

Indocyanine green fluorescence imaging: an effective method to find inguinal sentinel lymph node in a case of vulvar carcinoma

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Abstract

The aim was to demonstrate that the technique of near infrared range/indocyanine green (NIR/ICG) could aid the detection of inguinal sentinel lymph nodes in patients with vulvar cancer, in addition to technetium-99m (Tc-99m) scanning. We present a case report of sentinel lymph node detection in a patient with vulvar cancer with two methods: Tc-99m scan and NIR/ICG. The video showed that bilateral inguinal lymph nodes were detected both by Tc gamma probe and NIR/ICG. NIR/ICG may be a safe and effective alternative method for identifying sentinel lymph nodes in cases of early-stage vulvar cancer, although more evidence is required. (J Turk Ger Gynecol Assoc 2023; 24: 291-2)

Keywords: Vulval carcinoma, indocyanine, radio tracer, sentinel lymph node

Received: 05 July, 2023 **Accepted:** 21 August, 2023

Introduction

The aim of the case shown in the video article (Video 1) is to demonstrate that the technique of near infrared range/indocyanine green (NIR/ICG) may aid in the detection of inguinal sentinel lymph nodes in patients with vulvar cancer, as an addition to the accepted method of technetium-99m (Tc-99m) scanning. The method has been evaluated in a few studies (1,2), but the results are not always conclusive about the preferred method to highlight sentinel lymph nodes. Therefore, we present a case report of sentinel lymph node detection in a patient with vulvar cancer with Tc-99m and NIR/ICG.

Case description

The patient was a Caucasian woman, 67-years-old, who had non-insulin dependent diabetes. In her obstetrical history, there was one late abortion at 20 weeks and one vaginal delivery at term, complicated by foetal death during labour.

She required a gynaecological visit for the presence of a verrucous exophytic lesion of 25 mm close to right side of the posterior fourchette and an exophytic lesion of 7 mm on the left labia minora (Figure 1). A biopsy of the lesion described a squamous verrucous carcinoma, human papillomavirus-independent, with 0.2 mm of stromal invasion (stage Ia1). The patient underwent a positron emission tomography scan, which described only these two focal vulvar hypermetabolic areas. Therefore, the patient was scheduled for a simple vulvectomy. During the preoperative period the lesions demonstrated rapid growth and we opted to plan a right radical vulvectomy and a simple left vulvectomy, associated with sentinel lymph node detection. Tc-99m-labeled nanocolloid was injected at the four cardinal points of the lesion the day before surgery. A ICG solution was injected as the first surgical step, a few minutes before vulvar incision, around the lesion.



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DOI: [10.4274/jtgga.galenos.2023.2023-4-11](https://doi.org/10.4274/jtgga.galenos.2023.2023-4-11)



Figure 1. Vulvar lesion

Bilateral inguinal lymph nodes were detected both by gamma probe and NIR/ICG (Figure 2, 3). After sentinel lymph node removal, vulvectomy was performed. The post-operative course was unremarkable.

The histopathologic diagnosis confirmed a grade 1 squamocellular vulvar carcinoma with no infiltration beyond the incisional margins to differentiate VIN. Bilateral inguinal lymph nodes were negative.

Conclusion

The mapping of sentinel lymph nodes may reduce surgery invasiveness in early-stage vulvar cancer and the use of a radioactive tracer is currently mandatory. Considering that this presented video demonstrated that inguinal lymph nodes were easily detected by both Tc-99m and NIR/ICG, we support the hypothesis that NIR/ICG may be a safe and effective alternative method for identifying sentinel lymph nodes in cases of early-stage vulvar cancer. The benefits of NIR/ICG include injection immediately prior to surgery and the absence of exposure to ionizing radiation. However, there isn't enough evidence of the equivalence of performance of the two methods and so further comparative studies are needed.

Video 1. <https://www.doi.org/10.4274/jtgga.galenos.2023.2023-4-11.video1>

Conflict of Interest: No conflict of interest is declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

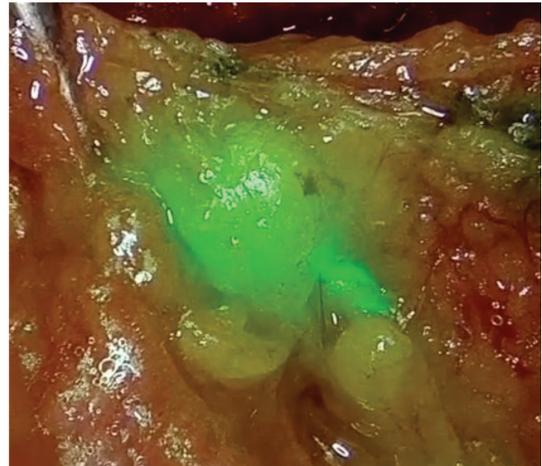


Figure 2. The sentinel lymph node identified by green indocyanine

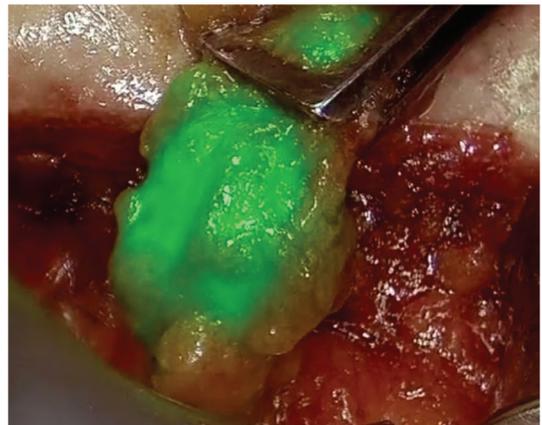


Figure 3. Sentinel lymph node removal, supported by the green indocyanine identification

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