# ***Introduction***

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Endometrial carcinoma is the most frequent gynecologic malignancy in industrialized countries. In the United States 41.200 new cases of endometrial carcinoma and 7350 deaths were reported in 2006 **(Jemal et al, 2007).**

Lymph node status is the most important prognostic factor in the plan for further management and the need for adjuvant therapy in endometrial carcinoma **(Jobo et al., 2005)**. The 5-year disease free survival in stage I patients with positive pelvic LNs has been reported to be 54%, compared to 90% for those with negative LNs **(Lurain et al.,1991)**. Assessment of LN status has thus become the standard of care in surgical staging and plays a crucial role in decision making and further adjuvant therapies. Therefore the inclusion of pelvic and para-aortic lymphadenectomy in the surgical pathologic staging was developed by the International Federation of Gynecologists and obstetricians (FIGO) in 1988 **(Morrow et al, 1991)**.

Surgical treatment of endometrial cancer consists of total hysterectomy and removal of remaining adnexal structures. Systematic surgical staging in women considered at risk of extra-uterine disease is a widely accepted management strategy in the USA. However this approach has been criticized, especially in Europe, and an alternative method of treatment without surgical staging has been proposed. **(Creutzberg et al., 2004)** Unfortunately, there are no clear and widely accepted guidelines for selecting women who may potentially benefit from surgical staging. Moreover, the accuracy and the extent of the nodal dissection have not been standardized. This lack of standardization is reflected in the lack of uniformity of surgical treatment of endometrial cancer worldwide. **(Maggino et al.,1998)**

In the USA, they consider lymph node dissection a fundamental aspect of the surgical management of endometrial cancer. Lymphadenectomy is performed with the following aims: **Staging**: to document the extent of disease spread accurately, thus permitting comparative evaluations. **Therapeutic**: to treat in accordance with retrospective investigations that have suggested a therapeutic role for pelvic and para-aortic lymphadenectomy. **Diagnostic:** to determine the need for and extent of postoperative treatment.**(Mariani et al., 2006)**

The selection of risk factors for lymph node dissemination allows the identification of women who may potentially benefit from surgical staging, while it spares other women from the morbidity of lymphadenectomy. At Mayo Clinic, they demonstrated that the primary tumor diameter measured at surgery—together with the histologic subtype, grade and depth of myometrial invasion—allows the selection of low-risk women whose treatment can be safely managed with hysterectomy alone, avoiding the morbidity of lymphadenectomy. **(Mariani et al., 2000)**. Among women who presented with endometrioid histologic subtype, histologic grade 1 or 2, myometrial invasion of 50%, tumour diameter of 2 cm and no evidence of macroscopic tumor beyond the uterine corpus, neither positive lymph nodes nor lymph node recurrences were identified. None of the 123 women with these characteristics died of disease at 5 years, independent of the type of surgical treatment or the administration of postoperative radiotherapy. Only 3 recurrences (2%) were detected all 3 were localised on the vaginal vault and were cured with radiotherapy **(Bakkum et al., 2008)**.

Issues include whether or not lymphadencetomy should be done in apparently early stage uterine carcinoma and to which extent of nodal dissection shoud be done. Some consider the complete evaluation of

nodal status is mandatory. Others have questioned the clinical utility, especially in those with low risk of nodal involvement **(Yokoyama et al., 1997).**

This is highlighted by the wide variation in clinical practice. Survey study was conducted in different countries and found that only 24% of gynecological oncology centers in Western Europe performed routine lymph node dissection while up to 54% of centers in North America did so **(Maggino et al., 1998).**

In poorly differentiated carcinoma invading the whole myometrium, metastatic involvement of pelvic lymph nodes is 34% and paraaortic lymph node involvement is 23%. Thus in at least more than 66% of the patients, no benefit can be derived from lymphadenectomy **(Hacker, 2005).**

Alternative modes for assessing the status of pelvic lymph nodes, including imaging techniques have not yet equaled the gold standard method namely histological examination of nodes from the pelvic dissection specimen **(Manfredi *et al.*, 2004).**

Lymphatic mapping with sentinel lymph node (SLN) biopsy has emerged as an alternative to pelvic lymphadencetomy to reduce the morbidity of this procedure **(Burke *et al.*, 1996).**

The concept of SN biopsy is based on two basic principles: First, the existence of an orderly and predictable pattern of lymphatic drainage to a regional lymph node basin. Second, the functioning of a first lymph node as an effective filter for tumor cells. These nodes (or node) are the sentinel lymph nodes and are predictive of the local nodal network. **(Jobo et al., 2005).**

Therefore, the identification of sentinel lymph nodes and their histological status can be used to determine the extent of nodal dissection required **(Frumovitz *et al.*, 2007).**