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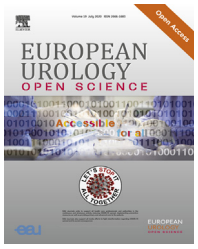

European Association of Urology

Brief Correspondence

Practice Patterns Among Penile Cancer Surgeons Performing Dynamic Sentinel Lymph Node Biopsy and Radical Inguinal Lymph Node Dissection in Men with Penile Cancer: A eUROGEN Survey

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Abstract

Dynamic sentinel lymph node biopsy (DSNB) and radical inguinal lymph node dissection (ILND) are important in the management of penile cancer patients, but high-level evidence for preoperative, perioperative, and postoperative management remains scarce. According to an online survey of 35 surgeons from ten European countries, 57% perform >10 ILND procedures per year and 86% offer DSNB. Furthermore, management differs substantially for dye injection site, use of lymphoscintigraphy, preferred incision sites, techniques for lymphatic control, duration of empiric antibiotic therapy, perioperative thromboprophylaxis, time points for drain removal, and definition of the ILND dissection floor. Consensus was observed for the use of perioperative antibiotics (although not duration and type) and the borders for ILND template definitions. We conclude that there is significant variation in patient management among eUROGEN penile cancer surgeons. This heterogeneity may confound multicentre studies; therefore, a consensus to standardise inguinal node management in penile cancer across European penile cancer centres is warranted.

Patient summary: Our survey reveals that preferences and surgical techniques for inguinal lymph node sampling and removal varies significantly between European penile cancer surgeons. Consensus is needed to standardise the management approach for penile cancer.

Dynamic sentinel lymph node biopsy (DSNB) and inguinal lymph node dissection (ILND) are essential components in the management of penile cancer patients [1]. The presence of metastatic disease in inguinal lymph nodes (ILNs) is the most important prognostic indicator [2]. Early removal of ILNs with metastatic disease is important, as most patients can still be cured with ILND at this early stage. However, ILND and, to a much lesser extent, DSNB are accompanied by high morbidity, and clinical studies to decrease the treatment burden are needed [3–7]. The European Reference Network on urogenital diseases and conditions (eUROGEN) was formed as an EU initiative to deliver

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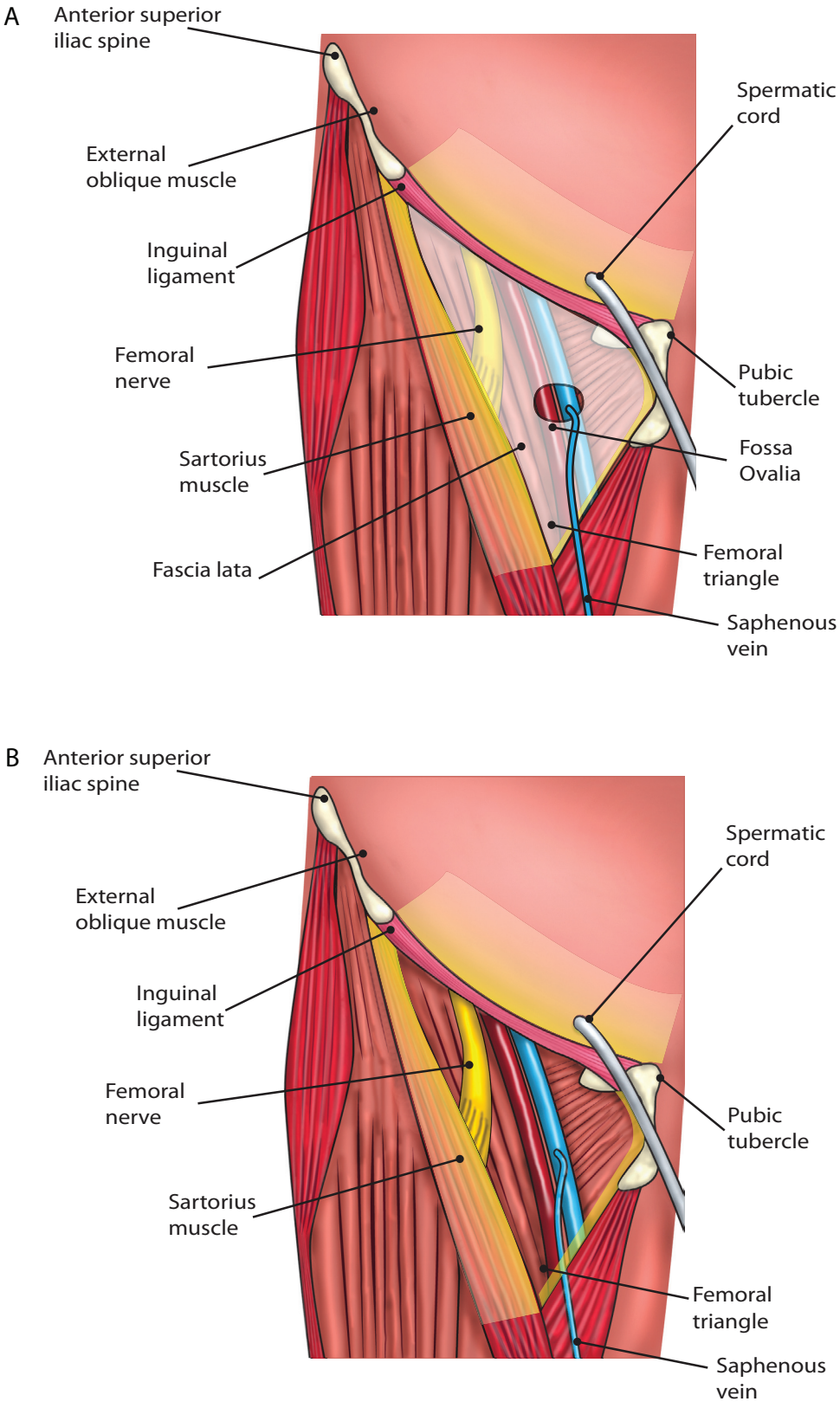

Fig. 1 – Surgical template boundaries of inguinal lymph node dissection according to most participating surgeons (A) with and (B) without fascia lata sparing. The cranial boundary was defined as the inguinal ligament by 66% of the surgeons, whereas 33% advocated for resection of tissue cranial to the inguinal ligament with varying extension of between 2 cm and 5 cm. Moreover, 83% defined the inferior boundaries as the apex of the femoral triangle, in addition to using several other definitions. The lateral boundary was defined as the sartorius by 77%, with more detailed definitions including the medial or lateral border of the sartorius. The medial border was defined as the adductor longus according to 77% of the participating surgeons. The template base was defined according to the femoral vessels or sheet (54%), above the fascia lata (18%), below the fascia lata (14%), or the underlying "muscles" (14%), and the fascia lata was resected by 74% of the surgeons. Finally, 49% ligated the saphenous vein and 63% dissected the femoral vessels.

specialist evaluation and equitable access to high-quality diagnosis, treatment, and care for patients across the EU with rare urogenital diseases. Multicentre studies allow collaborative data to be accrued and used to potentially guide best practice. Penile cancer is rare and differences in management may confound the results of multicentre studies. We therefore sought to determine current practice patterns in the investigation and treatment of penile cancer among eUROGEN penile cancer surgeons.

An online survey was distributed to surgeons identified as penile cancer experts, including members of eUROGEN. The survey consisted of sections on demographic data for the participating surgeons; annual case load; preoperative, perioperative, and postoperative management of DSNB and ILND; and definitions of surgical templates for ILND.

The survey was completed by 35 surgeons in ten European countries, including 20/35 surgeons (57%) performing >10 ILND procedures per year and 30/35 who offer DSNB (86%; Table 1). Consensus was defined as 70% agreement, as in prior studies and consensus method research [8].

The median radiopharmaceutical dose is 80 MBq (range 40–150) for 2-d and 40 MBq (range 20–100) 1-d DSNB protocols. The radiopharmaceutical injection site was reported as the base by 4/25 respondents (16%), the shaft by 14/25 (56%), and the peritumour area by 7/25 (28%). Preoperative imaging includes lymphoscintigraphy (11/25; 44%) and single-photon emission computed tomography (14/25; 56%). Injection sites for patent blue dye include the base (6/24; 25%), shaft (15/24; 62.5%), and peritumour (3/24; 12.5%). The median volume injected was 1 ml (range 0.4–2).

Perioperative antibiotics are given in 20/25 centres (80%). Incision sites for DSNB include suprainguinal sites (6/24; 25%), infrainguinal sites (5/24; 21%), and the area with the highest signal (13/24; 54%). Lymphatic control is achieved using titanium clips (12/25; 48%), ties (5/25; 20%), monopolar (3/25; 12%) or bipolar diathermy (3/25; 12%), and ultrasonic (1/25; 4%) or advanced bipolar (1/25; 4%) devices.

Postoperative drainage is used by 2/12 surgeons (17%), and 11/24 centres (46%) discharge patients on the same day as the DSNB procedure. Empiric antibiotic prophylaxis is continued in 3/25 centres (12%), and one centre (4%) prescribes extended thromboprophylaxis after discharge following DSNB.

The superior boundary is the inguinal ligament for 20/30 surgeons (66%), whereas 10/30 (33%) resect tissue 2–5 cm cranial to the inguinal ligament (Fig. 1). The inferior boundaries include the apex of the femoral triangle, reported by 25/30 surgeons (83%); other definitions included: 7–10 cm below the foramen ovale ($n = 2$), 6 cm below the long saphenous vein ($n = 1$), 8 cm below the inguinal ligament ($n = 1$), and 20 cm below the anterior superior iliac spine (ASIS; $n = 1$).

The lateral boundary included the sartorius (23/30; 77%), with more detailed definitions including the medial (3/23) or lateral border (4/23) of the sartorius. Further definitions for lateral borders included a 20-cm vertical line from the ASIS ($n = 2$), 8–10-cm lateral from the foramen ovale ($n = 1$), lateral from the foramen or femoral vessels ($n = 3$), and the tensor fascia lata sheath ($n = 1$).

Medial border definitions include the adductor longus (23/30; 77%) and the pubic tubercle (5/30; 17%). The template base was defined as the plane of the femoral vessels (15/28; 54%), above the fascia lata (5/28; 18%), below the fascia lata (4/28; 14%), or “muscles” (4/28; 14%). The saphenous vein is ligated by 17/35 surgeons (49%), the fascia lata is resected by 26/35 (74%), and the femoral vessels are dissected by 22/35 (63%).

All participating centres primarily perform open ILND; however, three centres reported having experience with either laparoscopic or robot-assisted laparoscopic ILND. For minimally invasive ILND, the median number of ports used is three (range 2–5). Perioperative antibiotic therapy is

Table 1 – Topics with and without consensus from the eUROGEN survey

Topics with consensus	Topics without consensus
Dynamic sentinel lymph node biopsy	
Need for perioperative antibiotic	Amount and injection sites for the radiopharmaceutical
	Preoperative imaging to localised sentinel nodes
	Volume and injection sites for the patent blue dye
	Preferred incision site
	Lymphatic control
	Postoperative drainage
	Length of stay
	Extended thromboprophylaxis
Radical inguinal lymph node dissection	
Inferior border of the template	Superior boundary of the template
Medial border of the template	Lateral boundary of the template
Need for perioperative antibiotic	Site of transverse incision
Transverse incision	Lymphatic control
Use of compression stockings	Postoperative drainage
	Drainage diameter
	Duration and choice of continued empiric antibiotics
	Drainage volume before removal of suction
	Drainage volume before removal of drain
	Length of stay

given in 28/28 centres (100%). Incision sites for open ILND were reported as infrainguinal by 18/28 centres (64%), suprainguinal by 8/28 (28%), within the inguinal crease by 1/28 (4%), and Lazy S by 1/28 (4%). Lymphatic control is achieved using a variety of techniques, including: ties; titanium clips; monopolar, bipolar and advanced bipolar diathermy; and ultrasonic devices. Drainage is used by 27/28 centres (96%) and closed suction by 25/28 (89%), with a median diameter of 14F (range 8F–10F). All but one surgeon close the wound with different varieties of sutures, whereas the latter routinely applies vacuum-assisted closure of the wound.

Full-length and below-the-knee compression stockings are used by 11/28 (39%) and 13/28 centres (46%), respectively. Moreover, empiric antibiotic therapy is continued by 18/28 centres (64%) with varying duration, including 1, 3, 5, 7, 10, and 21 d, or until discharge or drain removal. Removal of the vacuum is recommended at a median drainage volume of 35 ml/d (range 2–75) and drain removal without vacuum at a median drainage volume of 50 ml/d (range 0–100). Patients are discharged after a median of 4 d (range 1–10). Thromboprophylaxis after discharge is prescribed by 14/28 centres (50%) for a median duration of 28 d (range 3–28).

This study is the first European survey of differences in the practice patterns of penile cancer surgeons. This study is, however, limited by the survey design. Surgeons who are less interested in the subject of the survey are less likely to respond than those who are interested; therefore, the results do not reflect the entire target population. Furthermore, survey answers may also not truly reflect the actual practice of the respondents.

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Study concept and design: Fankhauser, Parnham, Sangar.
Acquisition of data: Ayres, Albersen, Watkin, Muneer.
Analysis and interpretation of data: Fankhauser, Parnham, Sangar.
Drafting of the manuscript: Fankhauser, Parnham, Sangar.
Critical revision of the manuscript for important intellectual content: Ayres, Albersen, Watkin, Muneer.
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