the precise placement of a neurolytic solution close to the dorsal penile nerves responsible for penile shaft innervation.

This case illustrates the problem of painful malignant priapism and suggests that ultrasound-guided

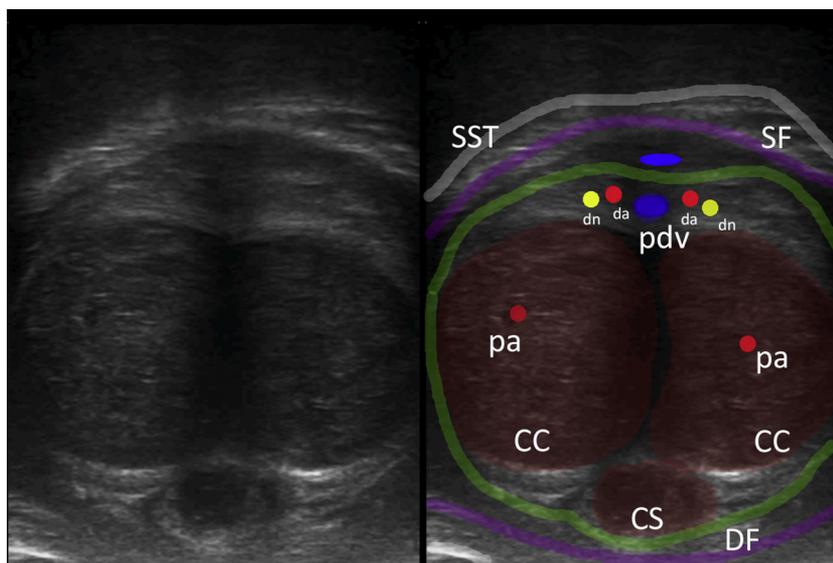


Fig. 1. Preprocedural transverse scan. High-resolution ultrasound of the penis shaft. Relevant structures were recognized before the procedure. dv = dorsal penile veins; Dn = dorsal penile nerves; da = dorsal penile arteries; pa = penile arteries; CC = corpora cavernosa; CS = corpus spongiosus; FP = deep fascia; SF = superficial fascia; SST = skin and subcutaneous tissue.

dorsal penile nerves neurolysis is a minimally invasive technique that may be useful in rare cases when pain control is not possible by noninterventional means. Pain and palliative medicine physicians should consider such an approach in selected cases with a short-term prognosis.

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<https://doi.org/10.1016/j.jpainsymman.2018.10.501>

Disclosures and Acknowledgments

Both authors declare they do not have any conflicts of interest relevant to this present manuscript. Neither Dr. Carvajal nor Dr. Rocha has received benefits such as employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications, travel grants that suppose a conflict of interest for the present manuscript. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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