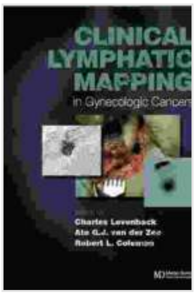
Clinical Lymphatic Mapping in Gynecologic Cancers



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by Charles Levenback

5 out of 5

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The lymphatic system plays a crucial role in the spread of cancer, as it provides a pathway for tumor cells to disseminate from the primary tumor to distant lymph nodes and organs. Accurate identification of the sentinel lymph node (SLN),the first lymph node that receives lymphatic drainage from a tumor, is essential for guiding surgical resection and determining the extent of disease. Clinical lymphatic mapping (CLM) is a surgical technique that uses dye and fluorescence to visualize and map the lymphatic drainage patterns of a tumor, enabling precise identification of the SLN.

Principles of CLM

CLM is based on the principle that lymphatic vessels follow predictable drainage patterns from the tumor to the regional lymph nodes. By injecting a dye or fluorescent agent into the tumor, surgeons can visualize and trace the lymphatic channels that drain the tumor and identify the SLN.

Techniques of CLM

There are two main techniques of CLM: blue dye mapping and near-infrared fluorescence (NIRF) imaging.

Blue Dye Mapping

In blue dye mapping, a blue dye, such as isosulfan blue, is injected into the tumor. The dye diffuses through the lymphatic vessels and accumulates in the SLN, which appears blue under direct visualization or ultraviolet light. This technique is relatively simple and inexpensive but can have limited accuracy in obese patients or in cases of complex lymphatic drainage.

NIRF Imaging

NIRF imaging uses a near-infrared fluorescent agent, such as indocyanine green (ICG),which is injected into the tumor. The ICG is absorbed by the lymphatic vessels and emits near-infrared fluorescence, which can be detected by a dedicated imaging system. NIRF imaging provides real-time visualization of the lymphatic drainage and can detect SLNs that are not visible with blue dye mapping.

Benefits of CLM

CLM offers several benefits in the management of gynecologic cancers:

- **Accurate SLN identification:** CLM enables precise identification of the SLN, which is crucial for guiding surgical resection and reducing the risk of leaving behind residual disease.
- **Improved staging accuracy:** Accurate SLN identification improves the accuracy of cancer staging, which is important for determining appropriate treatment options and prognosis.

- **Reduced surgical morbidity:** By limiting surgical dissection to the SLN and its draining lymphatic basin, CLM can reduce surgical morbidity and improve patient recovery.
- **Personalized treatment:** CLM provides valuable information about the extent of lymphatic spread, which can guide personalized treatment plans and optimize outcomes.

Limitations of CLM

CLM has some limitations:

- **Technical complexity:** CLM requires specialized surgical skills and equipment, which may not be available in all centers.
- **Time-consuming:** CLM can be a time-consuming procedure, extending the duration of surgery.
- **Potential for false negatives:** In some cases, the SLN may not be identified using CLM, which can lead to false-negative results.
- **Cost:** CLM can be a relatively expensive procedure, especially when using NIRF imaging.

Applications of CLM in Gynecologic Cancers

CLM has been used in various gynecologic cancers, including:

- **Endometrial cancer:** CLM helps identify the SLNs in endometrial cancer, which is essential for accurate staging and surgical management.
- **Ovarian cancer:** CLM assists in mapping the complex lymphatic drainage of ovarian cancer, guiding surgical resection and improving

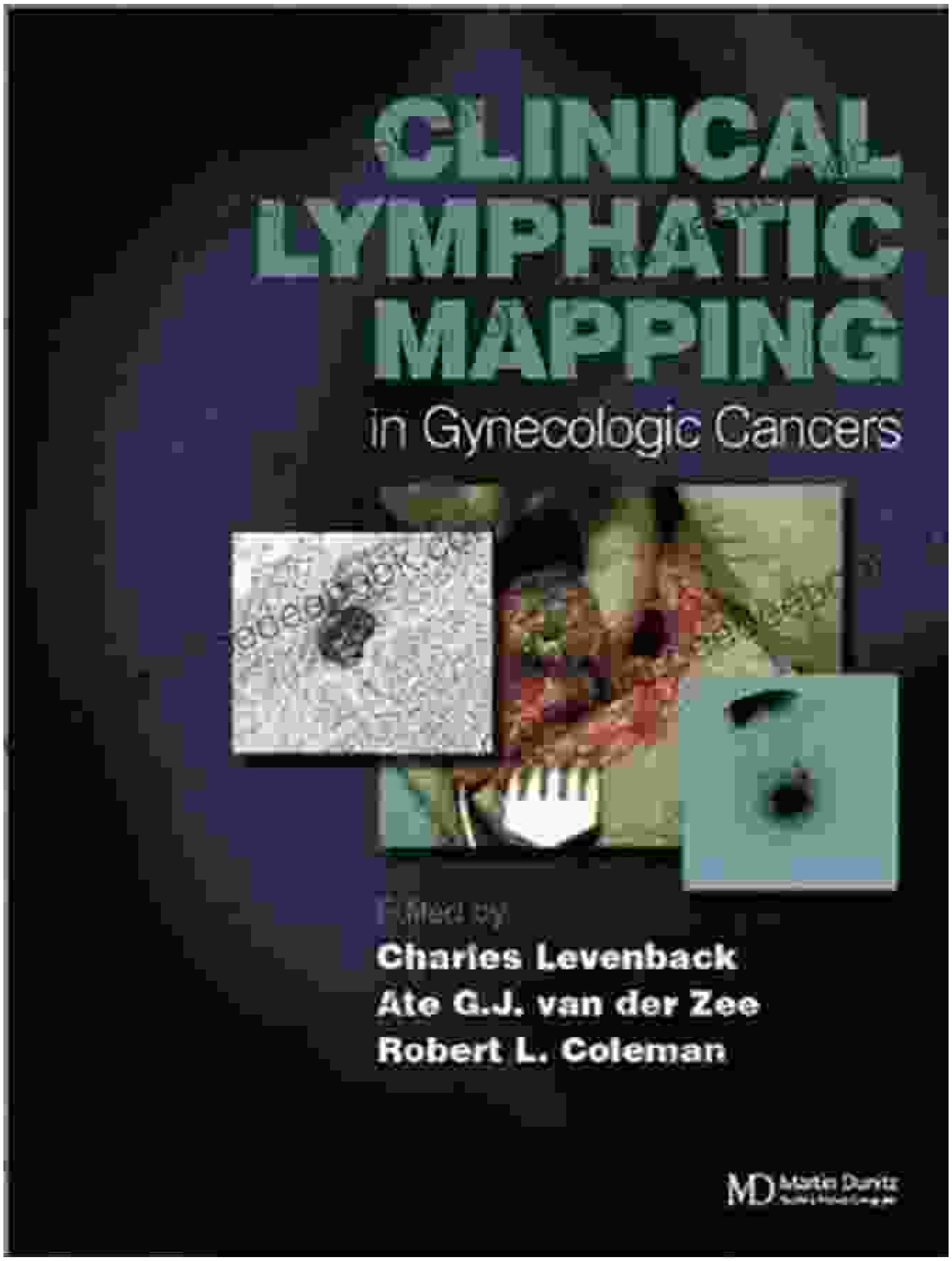
staging accuracy.

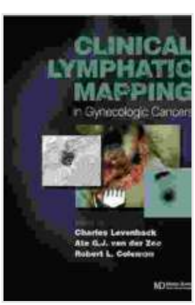
- **Cervical cancer:** CLM is used to identify the SLNs in cervical cancer, aiding in surgical planning and reducing the risk of recurrence.
- **Vulvar cancer:** CLM facilitates the detection of SLNs in vulvar cancer, guiding wide local excision and improving surgical outcomes.

Clinical lymphatic mapping is a valuable surgical technique that plays a significant role in the management of gynecologic cancers. By accurately identifying the SLN and lymphatic drainage patterns, CLM helps guide surgical resection, improve staging accuracy, reduce surgical morbidity, and personalize treatment plans. While certain limitations exist, ongoing research aims to refine CLM techniques and expand its applications in gynecologic oncology.

References

- Senturk T, Uckan S, Diker-Comak F. Role of lymphatic mapping in gynaecologic cancers. Int J Gynecol Cancer. 2022;32(10):1545-1555. :10.1136/ijgc-2022-003907
- Verschraegen CF, Van Nieuwenhuysen L, Van Acker K, et al. Clinical lymphatic mapping in gynecologic oncology: a systematic review. Ann Surg Oncol. 2017;24(13):3290-3301. :10.1245/s10434-017-6116-y
- Song H, Lavery H, Wang W, et al. Sentinel lymph node detection in gynecologic oncology: a systematic review and meta-analysis. Gynecol Oncol. 2021;160(1):183-192. :10.1016/j.ygyno.2020.08.030





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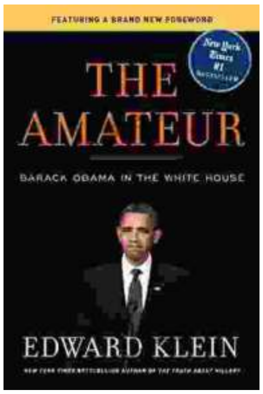

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