




# Alternatives of the pelvic sentinel lymph node migration pathway in early ovarian cancer: the simplest the best

Victor Lago <sup>1,2</sup>, Marta Arnaez <sup>1</sup>, Pablo Padilla-Iserte <sup>1</sup>,  
Alberto Rafael Guijarro-Campillo <sup>3</sup>, Luis Matute<sup>1</sup>, Marta Gurrea<sup>1</sup>, Pilar Bello<sup>4</sup>,  
Santiago Domingo <sup>1</sup>

<sup>1</sup>Department of Gynecologic Oncology, La Fe University and Polytechnic Hospital, Valencia, Spain

<sup>2</sup>Department of Gynecology, CEU Cardenal Herrera University, Valencia, Comunitat Valenciana, Spain

<sup>3</sup>Department of Obstetrics and Gynecology, Virgen de la Arrixaca University Hospital, El Palmar, Murcia, Spain

<sup>4</sup>Department of Nuclear Medicine, La Fe University and Polytechnic Hospital, Valencia, Spain

## Correspondence to

Dr Victor Lago, Department of Gynecologic Oncology, La Fe University and Polytechnic Hospital, Valencia, Spain; victor.lago.leal@hotmail.com

Accepted 18 October 2023

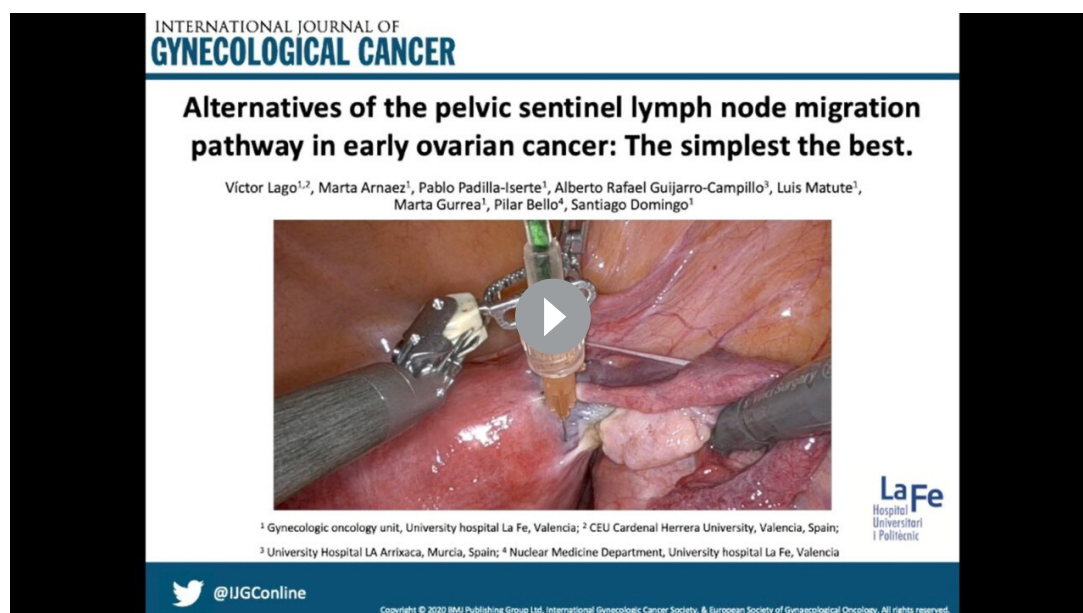
The sentinel lymph node technique in apparent early-stage ovarian cancer represents an emerging surgery, with increasing evidence published in recent years.<sup>1</sup> Lymphatic migration from the ovary is bidirectional, but after adnexectomy it becomes unidirectional towards the pelvic and aortic field. Although standardization is not fully established, double puncture after adnexectomy and confirmation of malignancy is the most reproducible technique as it can also be applied to re-staging cases.

In our experience,<sup>2,3</sup> there are some concerns regarding the utero-ovarian ligament injection that may lead to difficulties in its reproducibility. The retroperitoneum is usually opened during adnexal tumor resection, which can lead to a spread of the tracer. Even if protective maneuvers (eg, avoid retroperitoneum dissection, avoid leaving a gauze in the pouch of Douglas, sealing the point of injection, peritonization) are used to prevent extravasation of the tracer, the leak may

persist, and this impedes localization of the pelvic lymph node.

Cervix injection for pelvic sentinel lymph node detection is widespread and commonly used in gynecological oncology, which makes reproducibility of this technique more feasible.<sup>4</sup> Injections into the cervical and utero-ovarian ligament appear to identify the same pelvic sentinel lymph node, suggesting that the two injection sites are equivalent.

In this video the migration of a tracer from the cervix and from the utero-ovarian ligament towards the same sentinel node is showed. We present a patient with endometrial cancer (endometrioid G1, International Federation of Gynecology and Obstetrics (FIGO) IA) for whom a pelvic sentinel lymph node technique was proposed after informed consent was obtained for a prospective study carried out in our center (local ethics approval CEIM-IISLAFE 2022-790-1).

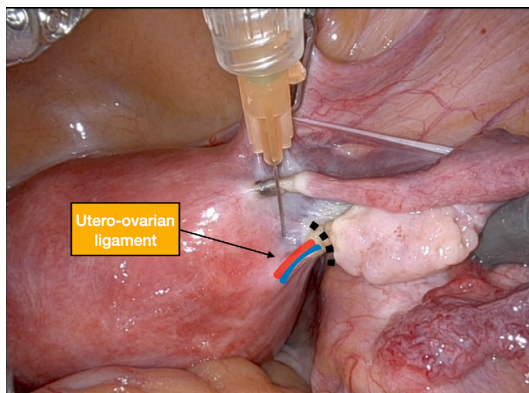


**Video 1** Video demonstration of double migration from cervix and utero-ovarian ligament to the same pelvic sentinel lymph node



© IGCS and ESGO 2023. No commercial re-use. See rights and permissions. Published by BMJ.

**To cite:** Lago V, Arnaez M, Padilla-Iserte P, et al. *Int J Gynecol Cancer* Published Online First: [please include Day Month Year]. doi:10.1136/ijgc-2023-004912



**Figure 1** Indocyanine green injection in the utero-ovarian ligament.

On the day before surgery, 0.5 mL of Tc-99 (6 mCi) was injected into the cervix at 6 and 9 hours. Subsequently, single photon emission CT combined with CT (SPECT-CT) images were acquired to corroborate the migration of the pelvic sentinel node (external iliac).

A robotic approach was used to perform the pelvic sentinel node technique, hysterectomy, and double adnexectomy. For indocyanine green injection, to reproduce unidirectional migration from the ovary to the pelvis, the utero-ovarian ligament is sealed with bipolar energy prior to injection (Figure 1). Then 0.5 mL of indocyanine green diluted to 1.25 mg/mL is injected into the utero-ovarian ligament.

Using a laparoscopic gamma probe, the location of the sentinel lymph node in the external iliac territory is confirmed. Fifteen minutes after the indocyanine green injection, migration to the same sentinel lymph node is visually verified.

## CONCLUSION

The lymphatic migration pathway of the cervix could be equivalent to that of the utero-ovarian ligament, representing a more reproducible alternative to the utero-ovarian ligament injection technique. Nevertheless, this

video represents a case report with preliminary results for a promising technique.

**Twitter** Alberto Rafael Guijarro-Campillo @RafaArgc777

**Contributors** All of the authors of the present manuscript declare that there are no conflicts of interest and have actively participated in the work providing input including: (1) Substantial contributions to conception and study design. (2) Drafting of the article. (3) Final approval of the version to be published. We declare we have no conflict of interest. VL and SD are the guarantors.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Consent obtained directly from patient(s)

**Ethics approval** This study involves human participants and was approved by local code: 2022-790-1 CICEIM IISLAFE. Participants gave informed consent to participate in the study before taking part.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Data are available upon request.

## ORCID iDs

Victor Lago <http://orcid.org/0000-0002-2971-1899>

Marta Arnaez <http://orcid.org/0000-0003-2706-7865>

Pablo Padilla-Iserte <http://orcid.org/0000-0003-0524-6213>

Alberto Rafael Guijarro-Campillo <http://orcid.org/0000-0002-2831-9975>

Santiago Domingo <http://orcid.org/0000-0002-8355-3369>

## REFERENCES

- 1 Agustí N, Viveros-Carreño D, Grillo-Ardila C, *et al.* Sentinel lymph node detection in early-stage ovarian cancer: a systematic review and meta-analysis. *Int J Gynecol Cancer* 2023;33:1493–501.
- 2 Lago V, Bello P, Montero B, *et al.* Clinical application of the sentinel lymph node technique in early ovarian cancer: a pilot study. *Int J Gynecol Cancer* 2019;29:377–81.
- 3 Lago V, Bello P, Montero B, *et al.* Sentinel lymph node technique in early-stage ovarian cancer (SENTOV): a phase II clinical trial. *Int J Gynecol Cancer* 2020;30:1390–6.
- 4 Uccella S, Garzon S, Bosco M, *et al.* Cervical versus utero-ovarian ligament injection of the tracer for the pelvic sentinel lymph node mapping in gynecologic oncology: a prospective observational study. *Gynecol Obstet Invest* 2022;87:242–7.