

## Stage II endometrial carcinoma: Limiting post-operative radiotherapy to the vaginal vault in node-negative tumors

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Received 27 December 2004

Available online 7 July 2005

### Abstract

**Objective.** To evaluate the outcomes of patients with node-negative stage II endometrial cancer who received vault brachytherapy without external beam pelvic radiotherapy (EBRT).

**Methods.** A retrospective review of all stage II endometrioid type endometrial cancer patients referred to Cancer Care Manitoba was undertaken between October 1995 and March 2001. Forty-nine patients were identified with disease confined to the uterus, but not all patients received extended surgical staging (ESS) with pelvic lymphadenectomy. These patients were evaluated for recurrence and morbidity data.

**Results.** Twenty node-negative stage II cancers were identified. Three were treated without adjuvant treatment, 12 received vault brachytherapy and 5 received more conventional treatment with EBRT and vault brachytherapy. No recurrences or deaths occurred in these patients. Mean follow-up was 40 months. No surgical complications were encountered in this group and no morbidity from radiotherapy was observed.

**Conclusions.** Limiting adjuvant treatment to vault brachytherapy for node-negative stage II endometrial cancer results in less morbidity and excellent survival and is worthy of further investigation.

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**Keywords:** Brachytherapy; Endometrial adenocarcinoma; External beam pelvic radiotherapy; Lymphadenectomy

### Introduction

Endometrial adenocarcinoma is the most common gynecologic malignancy in North America. There is, however, little prospective randomized data to help clinicians guide management. Both surgical and adjuvant management in endometrial cancer is subject to great controversy.

Stage II disease represents approximately 11% of all endometrial cancer [1]. Because stage I disease is by far more common, independent prognostic factors for stage I

disease (deep myometrial invasion, grade, lymphovascular space invasion) have been extrapolated into stage II disease. Extent of disease within the cervix itself is also believed to be a prognostic factor [2].

Traditionally, stage II cancers of the endometrium are managed with post-operative external beam radiotherapy and vault brachytherapy. Recently, reports have surfaced that indicate that, when appropriately staged with lymphadenectomy, endometrial cancer confined to the uterus can be managed with vault brachytherapy alone [3–5]. We have also demonstrated that high-dose-rate (HDR) brachytherapy administered after total abdominal hysterectomy (TAH) and bilateral salpingo-oophorectomy (BSO) is adequate treatment for node negative stage IC tumors [6]. Given our success with high risk stage I disease, and the growing

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reports toward more conservative management, we questioned whether adjuvant radiotherapy could be limited to HDR vault brachytherapy in stage II disease as well.

The purpose of this study was to evaluate the outcomes of patients with node-negative, cytology-negative stage II endometrioid endometrial carcinoma who received HDR vault brachytherapy without external beam pelvic radiotherapy. We also sought to compare these outcomes with patients within the same time frame with similar disease, managed by the same gynecologic oncologists, who received the more traditional management.

## Methods

A retrospective review was carried out of all patients with endometrial cancer that were referred to Cancer Care Manitoba between October 1, 1995 and March 1, 2001. These dates were chosen because prior to October 1, 1995, low-dose-rate brachytherapy was used and after this date our center changed to HDR brachytherapy. After March 1, 2001, adjuvant external beam pelvic radiotherapy recommendations changed, reducing the doses from 5000 cGy to 4500 cGy. Thus, management protocols during the study period were completely uniform. Ethics approval was obtained from the institutional review board of Cancer Care Manitoba.

Only patients with disease confined to the uterus, with endocervical or cervical stroma extension were included. Exclusion criteria were positive washings/nodes, non-endometrioid histology (sarcoma, clear cell or papillary serous adenocarcinoma), and synchronous ovarian or cervical malignancy.

All but two patients underwent total abdominal hysterectomy (TAH) and bilateral salpingo-oophorectomy (BSO) and pelvic node sampling. The remaining two patients underwent vaginal hysterectomy, both of whom were morbidly obese; one patient was 81 years of age and the other had a pre-operative diagnosis of complex hyperplasia with atypia. Selective pelvic lymphadenectomy was carried out by removing all or most tissue from the external iliac artery and vein, from the bifurcation of the iliacs to the deep circumflex vein; as well, tissue was removed from the obturator space above the obturator nerve. In no cases was para-aortic lymphadenectomy included, as this is not standard protocol in our center. The operating surgeon was either a gynecologic oncologist or a general gynecologist. All pathology was reviewed by pathologists in our tertiary care facility.

During the study period, vault brachytherapy was performed in a high-dose-rate manner (HDR). Patients were treated 6 weeks post-operatively with three fractions over the course of 8 days for a total dose of 1680 cGy. This is approximately equivalent to an LDR surface dose of 4000 cGy (the LDR dose used in our center, prior to conversion to HDR) as calculated by our radiation oncologist. This was

carried out in the HDR suite in the lithotomy position, without sedation. A pelvic examination was performed before the first application and the largest possible vaginal cylinder (range 2.5–4.0 cm) was placed in the vaginal vault. An Iridium-192 source was used to deliver a homogeneous dose of 560 cGy to a depth of 0.5 cm along the vaginal apex and approximately 4 cm of the vaginal vault. A standardized prescription was used for each applicator size. This protocol was strictly adhered to in each case.

Determination of adjuvant radiotherapy was not standardized, and was decided upon by the gynecologic oncologist reviewing each individual case. The use of vault brachytherapy alone was not management protocol for stage II endometrial cancer during the study period, and the decision to proceed in this manner was individual, as influenced by our experiences with stage IC patients, and by surfacing literature.

Patients were followed every 3 months in the first 2 years, every 4 months in the third year and every 6 months for years 4 and 5. After 5 years of follow-up, most patients were discharged from clinic.

## Results

A total of 49 cases of stage II adenocarcinoma were identified. Of these, 26 had pelvic nodal sampling. In five of these patients, nodal sampling was inadequate (0,0,0.5,1,3 nodes, all performed by general gynecologists) and these patients were excluded from the primary analysis. The reasons to omit nodal sampling were obesity (13 of 23 cases, mean BMI 43.5), lack of surgical training for nodal dissection (4), unexpected diagnosis of cancer (1), vaginal hysterectomy (2) and unknown reason (1). In two cases, the uterus was opened intraoperatively and disease was thought to be superficially invasive and nodal dissection was not performed. Final pathology confirmed myoinvasion less than 50%; however, there was cervical extension (endocervical in one and stromal in the other).

Twenty-one surgical stage II patients were identified. Eight were stage IIA and 13 were stage IIB. None had gross cervical involvement pre-operatively. One of these patients refused recommended therapy and refused follow-up despite multiple telephone contacts. This patient is excluded from analysis for lack of meaningful data. Of the 8 IIA patients, 3 received no adjuvant therapy and the remaining 5 received vault brachytherapy alone. Of 12 stage IIB patients, 7 patients were treated with vault brachytherapy and 5 were treated with both vault and EBRT. All patients who received vault therapy alone had nodal dissections done by gynecologic oncologists, perhaps suggesting increased confidence in completeness of dissection. Patients with stage IIA disease were more likely to receive vault brachytherapy alone. Characteristics of these cases are listed in Table 1.

There were no recurrences or deaths in the 15 node-negative stage II cancers that were treated with vault

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